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THE ACANTHACEAE OF COLOMBIA, III

By Emery C. Leonard

INTRODUCTION

The remaining three tribes of the series Imbricatae, which are treated in this part of "The Acanthaceae of Colombia", are as follows:

11. Odontonemeae
12. Isoglosseae
13. Justiciceae

SYSTEMATIC TREATMENT

Subfamily 4. ACANTHOIDEAE (continued from Part 2)

Series B. IMBRICATAE

The following artificial key will separate the genera of the Series Imbricatae, which are treated in Parts II and III of this monograph.

Anthers with 2 fertile cells.

Stamens 4. 21. Asystasia
Stamens 2.

Staminodes present.

Corolla limb equally or subequally 5-lobed. 23. Pseuderanthemum
Corolla limb 2-lipped.

Bracts small and inconspicuous. 26. Odontonema
Bracts large and conspicuous. 22. Fachystachys

Staminodes absent.

Stems 6-angled; calyx subtended by two partially united bracts; placenta separating from the mature capsule valves. 25. Dicliptera
Stems subterete or subquadrangular; bracts distinct; placenta remaining attached to the capsule valves.
Costa and veins of the leaf blades conspicuously colored. 29. Fittonia
Costa and veins of the leaf blades not conspicuously colored.
Flowers borne in short spikes, these forming a congested head terminating the tips of the branches. 39. Chaetochlamys
Flowers variously disposed, if forming spikes these not contracted into a dense terminal head.
Corolla tube very slender, not exceeding 1 mm. in diameter. 28. Siphonoglossa
Corolla tube not noticeably slender, usually more than 1 mm. in diameter.

Anther lobes superposed, often obliquely affixed and at least the lower one apiculate or calcarate........36. Justi\textit{cia}
Anther lobes slightly, if at all, superposed, parallel, muticous.
Bracts large and brilliantly colored........32. Megaskepasma
Bracts, if large, not brilliantly colored.
Spikes 4-angled, the bracts quadrifarious, conspicuous, ciliate, cuspidate.................24. Tetramerium
Spikes, if present, not as above............38. Jacobinia

Anthers with 1 fertile cell.
Lower cell of anther vestigial.
Vestigial cell similar to the upper fertile cell but much smaller and sterile or in some species reduced to a short hairlike organ...40. Chaetothylax
Vestigial cell represented by a thin triangular wing...37. Peltecostemon
Lower cell of anther lacking.

Stamens 2.
Upper lip of the corolla relatively long and narrow.
Inflorescence spicate; lower lip of the corolla triangular, the tip acute and minutely trilobate............30. Kalbreyeriella
Inflorescence paniculate; lower lip of the corolla oblong-cuneate, with a rounded trilobate tip.............33. Habracanthus
Upper lip of the corolla relatively short and often lobelike.
Upper lip of the corolla abruptly bent, the corolla appearing obliquely truncate; flowers borne in a narrow spikelike raceme.

27. Baxi\textit{sea}

Upper lip of the corolla more or less erect, not abruptly bent; flowers borne in panicles.
Tip of the upper lip of the corolla 2-lobed......31. Syringidium
Tip of the upper lip of the corolla entire.
Panicles loose; corollas relatively long, the expanded portion oblong.

34. Hansteinia

Panicles dense and narrow; corolla short, the expanded portion subcylindric.........................35. Stenostephanus

Stamens 4.
Corolla lobes subequal, spreading.
Bracts pink or white; plants shrubby...........15. Neriacanthus
Bracts usually green; plants herbaceous........16. Stenandrium
Corollas 2-lipped.
Calyx 3-parted.............................19. Cyphacanthus
Calyx 5-parted.
Pollen grains spherical, the surfaces divided into tetragons......................18. Encephalosphaera

Pollen grains elongated, cleft.
Pollen grains with 3 longitudinal clefts, often with a pore in each cleft............................17. Aphelandra
Pollen grains with the clefts much broader and flatter (i.e., stave-shaped), each containing a pore......20. Rhombochlamys
Tribe 11. **ODONTONEMEEAE**


Lindau defines this tribe as having "Spangenpollen" (9 longitudinal ribs arranged in 3 groups, the middle one of each group broader than the flanking ones and containing a pore) and 2 or occasionally 4 stamens.

Subtribe 11a. **Diclipterinae**

Diclipterineae Lindau; Engl. & Prantl, Pflanzenf. IV, 3b: 287, 331. 1895.

Herbs or shrubs; flowers (in *Dicliptera*) subtended by 2 pairs or more of partly united bracts forming an involucre, the bractlets often indistinguishable; calyx of 4 or 5 segments, these usually hyaline or colored; corolla 2-lipped, the anthers 2- or 1-celled (2-celled in *Tetramerium* and *Dicliptera*); capsules 2- or 4-seeded, the placenta separating from the capsule walls at maturity. Of this subtribe 2 genera are represented in Colombia:

24. Tetramerium  
25. Dicliptera

24. **TETRAMERIUM** Nees

*Tetramerium* Nees in Benth. Bot. Voy. Sulph. 147. 1844. The epithet is from the Greek τετραμέρος, 4-parted, and refers to the closely imbricated quadrifarious bracts of the spikes. *Tetramerium* is a nomen conservandum, with the type designated as *T. polystachyum* Nees.

Fruticose or suffruticose; stems usually much branched, the pubescence often disposed in 2 opposite lateral lines; leaves sessile or petioled, the blades linear to ovate, entire, glabrous or pubescent; flowers borne in terminal or axillary 4-angled spikes, the bracts conspicuous, usually closely imbricate, opposite, ciliate, cuspidate at tip; calyx 4- or 5-parted, the segments ciliate; corollas infundibuliform to tubular, the tube straight or slightly curved, the upper lip entire or emarginate, the lower lip 3-lobed, the lobes nearly equal; stamens 2, included, the anther sacs slightly converging toward the apex, one a little longer than the other; capsules obovate, apiculate, contracted below into a solid base, usually hispid and 4-seeded (sometimes 2-seeded); seeds flattened, tuberculate or muricate.

About 25 species have been established in this genus. Its range extends from the southern United States to Colombia and Ecuador.

1. **Tetramerium nervosum** Nees

Type collected at Puna, near Guayaquil, Ecuador, by Sinclair. The specific epithet alludes to the strongly nerved bracts.

Branched suffrutescent herbs up to 1 meter high, the branches spreading, slender; stems subterete, pubescent to glabrate, the hairs white, spreading, up to 1 mm. long but usually shorter, sometimes disposed in two rows, the younger portions of the stems bearing numerous subpunctiform cystoliths, the bark, with age, separating into thin strips or shreds; leaf blades ovate, up to 6 cm. long and 3 cm. wide, acute to acuminate (the tip itself obtuse or acute, sometimes subapiculate), subcordate or rounded at base, the upper surface sparingly hirsute with ascending straight or curved hairs about 0.5 mm. long, the costa and veins (4 or 5 pairs) rather prominent and more or less puberulous with minute appressed hairs, the lower surface sparingly hirsute to glabrate; petioles slender, up to 2.5 cm. long, pilose (the hairs spreading, up to 1 mm. long) or the channel puberulous; spikes terminal, up to 20 cm. long or more, 2 cm. broad, the rachis densely hirsute to glabrate; bracts rotund-ovate to ovate, up to 12 mm. long and 9 mm. wide, short-acuminate and cuspidate (the tip

Figure 119.—*Teuomedium nervosum* Nees (a–c, Haught 4760; d–f, Pennell 4026): a, Tip of plant; b, bract; c, bractlet; d, corolla; e, valve of capsule; f, seed. (a, Half natural size; b–d, natural size; e, f, about twice natural size.)
more or less recurved, the cusp 0.5 to 1 mm. long), rounded or abruptly contracted below the middle to a subpetiolate base, sparingly hispidulous, the smaller hairs intermixed with white spreading or ascending ones up to 2 mm. long, the margins strongly hispid-ciliate, the hairs jointed, white, up to 2.5 mm. long, the costa and 2 pairs of lateral veins prominent; bractlets narrowly lanceolate, about 2 mm. long and 0.5 mm. wide at base, acuminate, hispid-ciliate; calyx lobes 4, linear-lanceolate, 2 to 3 mm. long, 0.5 mm. wide at base; corolla white or purplish white, 10 mm. long, essentially glabrous, the lips about 5.5 mm. long, the upper one oblong-obovate and emarginate, the lower lip 3-lobed, the lobes oblong-obvate, 5 to 5.5 mm. long and 1.5 mm. thick, minutely hisrate, the narrowed base about 2 mm. long; seeds 4, whitish to dark brown, flattened, 1.5 mm. long and 1.2 mm. broad, strongly papillose.

Plants of this species are variable in aspect. During the earlier stages they are leafy, the bark firm, and the spikes moderately long, varying from 2 to 5 cm. in length. With age the leaves usually drop, the spikes often elongate, and the bark parts from the stem in thin shreds.

Partial to thickets or open hillsides either in dry or damp situations. Limited apparently to low altitudes. Central America to northern South America.

Santander: Bucaramanga, Araque & Barkley 188.316 (US), 188.321 (US).

25. DICLIPTERA Juss.


Stems more or less hexagonal in cross section; leaf blades entire or undulate, mostly ovate, petiolate; flowers 1 to several, borne in often contracted cymes, these forming spikes or panicles subtended by an involucre of 2–4 pairs of conspicuous bracts; calyx 5-parted, hyaline; corollas narrow, slightly ampliate, the limb 2-lipped; stamens 2, the anther sacs often unequal, the longer one sometimes calcarate at base; staminodes none; capsules ovate or suborbicular, the placentae separating elastically from their walls and rupturing, on dehiscence, the cell wall of the capsule valve; seeds 2 or 4.
Nearly 300 species of this genus have been described from the tropical and temperate regions of the world. The species are easily recognized by the hexagonal stems and the flattened bracted reduced cymes.

**KEY TO THE SPECIES**

A. Bracts subtending the cymules narrow, cuneate. 
Flowers secund, borne in lax spikes, these forming large branched terminal panicles. 
Outer pair of bracts subtending the flowers subulate. 1. *D. assurgena*
Outer pair of bracts subtending the flowers oblong to oblong-spathulate, abruptly acute at tip. 2. *D. vahliana*
Flowers borne in peduncled or subsessile flattened compound cymes. 
Cymes loose, 3-parted, the peduncles slender, up to 4.5 cm. long.
3. *D. trianae*
Cymes compact, usually composed of 5 or more cymules, sessile or subsessile, crowded in dense axillary clusters.

B. Bracts subtending the cymules conspicuously ciliate, the hairs 0.75 to 1 mm. long.
C. Outer bracts subtending the cymules acute, not cuspidate; corollas 2 to 3 cm. long, often red. 
Capitula axillary; corollas 3 cm. long. 4. *D. sciaphila*
Capitula axillary and terminal, the uppermost aggregated; corollas 2 cm. long. 
Outer bracts of the cymules densely ciliate, 12 mm. long. 5. *D. uribei*
Outer bracts of the cymules sparingly ciliate, 15 mm. long. 6. *D. bogotensis*

C. Outer bracts subtending the cymules cuspidate; corollas usually light purplish, 1 to 2.5 cm. long. 
Leaf blades, at least the uppermost, obtuse or rounded, conspicuously mucronate. 7. *D. pilosa*
Leaf blades acute, subobtuse or acuminate, not conspicuously mucronate.

D. Stems hirtellous or pilosulous, the hairs 0.5 mm. long, the angles acute or narrowly winged, light greenish. 
Outer bracts subtending the cymules lanceolate, the cusp 1.5 mm. long, acute. 8. *D. caucensis*
Outer bracts subtending the cymules oblanceolate, subobtuse, the cusp 0.75 mm. long. 9. *D. conformis*

D. Stems sparingly pubescent or glabrate, the hairs 0.25 mm. long or less, the angles rounded. 
Outer bracts subtending the cymules thin, whitish except the tip, the posterior one about 9 mm. long 
10. *D. ochrochlamys*
Outer bracts subtending the cymules firm, green, except the whitish base, the posterior bract 13 mm. long. 
11. *D. cuatrecasasii*

B. Bracts subtending the cymules not conspicuously ciliate, or if so, the hairs mostly less than 0.5 mm. long.

E. Stems pilosulous or hirtellous, the hairs spreading or retrorsely curved.
Outer cymule bracts cuspidate.
Tip of the cymule bracts abruptly cuspidate. 12. *D. killipii*
Tip of cymule bracts gradually narrowed to cusp. 13. *D. driophila*
Outer cymule bracts acute or apiculate, not cuspidate.
Posterior cymule bract oblanceolate, 2.25 mm. at its widest part;
basal portion of the cymes yellowish green. 14. *D. garciae*
Posterior cymule bract lanceolate, 3.5 mm. at its widest part;
basal portion of the cymes green or greenish white.
Costa of smaller cymule bract bearing at least a few spreading
hairs up to 1.25 mm. long. 6. *D. bogotensis*
Costa of cymule bracts not long-pilose.
Lower surface of leaf blades glabrous or sparingly puberulous.
Corollas dull carmine, yellow in throat. 15. *D. ewanii*
Lower surface of leaf blades rather densely puberulous or sub-
tomentose.
Outer bract subtending the cymule subobtuse and apiculate. 16. *D. haughtii*
Outer bract subtending the cymule acute. 17. *D. koiei*

E. Stems glabrous or sparingly puberulous, the hairs minute, curved or
appressed.
Outer bract subtending cymule cuspidate. 11. *D. cuatrecasasii*
Outer bract subtending cymule acute, not cuspidate.
Nerves of the outer cymule bract prominent, hirtellous, intercostal
area subglabrous. 18. *D. danielii*
Nerves of the outer cymule bract obscure, the pubescence evenly
distributed.
Capitula mostly terminal, forming a rounded headlike thyrse.
19. *D. scandens*
Capitula mostly axillary, only the uppermost aggregated to form
a narrow spikelike thyrse.
Leaf blades large, up to 16 cm. long and 6 cm. wide, thin.
20. *D. sarcochroma*
Leaf blades smaller, up to 8 cm. long and 3 cm. wide, firm.
Inner surface of the outer bracts subtending the cymule
moderately to densely puberulous. 21. *D. hazenii*
Inner surface of the outer bract subtending the cymule
glabrous or sparingly hirtellous. 22. *D. inamoena*

A. Bracts subtending the cymes broad, ovate.
Posterior cymule bract up to 23 mm. long and 25 mm. wide.
Basal portion of peduncle below joint up to 15 mm. long, the cymes
usually 3-parted. 23. *D. megalochlamys*
Basal portion of peduncle below joint up to 5 mm. long, the cymes
2-parted. 24. *D. batilliformis*
Posterior cymule bracts up to 16 mm. long and 17 mm. wide.
Cymule bracts thin, rounded or obtuse and apiculate.
25. *D. sanctae-martae*

Cymule bracts firm, acute to obtuse.
Cymule bracts narrowed at base.
Stems and peduncles puberulous. 26. *D. rhombochlamys*
Stems and peduncles glabrous. 27. *D. nanodes*
Cymule bracts truncate or shallowly cordate at base.
Cymes solitary, mostly 2-parted. 28. *D. columbiana*
Cymes several, crowded in the axils; usually 3-parted. 29. *D. compacta*

1. *Dicliptera assurgens* (L.) Juss.
   *Justicia assurgens* L. Syst. Nat. ed. 10, 850. 1759. Type locality: Jamaica.
   The specific epithet is from the Latin "assurgere," to rise up, in allusion to the ascending stems.

Herbs up to 1 meter high; stems erect or ascending, up to 5 mm. thick toward base, hexagonal toward tip, sulcate, the angles narrowly winged, prominent, the internodes glabrous, the stipular lines bearing a few small hairs; leaf blades ovate, up to 5 cm. long and 2.5 cm. wide or the lowermost larger, all acute or short-acuminate at tip, narrowed at base and briefly decurrent on the petiole, both surfaces glabrous or the costa and lateral veins (4 or 5 pairs) bearing a few scattered hairs, the cystoliths rather prominent; petioles slender, up to 2 cm. long or more, the channel sparingly pubescent with small curved hairs; flowers usually solitary, more or less secund in lax spikes, these forming large terminal much branched panicles, the rachis glabrous or bearing a few minute scattered whitish disk-tipped hairs, the basal internodes 1 to 2 cm. long, the others successively shorter toward tip of branches, the branches of the panicles subtended by leaves similar to the main stem leaves but smaller, the flowers subtended by a pair of subulate bracts 1.5 mm. long and 0.5 mm. wide at base, glabrous or minutely ciliolate near base with papular hairs; involucre bracts 6, the two outermost lanceolate, 5 mm. long, 1 mm. wide at base, acuminate, puberulous, the papular hairs intermixed with a few typical ones about 0.25 mm. long, the margins of the bracts subhyaline, the 4 innermost segments lanceolate, 2.5 mm. long and 0.5 mm. wide, densely papillose, the papillae intermixed with occasional larger mushroom-like glandular hairs; calyx subhyaline, 2.5 mm. long, the segments triangular, 1 mm. long, acute, ciliate, the hairs about 115 μ long, the midrib of the bracts prominent, green; corollas red or orange-scarlet, finely pubescent, 3.5 cm. long, slightly curved, the tube 2 cm. long, 1.5 mm. broad at base, thence gradually enlarged to 6 mm. at mouth, the lips about equal, 1.5 cm. long and about 6 mm. wide at base, thence gradually narrowed to 1.5 mm. near tip, the upper lip erect, rounded and entire at tip, the lower lip recurved, 3-lobed at tip, the lobes low, about 0.75 mm. long, the middle one 0.5 mm. wide, the lateral ones somewhat narrower, all rounded; stamens reaching almost to the tip of the upper lip of the corolla, the filaments adhering to the dorsal portion of the tube to a distance of about 15 mm., minutely pilose, the hairs becoming less
numerous towards the tip, the anthers oblong, 2.5 mm. long and 1.5 mm. wide; capsules oval, 6 mm. long, 2.5 mm. wide, 1 mm. thick, the sides flattened, the basal portion solid and 1.5 mm. long, obtuse at tip, hirtellous, 2-seeded; seeds reddish brown, flattened, oval, about 2 mm. long and 1.5 mm. wide, the surface roughened, bearing numerous flat-tipped papilliform hairs; retinacula about 1 mm. long, subacute at tip.

Pastures, meadows, waste places in general. Partial to more or less damp sandy soil. West Indies and northern South America.


Magdalena: Río Frío, Santa Marta, Walker 1282 (US).

2. *Dicliptera vahliana* Nees

*Dicliptera vahliana* Nees in DC. Prodr. 11: 489. 1847. A number of isotypes are cited, the first mentioned being that of Bertero collected at Santa Marta, Colombia. The species was named in honor of Martin Vahl, a Swedish botanist of the 18th century and a student of Linnaeus. Vahl traveled extensively in the West Indies and northern South America.

Herbs up to 1 meter high; stems erect or ascending, hexagonal (the angles narrowly winged), drying green, thinly puberulous, the papular hairs interspersed with scattered amber or whitish disk-tipped ones; leaf blades oblong-lanceolate, up to 5 cm. long and 2 cm. wide or the lowermost larger, obtuse or short-acuminate at tip, apiculate, narrowed at base and decurrent on the petiole, both surfaces glabrous except the costa and lateral veins (4 or 5 pairs), these sparingly hirtellous with appressed hairs; petioles 1 to 1.5 cm. long, the channels hirtellous, the hairs 0.25 mm. long or less; flowers usually solitary, more or less secund in lax spikes, these forming large much branched panicles, the internodes glabrous or the uppermost thinly puberulous, the papular hairs interspersed with minute glandular ones, the branches of the panicle subtended by leaves similar to those of the main stem but smaller, the flowers subtended by a pair of triangular subulate bracts 1.5 mm. long and 0.75 mm. wide at base, glabrous; involucre bracts 6, the outermost pair oblong to oblong-spathulate, 3 to 4 mm. long, 1 mm. wide at base, abruptly acute at tip, puberulous, the papular hairs intermixed with scattered larger disk-tipped ones, the innermost bracts lanceolate, 2.5 to 3 mm. long, 0.5 mm. wide, acuminate, densely papular-puberulous; calyx subhyaline, 2.5 mm. long, campanulate, the segments triangular; 1 mm. long, 0.75 mm. wide, papular-puberulous or glabrous toward base; corollas red, finely pubescent (the hairs 0.25 mm. long), 28 mm. long, the tube 15 mm. long, 1.5 mm. broad at base, narrowed to 1 mm. at 1.5 mm. above base, thence enlarged to 5 mm. at mouth, the lips about equal, 12 mm.
long, the upper one erect, lanceolate, 6 mm. wide at base, gradually narrowed to 1.5 mm. near tip (the tip itself obtuse), the lower lip recurved, 4 mm. wide at base, gradually narrowed to 2 mm. near tip, the tip itself terminated by 3 low rounded lobes about 0.25 mm. long and 0.5 mm. wide; stamens partly enclosed by the upper lip of the corolla and reaching to its apex, the filaments minutely pilose toward base, the hairs retrorsely curved, about 0.25 mm. long, the anthers 2.5 mm. long and 1.5 mm. broad, bearing a few minute marginal hairs; capsules ovoid, 5 to 6 mm. long, 2.5 mm. broad, 1 mm. thick at base, narrowing to 0.5 mm. at tip, the solid stipitate basal portion 2 mm. long, the tip of the capsule emarginate and apiculate, the entire surface except the basal portion rather densely pubescent, the hairs retrorse, about 0.5 mm. long; seed light brown, oval, flattened, about 2 mm. long and broad, sparsely puberulous, the hairs papular and retrorsely barbed.

Vernacular names are "canilla de laura," and "canilla de golero" (Dugand & Jaramillo 2798).

*Dicliptera vahliana* is closely related to *D. assurgens*, but can be easily separated by its oblong spatulate outer pair of involucre bracts. In *D. assurgens* these are strictly subulate.

Fields, thickets and waste places in general. Southern United States to northern South America and in the West Indies. Occurs in low altitudes usually at or below 200 meters.


**3. Dicliptera trianae** Leonard, sp. nov.  

*Herba, caulibus rectis vel ascendentibus, subhexagonis, glabris vel parce hirtellis, pilis minutis, arcte adpressis; lamina foliorum lanceolata vel ovato-lanceolata, acuminata (apice ipso obtuso), basi rotundata vel angustata, in petiolum breviter decurrens, integra vel undulata, chartaceo-membranacea, utrinque glabra vel parcissime hirtella, subtus sub lente minute papillosa, costa et venis aliquanto prominentibus; petioli graciles, glabri vel canale minute hirtelli; panicula terminals, laxa, cymis praecipue in paribus, tripartitis, pedunculis usque ad 4.5 cm. longis, hexagonis, dense hirtellis, pilis rectis, patulis, pilis glandulosis intermixture; bracteae cymas subtendentes anguste triangulares, acuminatae, carinatae, glabrae vel parce hirtellae, pedunculis cymularum inaequalibus, subhexagonis, dense hirtellis, pilis acutis et pilis glandulosis intermixture; bractea major exterior cymulam subtendens triangularti-ovata, acuta, carinata, costa promi-
nente, utrinque aliquanto dense hirtella, pilis rectis, patulis; bractea minor exterior cymulam subtendens lanceolata, acuminata (apice saepe recurvato), costa prominente, utrinque hirtella, pilis acutis et glandulosis intermixtis, bracteis ambis viridibus, marginibus dorsum albidis; bracteae intimae anguste lanceolatae, acuminatae, marginibus albidis, puberulae, pilis acutis et obtusis intermixtis; calycis segmenta triangularia, acuta, albida, minute hirtella; corolla parva, hirtella, tubo angusto, labii subaequalibus, labio inferiore trilobato, lobis parvis, suborbicularibus, subobtusus.

Herbs; stem erect or ascending, subhexagonal, glabrous or sparingly hirtellous, the hairs closely appressed, minute; leaf blades lanceolate or ovate-lanceolate, up to 4 cm. long and 1.5 cm. wide, acuminate

Figure 120.—Dicliptera trianae Leonard (Triana, El Cauca): a, Second node from base of inflorescence; b, one of a pair of bracts subtending the cyme; c, the larger of the outer bracts subtending the cymules; d, marginal hairs of same; e, the smaller of the outer bracts; f, one of the innermost bracts; g, calyx; h, marginal hairs of one of the segments. (a, Natural size, b, c, e-g, twice natural size; d, 12 times natural size; h, 8 times natural size.)

(the tip itself blunt), rounded or narrowed at base and briefly decurrent on the petiole, entire or undulate, firmly membranaceous, both surfaces glabrous or very sparingly hirtellous, the lower surface minutely papillate under lens, the costa and lateral veins (4 or 5 pairs) moderately conspicuous; petioles slender, up to 4 mm. long, glabrous or the channels minutely hirtellous; flowers borne on narrow open panicles up to 18 cm. long and 5 cm. broad or more, the cymes, usually in pairs, loosely 3-parted, their peduncles up to 4.5 cm. long, hexagonal, densely hirtellous, the hairs straight, spreading, up to 0.25 mm. long, some of them gland-tipped; bracts subtending the cymes narrowly triangular,
acuminate, carinate, about 2 mm. long and 0.5 mm. wide at base, glabrous or sparingly hirtellous; peduncles of the cymules unequal, the middle one up to 8 mm. long, the lateral ones about half as long, all subhexagonal, densely hirtellous with a mixture of glandular and eglandular straight spreading hairs up to 0.25 mm. long; outer bract subtending the cymule triangular-ovate, 7 mm. long, 3 mm. wide at base, acute (the costa prominent), carinate, both surfaces rather densely hirtellous, the hairs straight, erect, up to 0.25 mm. long; smaller outer bract subtending the cymule lanceolate, 6 mm. long, 2 mm. wide at about 2 mm. above base, acuminate (the tip often recurved), the costa prominent, both surfaces of the bract hirtellous with a mixture of glandless and erect straight glandular hairs about 0.25 mm. long, both the outer bracts green except their white basal margins; innermost bracts narrowly lanceolate, 5.5 mm. long, 1 mm. wide near base, green with whitish margins, acuminate, puberulous with a mixture of sharp and bluntish hairs up to 0.2 mm. long; calyx 5 mm. long, puberulous with stoutish hairs rarely more than 125μ long, the segments of the calyx narrowly triangular, 3 mm. long, 0.75 mm. wide at base, acuminate, whitish; ovary minutely hirtellous; corolla about 12 mm. long, hirtellous, the hairs spreading, about 0.2 mm. long, the tube narrow, about 2 mm. broad at mouth, the lips subequal, about 4 mm. long, the lobes of the lower lip suborbicular about 0.75 mm. long and broad, obtusish; capsules not seen.

Type in the Herbario Nacional Colombiano, collected in the Department of Cauca, 1,000 meters altitude, February 1853, by J. Triana (No. 4093.1-1). Isotype: K.

When compared with other Colombian species of the genus, Dicliptera trianae is strikingly distinct in the character of its inflorescence. The color of the corolla was not apparent in the dried material of the type.

4. Dicliptera sciaphila Leonard, sp. nov. Figure 121

Suffrutex, caulibus obscure hexagonis, crasse sulcatis, glabras vel bifariam pubescentibus, pilis curvatis; lamina foliorum oblongo-ovata, acuminata, basi angustata, in petiolum breviter decurrens, membranacea, integra, parce pilosa, pilis saepe in costa et venis positis; petioli graciles, subtus glabri, canali pubescente, pilis minutis et curvatis; capitula axillaria, pedunculis aliquanto brevibus, bifariam pubescentibus, pilis curvatis; cymula 5-flora, subsessilis; bracteae aliquanto magnae, bractea exterior oblongo-elliptica, acuta, viridis, basi angusta, albida, subtus parce et minute hirtella, supra puberula, marginibus ciliata, pilis patulis, bractea interior similis sed minor; bracteae interiores subulate, lanceolatae, acuminatae, ciliatae, pilis albis et patulis; calyx (siccus) fulvus, segmentis anguste lanceolatis,
acuminatis, puberulis; corolla rubra, minute et parce pubescens, labio superiore ovato, subacuto, labio inferiore trilobato; stamina vix exserta, filamentis glabris.

Suffrutescent; stems obscurely hexagonal, drying olive green, coarsely sulcate, glabrous or pubescent, the hairs disposed in 2 lines, curved, about 0.75 mm. long, the lowermost internodes about 10 cm.

Figure 121.—Dictiptera sciaphila Leonard (Cuatrecasas 214): a, Tip of branch; b, outer bract; c, inner bract; d, hair from margin of inner bract; e, innermost bracts; f, calyx segment; g, small portion of calyx segment enlarged to show pubescence. (a–c, e–f, Natural size; d, about 15 times natural size; g, about 25 times natural size.)

long, the others successively shorter toward tip of stems; leaf blades oblong-ovate, up to 12 cm. long and 7 cm. wide, acuminate (the tip ending in a sharp point or bluntish), narrowed at base and briefly decurrent on the petiole, thin, entire, drying green, sparingly pilose, the hairs straight or nearly so, up to 0.5 mm. long, confined chiefly
to costa and lateral veins (4 or 5 pairs), the cystoliths inconspicuous, 125 to 175 μ long; petioles up to 4 cm. long, the lower surface glabrous, the channel pubescent, the hairs small, recurved; flowers borne in axillary peduncled cymes, the peduncle up to 1 cm. long, pubescent in two lines, the hairs curved, about 0.25 mm. long, the cymules 5-flowered, subsessile; bracts rather large, the outer bract oblong-elliptic, 17 mm. long, 5 mm. wide near the middle, acute, narrowed at base, the inner bract smaller, lanceolate, 12 mm. long, 2 mm. wide, acuminate, both inner and outer bract green except at base, this whitish and somewhat indurated, the lower surface of the larger bract minutely hirtellous, the hairs about 0.25 mm. long, the upper surface of the larger bract and both surfaces of the smaller puberulous, the margins more or less densely ciliate, the hairs up to 1 mm. long, white, spreading, the middle and inner bracts about equal, lanceolate, 8 to 10 mm. long, 1.25 to 1.5 mm. wide, acuminate, puberulous toward tip and ciliate, the marginal hairs up to 0.5 mm. long, white, spreading; calyx 6 mm. long, drying dull brown, the segments narrowly lanceolate, 5 mm. long, 1.75 mm. wide, acuminate, puberulous, sparingly ciliate, the hairs about 0.5 mm. long, the hairs of the inner surface appressed; corollas red, finely and rather sparingly pubescent (the hairs up to 0.5 mm. long), 3 cm. long, the tube 2.5 mm. broad near base, narrowed at 6 mm. above base to 1 mm., thence enlarged to 7 mm. at throat, the lips about 1 cm. long, the upper ovate, about 5 mm. wide near base, acutish, the lower lip 3-lobed; stamens reaching nearly to the tip of the upper lip, the filaments glabrous, the anthers about 2 mm. long, the cells unequally attached; ovaries (eaten by insects) and capsules not seen.

Type in the U. S. National Herbarium, No. 1772775, collected in dense forest of La Hondonada, Salto de Tequendama, Department of Cundinamarca, Colombia, 2,250 to 2,300 meters altitude, October 2, 1938, by J. Cuatrecosas (No. 214*).

The flowers of *Dickiptera sciaphila* are large for the genus. The strongly ciliate bracts and dull lead-colored puberulous calyx (dried material) furnish further diagnostic characters. The specific epithet "sciaphila" (σκι, shade, and ϕιλος, loving) alludes to a preference to dense forests.

5. *Dickiptera uribel* Leonard, sp. nov.

Herba, caulibus subhexagonis, bifariam hirtellis, pilis parvis, retrorse curvatis; lamina foliorum anguste ovata, acute vel subacuminata, basi angustata, in petiolum decurrens, integra vel undulata, subcoriacea, utrinque parce hirtella, pilis minutis, praecipue in costa et venis aliquanto prominentibus positis, cystolithis minutis, subnigris; petioli breves, subtus glabri, canale dense adpresso-piloso;
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capitula axillaria et terminalia, sursum aggregata, thyrsus densum
angustum formantia, pedunculis brevibus angulatis, bifarium hirtellis;
bractae cymulas subtendentes parvae, lanceolatae vel triangulares,
acutae, glabrae vel parce hirtellae, plus minusve ciliolatae; bractea
exterior cymulas subtendens oblanceolata, subacuta, basi angustata,
subcoriacea, ciliata, viridis (vel deorsum margine albida), supra
dense puberula, subtus subglabra vel in costa et nervis parce hirtella,
bractea interior lineari-lanceolata, acuta, basi leviter angustata, aliter
bracteae exteriori similis; bracteae intimae anguste lanceolatae, apice
acuminatae, puberulae, ciliatae, marginibus albidis et subhyalinis;
calyx segmenta anguste triangularia, acuta, utrinque puberula;
corolla 2 cm. longe, parce pilosa, pilis patulis, rectis vel leviter
curvatis, tubo anguste hypocrateriformi, labiis subaequalibus, labio
superiore apice obtuso, inferiore trilobato, lobis parvis rotundatis;
staemia vix exserta, filamentis deorsum parce pilolus; capsulae
ovatae, planae, apice obtusae, apiculatae, hirtellae, pilis rectis,
patulis vel deorsum retrorsis.

Herbs up to 30 cm. high or more; stems subhexagonal, hirtellous
in 2 lines, the hairs up to 0.25 mm. long, retrorsely curved; leaf blades
(only the uppermost present) narrowly ovate, up to 6 cm. long and 2
cm. wide below middle, acute or subacuminate, narrowed at base
and decurrent on the petiole, entire or undulate, firm, both surfaces
sparingly hirtellous, the hairs up to 0.25 mm. long, curved, ascending,
confined chiefly to costa and lateral veins, these moderately con-
spicuous, more so beneath than above, the cystoliths obscure, minute,
blackish, up to 250 μ long; petioles up to 8 mm. long, glabrous beneath,
the channel densely appressed pilose, the hairs light greenish yellow,
about 0.25 mm. long; capitula axillary and terminal, the uppermost
forming a spikelike terminal thyrs 5.5 cm. long and 2.5 to 3 cm. broad,
the peduncles up to 3 mm. long, angular, hirtellous in 2 lines, the
lowermost capitula sometimes compound, the secondary capitula
borne on peduncles up to 2.5 cm. long, these subhexagonal and pilo-
ulous in 2 lines; bracts subtending the cymes small, those of the
lowermost cymes leaflike, lanceolate, 4 mm. long, 1 mm. wide, acute,
petioled at base, firm, veiny, sparingly hirtellous and ciliate, the bracts
subtending the upper cymes smaller, narrowly triangular, about 3 mm.
long and 1 mm. wide at base, glabrous, sparingly ciliate, the posterior
outer bract subtending the cymes oblanceolate, 12 mm. long, 4 mm.
wide at 5 mm. below tip, subacute, narrowed at base, firm, green or
with a narrow whitish marginal area near base, ciliate (the hairs up to
1.2 mm. long, spreading, straight), the inner surface densely puber-
ulous, the outer subglabrous or the costa and predominating pair of
lateral veins sparingly hirtellous, the anterior outer bract linear-
lanceolate, 1 cm. long, 2.25 mm. wide at middle, acute, slightly
narrowed at base, in other respects similar to the posterior bract, the innermost bracts narrowly lanceolate, 5 to 6.5 mm. long, 1 to 1.25 mm. wide at 3 mm. above base, the tip slender, puberulous, the margins ciliate, the hairs white, spreading, up to 1 mm. long, the marginal area of the bracts, except at tip, whitish and subhyaline; calyx 4 mm. long, the segments narrowly triangular, 3 mm. long, 1 mm. wide at base, slenderly acute at tip, both surfaces minutely and rather densely puberulous; corollas 2 cm. long, pale yellow ("naranja palido," Hernández-C.), sparsely pilosulous, the hairs straight or slightly curved, spreading, the tube 2 mm. broad at base, narrowed to 1.25 mm. at 2.5 mm. above base, thence gradually enlarged to 4.25 mm. at throat, the lips subequal, ovate, the upper lip obtuse at tip, the lower 3-lobed, the lobes ovate, 0.5 mm. long and wide, rounded at tip; stamens reaching tip of the upper lip, the filaments sparingly pilosulous toward base; capsules ovate, 7 mm. long, 5 mm. broad, 1 mm. thick, obtuse and apiculate, hirtellous, the hairs about 0.25 mm. long, straight, spreading or the basal hairs slightly retrorsely; seeds not seen.

Figure 122.—Diplorperia uribeii Leonard (Uribe-Uribe 343): a, Inflorescence at tip of stem; b, leaf; c, portion of leaf blade at costal region (lower surface) in detail to show venation, pubescence and cystoliths; d, one of a pair of bracts subtending a lowermost cyme; e, one of a pair of bracts subtending a cyme toward tip of inflorescence; f, the larger of the outer pair of bracts subtending a cyme; g, marginal hairs of same; h, pubescence of inner surface of same; i, the smaller of the outer pair of bracts subtending a cyme; j, one of the innermost bracts; k, calyx; l, pubescence of calyx. (a-c, Natural size; d-f, i, j, twice natural size; g, about 12 times natural size; h, 9 times natural size, k, 2½ times natural size; l, 15 times natural size.)
Type in the U. S. National Herbarium, No. 1997178, collected in the mountains east of Santandercito, Department of Cundinamarca, Colombia, 1,800 to 2,000 meters altitude, 1939, by Lorenzo Uribe-Urbe (No. 343).

A specimen collected by Jorge Hernández-C., No. 809 (US), in woods at Laguna de Pedropalo, Municipio de Tena, Department of Cundinamarca, 2,100-2,200 meters altitude, July 21-25, 1953, is also of this species.

6. Dicliptera bogotensis Leonard, sp. nov.

Herbs up to 30 cm. high or more; stems erect or ascending, sub-hexagonal, glabrous or hirtellous in two lines near the nodes, the hairs retrorsely curved, 0.25 to 0.5 mm. long; leaf blades (only the uppermost present) oblong-ovate, up to 4.5 cm. long and 2 cm. wide, acuminated (the tip itself obtuse), narrowed at base and briefly decurrent on the petiole, firmly thin, entire or undulate, the upper surface glabrous or very sparingly hirtellous except the densely hirtellous costa, the hairs ascending, mostly curved, 0.5 to 1.75 mm. long, the lateral veins (4 or 5 pairs) sparingly hirtellous, the lower surface sparingly hirtellous or puberulous toward base, the cystoliths on both surfaces minute, about 175 μ long; petioles up to 1 cm. long, glabrous except the channel, this densely hirtellous, the hairs brownish, mostly curved, up to 0.5 mm. long; capitula axillary and terminal, the lowermost peduncle 1 cm. long, the others successively shorter toward tip of inflorescence, all hexagonal, sparingly
hirtellous, the hairs sometimes arranged in 2 lines, the capitula subtended by small leaves, the cymes (often 3-parted) subtended by a pair of narrowly triangular bracts up to 4 mm. long and 0.75 mm. wide at base, slenderly acute, glabrous, the costa prominent; cymes borne on short quadrangular peduncles 0.5–1.5 mm. long; larger outer bract subtending the cyme lanceolate, up to 15 mm. long and 3.5 mm. wide near the middle, acute, narrowed and concave near base, green except narrow basal marginal whitish areas, ciliolate or some of the small hairs, especially towards base of bract, intermixed with long slender ones up to 0.75 mm. long, the outer surface of the bract sparingly hirtellous, the inner surface rather densely so, the hairs erect, 75 to 125 μ long; smaller outer bract subtending the cyme lanceolate, 11 cm. long, 2 mm. wide near the middle, slenderly acute, the costa, at least toward base, often bearing slender spreading hairs up to 1.25 mm. long, in other respects the smaller exterior bracts similar to the larger ones; innermost bracts narrowly lanceolate, 6 mm. long, 1 mm. wide near base, slenderly acute, glabrous within, hirtellous without, whitish toward base; calyx 4.5 mm. long, hirtellous, the hairs about 0.25 mm. long; the segments narrowly triangular, 3 mm. long, 1 mm. wide at base, acute, whitish; corollas (immature) densely hirtellous, the lips equal, the upper lip obtuse, the lower 3-lobed, the lobes rounded, the middle lobe broader than the lateral ones; capsules not seen.
Type in the Kew Herbarium, collected in the “Province of Bogota, en el Salto,”\(^1\) 2,500 meters altitude, August 1855, by J. Triana (No. 4093–3). Isotype: Col.

7. *Dicliptera pilosa* H. B. K.


Herbs up to 30 cm. high or more; stems erect or ascending, green, moderately hirtellous, the hairs about 0.25 mm. long, retrorsely curved; leaf blades (only the uppermost present) ovate or obovate, up to 4 cm. long and 2 cm. wide, obtuse or rounded at tip, mucronate (the mucro slender, up to 2 mm. long), narrowed at base and briefly decurrent on the petiole, entire or undulate, ciliolate, thin, both surfaces sparingly hirtellous, the hairs curved, ascending, about 0.25 mm. long, the costa and lateral veins (4 or 5 pairs) moderately prominent, the veinlets coarsely reticulate, the cystoliths conspicuous under a lens, up to 0.5 mm. long, straight or slightly curved; petioles slender, up to 1.5 cm. long, sparingly hirtellous or the channel densely so, the hairs up to 0.35 mm. long, ascending or subappressed; capitula aggregated to form terminal spikelike thyrsi up to 19 cm. long and 2.5 cm. broad, or the lowermost axillary, the cymes subsessile, some of the capitula of the terminal racemes subtended by obovate leaflike bracts up to 2.5 cm. long and 13 mm. wide, these conspicuously mucronate; bracts subtending the cymes subulate, up to 4 mm. long and 0.25 mm. wide at base, carinate, sparingly hirtellous, the outer pair of bracts subtending the cymes unequal, thin, green, mucronate, ciliate, both surfaces hirtellous, the marginal hairs up to 0.75 mm. long, straight, spreading, the surface hairs minute, ascending, the venation conspicuous, the costa and 2 pairs of lateral veins predominating, the veinlets parallel or coarsely reticulate, prominent, the posterior bract subrhombic, 1.5 cm. long, 6 mm. wide, acute at tip, cuneate at base, the anterior bract rhombic-ovate, 8 mm. long (mucro 2 mm. long), 3.5 mm. wide at 6 mm. above base, obtuse at tip, cuneate at base, the innermost bracts narrowly lanceolate, 2 to 2.5 mm. long, 0.5 mm. wide, acuminate, ciliolate; calyx 2 mm. long, the segments narrowly lanceolate, 0.25 mm. wide, ciliolate; corollas lavender, 12 mm. long, sparsely and minutely pubescent, the tube slender, about 1 mm. in diameter, the lips ovate, about 4 mm. long and 3 mm. wide; capsules 4 mm. long, 2 mm. broad, 0.5 mm. thick, obtuse and apiculate, pilose, the hairs about 0.25 mm. long, spreading at tip of the capsule, retrorse toward base; retinacula narrowly triangular, 0.75 mm. long, 0.25 mm. broad at base, acute at tip; seed light brown, flattened, suborbicular, 1.25 mm. in diameter,

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\(^1\) Salto de Tequendama, which often is called merely “El Salto” by the residents of Bogotá.
about 0.25 mm. thick, densely hirtellous, the hairs straight, spreading, retrorsely barbed.

The nature of the lobes of the lower lip of the corolla was not apparent in the few badly crumpled flowers present on the specimens examined.

El Valle: Roadside at Cali, Killip 8335 (GH, NY).

8. Dicliptera caucensis Leonard, sp. nov.

Suffrutex, caulibus sursum hexagonis, angulis anguste alatis, subviridibus, pilosulis (pilis rectis, patulis), deorsum subteretibus, glabratis; lamina foliorum ovata, acuta vel obtusa, basi angustata,

in petiolum breviter decurrentis, membranacea, utrinque parce hirsuta, costa et venis lateralibus aliquanto prominentibus; petioli graciles, subtus glabri, canale dense pubescente; cymae axillares et terminales, cymae superiores confluentes, thyrsos densos terminales formantes; cymulae pleurumque 3-florae; bracteae virides, bractea exterior lanceolata, acuta et cuspidata, basi angustata, marginibus dense
ciliata, pilis patulis, utrinque parce pilosa, costa et venis lateralibus prominentibus, bractea interior similis sed aliquanto minor; bracteae interiores anguste lanceolatae, costatae, pilosae et ciliatae (pilis patulis), marginibus albidis; calycis segmenta parva, anguste lanceolata, hirsutula, pilis patulis; corolla parva, purpurascens, subtiliter pubescentis, tubo angusto, labio superiore ovato, rotundato, labio inferiore oblongo, apice trilobato, lobis parvis, rotundatis; capsuleae parvae, clavatae, pilosulae; retinacula parva, subulata; semina plana, nigra, glabra vel marginibus papillosis.

Suffrutescent plants up to 60 cm. high or more, branched, erect or ascending, the upper portions of the stems hexagonal, the angles narrowly winged, greenish yellow, pilosulous, the hairs straight, spreading, up to 0.5 mm. long, the lower portions of the stems subterete, glabrate; leaf blades ovate, up to 5 cm. long and 2.5 cm. wide, acute to obtusish, narrowed at base and briefly decurrent on the petiole, membranous, entire, both surfaces sparingly hirsute, the hairs up to 1 mm. long, spreading or ascending; the costa and lateral veins (4 or 5 pairs) rather prominent, the cystoliths prominent under a lens, up to about 0.25 mm. long, blackish; petioles slender, up to 2 cm. long, glabrous beneath, the channels densely pubescent; flowers borne in axillary and terminal cymes, the uppermost confluent, forming dense spikelike thyrsi up to 3 cm. long and 2 cm. broad, each cymule usually 3-flowered; bracts green, the outer one lanceolate, 13 mm. long, 3.5 mm. wide slightly above middle, acute and cuspidate, the cusp up to 1.5 mm. long, the base narrowed, the margins densely ciliate, the hairs about 1 mm. long, spreading, both surfaces sparingly pilose, the hairs somewhat shorter than the marginal ones, the costa and lateral nerves (1 pair) prominent, the inner bract similar but slightly smaller (10 mm. long and 2.5 mm. wide), the interior bracts lance-subulate, 5 to 7 mm. long, 0.5 to 0.75 mm. wide, costate, pilose and ciliate, the hairs white, spreading, up to 1 mm. long, the margins whitish; calyx 3 mm. long, the segments lance-subulate, subhyaline, hirsutulous, the hairs about 0.25 mm. long, spreading; corollas 15 mm. long, purplish ("rosado-violacea," Pérez-Arbeláez), finely pubescent, the hairs about 0.5 mm. long, spreading or retrorse, the tube 7 mm. long, 1.5 mm. broad near base, narrowed at 5 mm. above base to 1 mm., 2 mm. broad at mouth, the posterior lip ovate, 9 mm. long, 4.5 mm. wide, rounded, the lower lip oblong, 8 mm. long and 3.5 mm. wide, 3-lobed at tip, the lobes about 0.5 mm. long and wide, rounded; capsules 5 mm. long, 2 mm. broad, pilosulous, the hairs about 0.25 mm. long, white, spreading; retinacula subulate, about 1 mm. long; seed black, flattened, about 1.5 mm. long and broad, glabrous or the margins sparingly papillosis.
Type in the U. S. National Herbarium, No. 1774439, collected between Puracé and Coconuco, Department of Cauca, Colombia, 2,300 to 2,400 meters altitude, July 12, 1939, by E. Pérez-Arbeláez and J. Cuatrecasas (No. 5977).

Kjell von Sneidern's No. 1032 (S), collected in thickets at El Tambo, Department of Cauca, altitude 1,700 meters, August 15, 1936, is also of this species.

9. Dicliptera conformis Leonard, sp. nov.

Herba debilis, caulibus erectis vel ascendentibus, subhexagonis, parce pilosulis, pilis retrorse curvatis; lamina foliorum ovata, acuta, basi angustata, in petiolum breviter decurrens, membranacea, integra vel undulata, parce ciliolata, pilis curvatis, supra parce hirtella, cystolithis sub lente conspicuis, costa et venis lateralibus obscuris, subtus parce hirtella, costa et venis aliquanto prominentibus, venulis reticulatis; petioli graciles, subtus glabri, canale aliquanto dense hirtelli, pilis minutis, curvatis, subappressis; capitula axillaria et terminalia, sursum aggregata, thyrsos densos terminales formantia, pedunculis brevissimis, glabris vel parce hirtellis; capitula paribus
Leaves narrowly oblanceolate, subobtuse, cuspidate, basi angustata, convexa, viridis, marginibus basi albidis, extus hirtella, pilis rigidis, sursum curvatis, costa prominente, intus parce et subtiliter hirtella, paribus nervis basi prominentibus; bracteae minor exterior cymulam subtendens bracteae superiori similis; bracteae intimae lanceolato-subulatae 1-nervatae, ciliatae, pilis patulis, extus parce hirtellae, intus glabrae; calycis segmenta albidia, anguste triangularia, puberula; ovarium apice hirtellum, basi glabrum.

Weak herbs up to 15 cm. high or more; stems erect or ascending, 0.75 mm. in diameter, subhexagonal (the angles acute), sparingly pilosulous, the hairs about 0.25 mm. long, retrorsely curved; leaf blades ovate, up to 3 cm. long and 13 mm. wide, acute, narrowed at base and briefly decurrent on the petiole, firmly membranaceous, entire or undulate, sparingly ciliolate with curved hairs, the upper surface sparingly hirtellous, the cystoliths conspicuous, the costa and lateral veins (4 or 5 pairs) obscure, the lower surface sparingly hirtellous, the hairs about 0.25 mm. long, the costa and veins more prominent than above, the veinlets reticulate; petioles slender, up to 1 cm. long, glabrous beneath, the channel rather densely hirtellous with subappressed hairs about 0.25 mm. long; capitula axillary and terminal, the uppermost aggregated in a dense thyrse about 2.5 cm. long and 15 mm. broad, the peduncles up to 1 mm. long, glabrous or sparingly hirtellous, the capitula subtended by a pair of leaves, the cymes, mostly 3-parted, subtended by a pair of lance-subulate bracts about 5 mm. long and 0.5 mm. wide near base; cymules supported by peduncles 0.5 mm. long, moderately hirtellous with yellowish, retrorsely ascending hairs 0.5 mm. long, the larger outer bract subtending the cymule green except a narrow marginal basal whitish area, oblanceolate, 1 cm. long, 3.5 mm. wide at 5 mm. below tip, subobtuse, cuspidate (the cusp 0.75 mm. long), gradually narrowed from above middle to base, the basal portion convex, ciliate, the hairs mostly 0.75 mm. long, the outer surface hirtellous, the hairs stiff, upwardly curved, 0.5 mm. long, yellowish, the costa prominent, the lateral nerves obscure, the inner surface sparingly and finely hirtellous, the venation obscure except the basal portion of a pair of lateral submarginal nerves, the smaller outer bract subtending the cymule 9 mm. long, 2.25 mm. wide at 3 mm. below tip, in other respects similar to the larger outer bract; innermost bracts lance-subulate, up to 6.25 mm. long, 0.5 mm. wide, 1-nerved, ciliate, the hairs spreading, up to 0.5 mm. long, the outer surface sparingly hirtellous, the inner glabrous; calyx 2.5 mm. long, whitish, puberulous, the segments narrowly tri-
angular, 1.5 mm. long, 0.5 mm. wide at base; corolla not seen; ovary hirtellous toward tip, glabrous toward base; capsules not seen.

Type in the Kew Herbarium, collected at Almaguer, Province of Popayán, Department of El Cauca, Colombia, 2,000 meters altitude, August 1855, by J. Triana (No. 4093–2). Isotype in the Herbario Nacional Colombiano.

The bracts are marked by scattered minute black dots which may possibly represent parasites.

10. Dicliptera ochrochlamys Leonard, sp. nov. Figure 126

Herbs about 40 cm. high; stems erect or ascending, hexagonal, finely and rather sparingly puberulous or glabrate, the angles rounded, the lower nodes somewhat swollen; leaf blades narrowly oblong-elliptic to lanceolate, 3 to 7 cm. long, 1 to 2.5 cm. wide, acute to subacute at tip, narrowed at base and decurrent on the petiole, thin, entire or undulate, ciliolate, the lower surface glabrous, drying olive green, the lower surface drying to grayish green, glabrous or the costa sparingly puberulous, this and the lateral veins (4 or 5 pairs) prominent, more so beneath than above, the cystoliths of both surfaces slender, 0.25 mm. long, rather scattered; petioles slender, up to 2 cm. long, sparingly and minutely pubescent or glabrate; flowers borne in dense terminal and axillary thyrsi 1 to 3 cm. long and 1 to 1.5 cm. broad, these composed of verticillasters of 4 to 5 cymes each, the lowermost cymes of the thyrse short-peduncled, the others sessile or subsessile, the cymes usually several flowered, the rachis and peduncles more or less puberulous, the bracts subtending the cymules elliptic, 9 mm. long and 4 mm. wide, acute and cuspidate, thin, narrowed toward...
base, puberulous, the lower half whitish, the upper light green, ciliate, the marginal hairs up to 1 mm. long, the intermediate bracts lanceolate, 7 mm. long, 2.5 mm. wide, acuminate, subhyaline, greenish toward tip, more or less puberulous, the innermost bracts lance-subulate, 4.5 mm. long, 0.5 mm. wide, whitish, puberulous; calyx 3.5 mm. long, the segments narrowly lanceolate, 3 mm. long, 0.25 mm. wide, subhyaline; corolla (immature) 12 mm. long, red (?), finely pubescent, the hairs spreading, up to 0.25 mm. long, the lips oblong, 5 to 6 mm. long, the posterior lip 3 mm. wide, subobtuse at tip, the anterior lip 2.5 mm. wide, 3-lobed at tip, the lobes rounded, 0.25 mm. long, the middle one subcucullate; stamens reaching the tip of the upper lip, the filaments sparingly pilose, the hairs spreading, about 0.25 mm. long, the anthers cells attached one above the other, oval, each barely 2 mm. long; ovaries and capsules not seen.
Type in the U. S. National Herbarium, No. 1830673, collected at Restrepo, Intendencia of Meta, Colombia, January 1937, by H. Garcia-Barriga (No. 5177). Isotype in the Herbario Nacional Colombiano.

The specific epithet (ὀξυς, whitish, and κλαυδος, military cloak) alludes to the characteristic whitish bracts, which give a whitish appearance to the entire inflorescence.

11. Dicliptera cuatrecaasi Leonard, sp. nov.  

Herba, caulibus ramosis, subhexagonis, sursum puberulis, deorsum glabris; lamina foliorum oblongo-elliptica, apice acuta vel acuminata,
basi angustata, in petiolum breviter decurrent, integra vel undulata, ciliolata, supra glabra vel pilos paucos minatos ferens, in costa pubes-
cens, costa et venis lateralis obscuris, subtus glabra vel parce
pubescens, costa et venis lateralis mediocrer prominentibus;
petioli graciles, subtus glabri, canale puberulentii, pilis curvatis;
capitula axillaria et terminalia sursum confluentia, thyrsus densum
angustum terminalem formantia, pedunculis brevibus, puberulis, pilis
retrorse curvatis; bracteae capitula subtendentes foliiformes; bracteae
cymulas subtendentes parvae, lanceolatae, acuminatae, 1-nervatae,
majores exteriores oblanceolatae, subobtusae, apice spinæ parvae
terminantes, basi angustatae, glabrae vel puberulae, marginibus
ciliolatis vel ciliolatis et ciliatis; bracteae intimae anguste lanceolatae,
 albidae apice subviridi exceptæ, tenuiter ciliolatae, obscure 1-nerva-
tae; calycis segmenta anguste triangularia, obscure 3-nervata, albida.

Dull green branching herbs; stems subhexagonal, the angles rounded,
the tips puberulous, the lower portions glabrous, the base of the plant
7 mm. in diameter or more; leaf blades oblong-elliptic, acute or
acuminate, narrowed at base and briefly decurrent on the petiole,
thin, entire or undulate, ciliolate, the upper surface glabrous (or
bearing a few minute hairs) except the costa, this puberulous and like
the lateral veins (4 or 5 pairs) obscure, the cystoliths inconspicuous,
the lower surface glabrous or bearing a few scattered minute hairs, the
venation moderately conspicuous, the cystoliths conspicuous under
a lens but not numerous; petioles slender, up to 4 cm. long, glabrous
beneath, the channel puberulous with curved hairs; flowers borne in
axillary and terminal capitula, the uppermost confluent, forming a
narrow spike-like thyrsus, the peduncles up to 5 mm. long, or the
lowermost longer, puberulous, the hairs retrorsely curved; bracts
subtending the cymes leaflike, lanceolate, about 10 mm. long and
2.5 mm. wide; bracts at base of cymules lance-subulate, usually up
to 2.5 mm. long and 0.75 mm. wide at base, acuminate and 1-nerved,
the pair of larger and outer bracts subtending and enclosing the
cymules oblanceolate, the posterior bract 13 mm. long and 4 mm. wide
slightly above middle, subobtuse and tipped by a spine about 1 mm.
long, gradually narrowed from above middle to base (the base 2 mm.
wide), firm, green, or whitish at base, glabrous or puberulous, ciliolate
or both ciliolate and sparingly ciliate, the longer hairs up to 1 mm.
long, the anterior bract similar but somewhat smaller, the inner bracts
narrowly lanceolate, 7 mm. long, 1.25 mm. wide, whitish except
toward tip, finely ciliolate, faintly 1-nerved; calyx segments narrowly
triangular, 3 mm. long, 1 mm. wide at base, faintly 3-nerved, white;
corollas and capsules not seen.

Type in the U. S. National Herbarium No. 1853821, collected near
the confluence of the Rio Pichindecito and the Rio Pichindé, valley
of the Río Cali, Department of El Valle, Colombia, 1,580 to 1,640 meters altitude, November 7, 1944, by J. Cuatrecasas (No. 18783).

**Diciptera cuatrecasasii**, as represented by the type specimen, is very robust for the genus. It is nearly glabrous and the entire plant is dull green in color. Many of the larger bracts subtending the cymules are merely ciliolate but others bear in addition to the minute marginal hairs a few or sometimes numerous long spreading ones.

12. **Diciptera killipii** Leonard, sp. nov. Figure 128

Herbs, stems weak, erect or ascending, up to 30 cm. high or more, subhexagonal, hirtellous, the hairs retrorsely curved, about 0.25 mm. long; leaf blades ovate, up to 7 cm. long and 3 cm. wide, acute, narrowed at base and briefly decurrent on the petiole, membranaceous, entire or undulate, ciliate, the upper surface sparingly hirsute, the hairs ascending, up to 0.75 mm. long, the venation obscure, the cystoliths minute and obscure, about 0.25 mm. long, the lower surface hirsute, the hairs spreading or ascending, up to 0.75 mm. long, confined mostly to costa and veins (4 or 5 pairs, these barely conspicuous but more so than above), the reticulation of the veinlets conspicuous under a lens, the cystoliths inconspicuous; petioles slender, up to 2.5 cm. long, sparingly hirtellous; flowers borne in
axillary verticillasters, the uppermost confluent, forming a narrow spikelike thyrs, the peduncles up to 1.5 mm. long, hirsute, the bracts subtending the cymes narrowly lanceolate, about 7 mm. long, 1 mm. wide at base, slenderly acuminate, costate, the margins and costa ciliate, the larger and outer pair of bracts subtending the cymule oblong-lanceolate, subobtuse and abruptly cuspidate (the cusp 1.5 mm. long), narrowed gradually from above middle to base, rather

**Figure 128.**—*Dicliptera killipii* Leonard (Killip 6818): a, Tip of branch; b, leaf; c, bract subtending cymes; d, marginal hairs of the larger outer bract subtending the cymule; e, the larger of the outer pair of bracts subtending the cymule; f, the smaller bract of the large pair; g, one of the innermost bracts subtending the cymule; h, one of the calyx segments; i, marginal hairs of same; j, disrupted valve of calyx; k, seed; l, marginal papillae of same. (a, Natural size; c, e–h, j, twice natural size; d, 15 times natural size; f, about 20 times natural size; k, 4 times natural size; l, about 30 times natural size.)

firm, veiny, the costa and the lower pair of nerves predominating, the margins ciliolate, the hairs up to 0.5 mm. long, both surfaces rather sparingly hirtellous, the larger bracts 13 mm. long, and 5 mm. wide, the smaller one 11 mm. long and 3.5 mm. wide, both green toward tip, whitish toward base; innermost bracts narrowly lanceolate, the larger of these 9 mm. long and 1 mm. wide at 2.5 mm. above base, the smaller pair 5 to 6 mm. long, about 0.75 mm. wide above base, both pairs costate, ciliate, the tips hirtellous and greenish, whitish toward base; calyx segments narrowly triangular, 2.5 mm. long, 0.5 mm. wide
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at base, whitish, ciliate and hirtellous, the hairs about 150 μ long; corollas lilac, about 8 mm. long, the tube about 2 mm. broad, narrowed near mouth to 1.5 mm., its upper portion and the lips finely pubescent, the hairs straight and spreading; about 0.25 mm. long, the upper lobe ovate, about 7 mm. long and 3 mm. wide, acute at tip, the lower lip oblong, about 6 mm. long and 2.5 mm. wide, 3-lobed at apex, the lobes rounded, about 0.75 mm. long and wide; stamens exserted about 4 mm. beyond the mouth of the tube, the filaments sparingly pilose; capsules 5 mm. long, about 2 mm. broad, 0.75 mm. thick, obtuse and apiculate at tip, retrorsely pilose, the hairs about 0.25 mm. long, whitish; retinacula triangular, acuminate, about 1 mm. long; seed suborbicular, flattened, 1.5 mm. in diameter, 0.5 mm. thick, black, sparingly papillose near margins, the papillae about 50 μ long.

Type in the U. S. National Herbarium, No. 1142190, collected between Canaan and Coconuco, Department of Cauca, Colombia, 2,300 to 2,800 meters altitude, June 17, 1922, by E. P. Killip (No. 6818). Isotypes: GH, NY.

Triana's specimens (Col. NY), collected at Almaguer, Department of Cauca, are also of this species.

13. Dicliptera driophila Leonard, sp. nov.  

Herba vel suffrutex, caulibus ramosis, erectis vel ascendentibus, subhexagonis, striatis, sursum subtiliter pubescentibus, pilis plus minusve retrorsae curvatis, praecipue in angulis positis, deorsum glabris; lamina foliorum ovato-lanceolata, acuta vel acuminata, basi angustata, in petiolum breviter decurrent, membranacea, integra vel undulata, viridis, supra aliquanto hirtella, costa et venis lateralis gracilis, obscure, cystolithis inconspicuis, subitus aliquanto dense hirtella, pilis praecipue in costa et venis (cis gracilibus sed conspicuis); petioli graciles, subitus glabri, canale hirtelle; capitula praecipue axillaria, pedunculis brevibus, hirtello; bracteae cymes subtendentes parvae, subulatae, 1-nervatae, parce ciliolatae; bracteae majores cymes subtendentes sursum virides, deorsum albides, acutae, cuspidae, subcoriaceae, ciliatae, parce hirtellae, costa et nervis infinis magis prominentibus, bractea posterior oblonga, costa et nervis anguste lanceolatae, inferior lanceolatae, bracteae intimae anguste lanceolatae, tenuiter acuminatae, albidae, 1-nervatae, ciliolatae; calycis segmenta anguste triangulata, parva, albida, ciliolata; corolla pubescens; capsulae parvae, minute hirsutae, pilis patulis vel retrorsis; retinacula minuta, subulata.

Herbs, sometimes suffrutescent toward base, up to 40 cm. high or more; stems branched, erect or ascending, subhexagonal, striate, the upper portions finely pubescent, the hairs more or less retrorsely curved, up to 0.25 mm. long, confined chiefly to the angles, the lower portions of the stem glabrate; leaf blades ovate-lanceolate,
up to 9 cm. long and 3 cm. wide, acute to acuminate, narrowed at base and briefly decurrent on the petiole, membranaceous, entire or undulate, drying green, the upper surface moderately hirtellous, the hairs up to 0.75 mm. long, ascending or slightly curved, the costa and lateral veins slender, obscure, the cystoliths up to 0.5 mm. long, the lower surface rather densely hirtellous, the hairs ascending, up to 0.75 mm. long, confined chiefly to the costa and lateral veins; petioles slender, up to 2 cm. long, glabrous below, the channel hirtellous; capitula mostly axillary, a few of the uppermost sometimes more or less confluent, the peduncles up to 2.5 mm. long,

**Figure 129.—Diciplia driophila Leonard (Cuatrecasas 20947):** a, Tip of branch; b, portion of leaf blade (upper surface) to show reticulation of veinlets; c, one of a pair of outer bracts subtending a cyme; d, the larger of a pair of outer bracts subtending a cymule; e, marginal hairs of same; f, the smaller of the two outer bracts subtending the cymule; g, one of a pair of inner bracts of a cymule; h, one of the innermost pairs of bracts; i, calyx spread to show lobes; j, tip of calyx lobe to show pubescence; k, valve of capsule.

(a, Natural size; c, d, f-i, k, twice natural size; b, 1½ times natural size; e, 34 times natural size; j, 14 times natural size.)

hirtellous; bracts subtending the cymes subulate, up to 6 mm. long and 0.5 mm. wide at base, strongly 1-nerved, sparingly ciliolate, the larger outer pair of bracts subtending the cymule oblong-lanceolate, up to 12 mm. long and 3.5 mm. wide slightly above the middle, acute and cuspidate (the cusp 1.5 mm. long), green toward tip, whitish toward base, subcoriaceous, ciliate and sparingly hirtellous, the hairs about 0.25 mm. long, the costa and a pair of lateral nerves predominating, the smaller bract lanceolate, up to 8 mm. long and 1.5 mm. wide, in other respects similar to the larger bract; innermost bracts
narrowly lanceolate, 6 mm. long and 0.75 mm. wide at 1.5 mm. above base, the smaller ones 3.5 mm. long and 0.5 mm. wide near base, both pairs whitish, slenderly acuminate, 1-nerved, ciliolate; calyx segments narrowly triangular, 1.5 mm. long, 0.5 mm. wide at base, whitish, ciliolate; corolla (immature) pubescent; capsules about 6 mm. long, clavate, pubescent, the hairs about 0.25 mm. long, spreading or retrorse, the retinacula subulate, nearly straight, 0.75 mm. long.

Type in the U. S. National Herbarium, No. 1900475, collected at Quebrada de los Osos, valley of the Río Bugalagrande, Department of El Valle, Colombia, 2,170 meters altitude, April 20, 1946, by J. Cuatrecasas (No. 20947). Isotype: US.

A specimen collected in thickets at Rioblanco, vicinity of Popayán, Department of Cauca, Colombia, 1,800 meters altitude, July 9, 1939, by Pérez-Arbeláez and Cuatrecasas, No. 5788 (US), is also of this species.

The color of the corolla is not apparent in the dried material. Only immature flowers were present and, judging from the completeness of the specimens in other respects, this absence of expanded corollas may have been due to cleistogamy. The specific epithet is derived from ἕπος, thicket, and ἱλός, loving.

14. Dicliptera garciae Leonard, sp. nov. Figure 130

Suffrutex, caulisibus erectis vel ascendentibus, subhexagonis, sulcatis, sursum pubescentibus, deorsum glabris; laminae foliorum (verticillasteres subtendentes) ovatae, subacutae, basi rotundatae vel obtusae, integrae, subcoriaceae, utrinque pubescentes, pilis praecipue in costa et venis postitis, costa et venis lateralis supra obscuris, subitus aliquanto prominentibus; petioli breves, pubescentes; capitula axillaria, pedunculis brevibus; capitula axillaria, pedunculis brevibus; bracteae cymulas subtendentes parvae, lanceolatae, acuminatae, parce pubescentes, 1-nervatae, majores exteriores oblongolatae, acuta vel acuminatae, coriaceae, virides, ciliatae, parce hirtellae, costa et venis lateralis obscuris, majores interiores aliquanto minores quam exteriores, lanceolatae, acuminatae, coriaceae, sursum virides, deorsum subflavo-virides, ciliolatae, hirtellae; bracteae intimae anguste lanceolatae, deorsum albidae, minute hirtellae, 1-nervatae; calycis segmenta triangulata, acuminata, subhialata, sursum hirtella; corolla rubra, plus minusve pubescens, tubo anguste hypocramiformi, labiis ovatis, labio superiore apice rotundato vel leviter emarginato, labio inferiori aliquanto longiore quam labio superiore, apice trilobato, lobis parvis, rotundatis; stamina vix exserta, filamentis planis, parce pilosis; capsulae planae, ovatae, pubescentes; retinacula parva, cucullata; semina plana, suborbicularia, plus minusve minute rugosa.

Suffrutescent herbs; stems branching, erect or ascending, subhexagonal, grooved, the tips pubescent, the hairs spreading or re-
trorsely recurved, barely 0.5 mm. long, the lower portions of the stem glabrate; leaf blades (only those subtending the verticillasters present) ovate, up to 3 cm. long and 1.6 cm. wide near base, subacute, rounded or obtuse at base, entire, rather firm, hirtellous on both sides, the hairs straight or nearly so, spreading or ascending, slightly less than 0.5 mm. long, confined chiefly to costa and lateral veins (4 or 5 pairs), the venation obscure above but fairly prominent beneath; petioles up to 4 mm. long, pubescent; flowers borne in axillary

verticillasters, the internodes about 2 cm. long, the basal bracts subtending the cymes narrowly lanceolate, 2 mm. long, 0.75 mm. wide at base, acuminate, keeled, sparingly pubescent, the larger of the outer bracts subtending the cyme ob lanceolate, 14 mm. long, 2.25 mm. wide at 5 mm. below tip, acute or acuminate, gradually narrowed from above middle to base, firm, green, ciliolate and sparingly hirtellous, the hairs stiff, more or less curved, about 150 μ long, the costa and lateral veins obscure, the inner bract subtending the cyme lanceolate,
about 10 mm. long and 1.5 mm. wide toward base, acuminate, firm, the upper half green, the lower half light yellowish green, the costa barely prominent, the pubescence that of the outer bract, the innermost bractlets narrowly lanceolate, about 6 mm. long, 1 mm. wide near base, whitish at least toward base, minutely hirtellous, 1-nerved; calyx segments triangular, 3.5 mm. long, 1.5 mm. wide at base, acuminate, white and subhyaline, 3-nerved, minutely ciliolate, hirtellous toward tip; corollas red, sparingly to rather densely pubescent, about 3 cm. long, 2 mm. broad at base, narrowed to 1 mm. at 5 mm. above base, thence gradually expanded, the throat 5 mm. broad, the lips ovate, the upper lip 6 mm. long and 4 mm. wide at base, rounded or shallowly emarginate at tip, the lower lip 8 mm. long and 5 mm. wide, 3-lobed at tip, the lobes rounded, about 0.5 mm. long and broad; stamens barely reaching tip of the upper lip, the filaments flat, sparingly pilose, the hairs about 0.25 mm. long; capsules ovate, strongly flattened, about 5 mm. long and 4 mm. broad and 1 mm. thick, pubescent, the hairs up to 165 µ long, spreading or retrorsely curved, the capsule dehiscing and rupturing either from base or tip, the retinacula cucullate, about 0.5 mm. long; seeds suborbicular, strongly flattened, about 3.5 mm. long, 2.5 mm. wide and about 0.75 mm. thick, more or less minutely roughened.

Type in the U. S. National Herbarium, No. 1799084, collected in dry thickets on the left slope of the valley of the Río Chicamocha, between Soatá and Tipacoque, Department of Boyacá, Colombia, 1,700 to 2,000 meters altitude, July 18, 1940, by J. Cuatrecasas and H. García-Barriga (No. 9820).

The main stem leaves, deciduous and lacking on the type specimen, may prove to be somewhat larger than those subtending the verticillasters. The stem is woody at base and the plant probably affects a sprawling habit. The exact height of the plant cannot be approximated from the type material, probably a basal portion. The branches are about 20 cm. long, but the main stem may reach 1 meter or more.

15. Dicliptera ewanii Leonard, sp. nov.

Herba vel suffrutex, caulibus ascendentibus, subquadrangularibus, sparse et retrorsely bifariam hirtellis; lamina foliorum oblongo-ovata, acuminata, basi angustata, aliquanto firma, undulata, utrinque parce hirtella, costa et venis lateralibus conspicuis, cystolithis minutis; petioli subtus glabri, supra in canale dense hirtelli, pilis subappressis; capitula axillaria et terminalia, sursum aggregata, paribus foliorum suffulta; cymae planae, 3-5-partitae, breviter pedunculatae vel subsessiles, paribus bractearum subulatarum subglabrarum suffultaet; bractea exterior cymulam subtendens herbacea, lanceolata, acuta,
extus parce et minute hirtella, intus puberula, costa et nervis submarginalibus prominentibus; bractea minor exterior cymulam subtendens anguste lanceolata, acuminata, extus parce hirtella, intus puberula, basi albida et striata, costa prominent; bractae intimae lanceolatae, parvae, puberulae, ciliolatae, basi albidae; calycis segmenta parva, angusta, albida, dense hirtella; corolla atrocoecinea, pubescens, tubo hypocriteriformi, labiis ovatis, labio superiore obtuso, inferiore apice trilobato, lobis rotundatis, parvis; stamina vix exserata, filamentis planis, marginibus pilosis.

Figure 131.—*Diciptera ewanii* Leonard (*Ewan 15628*): a, Tip of the stem; b, the larger of the outer cymule bracts; c, pubescence of its inner surface; d, the smaller of the outer cymule bracts; e, one of the larger innermost bracts; f, one of the smaller; g, calyx spread to show segments; h, pubescence of segments. (a, Half natural size; b, d-g, twice natural size; c, 15 times natural size; h, 13 times natural size.)

Herbs or suffrutescent plants 30 cm. high or more, the stems ascending, subhexagonal, sparingly and retrorsely hirtellous, the hairs about 0.25 mm. long, bifarious; leaf blades oblong-ovate, up to 13.5 cm. long and 4.5 cm. wide, slenderly acuminate, narrowed at base, rather firm, undulate, both surfaces glabrous or sparingly hirtellous, the hairs about 0.25 mm. long, the costa and lateral veins (6 to 8 pairs) prominent, the cystoliths minute, 125μ long; petioles slender, up to 2 cm. long, glabrous beneath, the channel densely hirtellous, the hairs subappressed; capitula axillary or the 2 uppermost confluent forming a short thyrsse about 3 cm. long and 2.5 cm. broad, the leaves subtending the capitula similar to the lower stem leaves
but smaller (2 to 10 cm. long and 1 to 3 cm. wide), the cymes flat, composed usually of 3 to 5 cymules, subsessile or short-peduncled (the peduncle up to 4 mm. long, hirtellous in 2 lines), subtended by a pair of subulate subglabrous bracts up to 5 mm. long and 1 mm. wide at base; bracts subtending the cymes unequal, rather thin, herbaceous, the larger bract lanceolate, up to 2 cm. long and 4.5 mm. wide, acute, the outer surface sparingly and minutely hirtellous, the inner surface rather densely puberulous, the hairs spreading, 75 to 100 μ long, the costa and a pair of lateral submarginal nerves prominent, the smaller bract subtending the cymule narrowly lanceolate, acuminate, whitish, indurate and coarsely striate at base, the pubescence that of the outer bract, the costa prominent, the veinlets of both bracts rather coarsely but obscurely reticulate, the innermost bracts lanceolate, 3 to 8 mm. long, 0.75 to 1.5 mm. wide near base, puberulous and ciliolate, the lower half or sometimes the lower marginal areas whitish; calyx segments linear, 3.5 mm. long, 0.5 mm. wide, acute, whitish, densely hirtellous, the hairs ascending, 0.3 mm. long, the calyx tube campanulate, 1 mm. long, whitish, subhyaline, glabrous; corollas dull carmine with yellow throat (Ewan), 3 cm. long, moderately pubescent, the hairs up to 275 μ long, spreading, the tube 2 mm. broad at base, narrowed at 5 mm. above base to 1 mm., thence gradually enlarged to 5 mm. at mouth, the lips ovate, 7 mm. long, the upper lip 3 mm. wide, obtuse, the lower 4 mm. wide, 3-lobed at tip, the lobes ovate, obtuse, 1 mm. long, the middle one 1.25 mm. wide at base, the lateral ones slightly narrower; stamens slightly exceeding the lips, the filaments flat, their margins bearing a row of curved hairs up to 250 μ long, the anther lobes slightly superposed, 1.5 mm. long; ovaries and capsules not seen.

Type in the Tulane University Herbarium, collected in relict mountain rain forest at edge of Quebrada Chiniata, 7 kilometers east of Hilo, Department of Cundinamarca, Colombia, 2,430 meters altitude, May 1, 1944, by Joseph A. Ewan (No. 15628). Isotypes: K, US.

16. Dicliptera haughtii Leonard, sp. nov.

Suffrutex, caulibus erectis vel ascendentibus, subhexagonis, pilis minutis, retrorse curvatis; lamina foliorum ovata, acuminata (apice ipso obtuso), basi obtusa vel rotundata, supra aliquanto hirtella, subtus dense hirtella, costa et venis lateralibus prominentibus; petioli breves, dense hirtelli, pilis parvis, curvatis; capitula axillaria et terminalia, sursum aggregata, racemos densos terminales formantia, pedunculis brevibus, dense retrorse hirtellis; bracteae cymas sub-tendentes subulatae, carinatae, pilosulae, et ciliatae, marginibus albidae;
bractea major exterior cymulam subtendens anguste obovata, apice subobtusa et apiculata, basi angustata, carinata, marginibus albidis, utrinque dense hirtella; bractea minor exterior cymulam subtendens lineari-lanceolata, apice acuminata, basi angustata, marginibus albidis, costa prominente, utrinque dense hirtella; bracteae intimae anguste lanceolatae, acuminatae, ciliatae, albidae (vel costa viridi), utrinque hirtellae; calycis segmenta anguste lanceolata, acuta, albida, minute ciliolata et puberula, pilis marginis rectis, ascendentibus apice acutis, pilis superficium erectis, apice truncatis; corolla punicea, subtiliter pubescens, tubo anguste hypocraetiformi, labiis suberectis

Suffrutescent herbs up to 50 cm. high; stems erect or ascending, subhexagonal, moderately branched, hirtellous, the hairs about 0.25 mm. long, retrorsely curved; leaf blades (only the uppermost present) ovate, up to 2.5 cm. long and 1.5 cm. wide at 1 cm. above base, acuminate (the tip itself obtuse), obtuse or rounded at base, entire or undulate, both surfaces hirtellous, the lower densely so, the costa and
lateral nerves (4 or 5 pairs) rather prominent; petioles up to 3.5 mm. long, densely hirtellous with small curved hairs; capitula axillary and terminal, the uppermost aggregated to form a spikelike thyrs to 4 cm. long and 3 cm. broad, the peduncles up to 2 mm. long, densely hirtellous with retrorsely curved hairs about 0.25 mm. long; bracts subtending the cymes subulate, up to 5 mm. long and 1 mm. wide at base, carinate, pilosulous and ciliate, the margins whitish; larger outer bract subtending the cymule narrowly obovate, 12 mm. long, 4 mm. wide at 4 mm. below tip, subobtuse and apiculate, gradually narrowed from above middle to base, green or the narrow marginal areas near base whitish, the basal portion (about 4 mm. long) carinate, both surfaces rather densely hirtellous, the hairs spreading or ascending, the costa prominent, the lateral nerves obscure; smaller outer bract subtending the cymule linear-lanceolate, 1 cm. long, 1.5 mm. wide, acuminate at tip, narrowed at base, the costa prominent, the pubescence that of the larger outer bract, a narrow marginal basal area whitish; innermost bracts narrowly lanceolate, 6 to 7 mm. long, 1 mm. wide near base, acuminate, ciliate, whitish or the costa greenish, both surfaces hirtellous, the hairs about 0.25 mm. long; calyx 4 mm. long, the segments narrowly lanceolate, 3 mm. long, 0.75 mm. wide at base, acute, minutely ciliolate and puberulous, whitish, the marginal hairs up to 250μ long, straight, ascending, sharp-pointed, the surface hairs 125μ long, erect, blunt at tip corolla; bright red, finely pubescent, 2.5 cm. long, the tube about 1 mm. broad at base, 4.5 mm. broad at mouth, the lips suberect and subequal, about 9 mm. long, the upper lip 3.5 mm. broad at base, subobtuse at tip, the lower lip 5 mm. wide at base, 2-lobed at tip, the lobes ovate, 1 mm. long and wide, subobtuse at tip; stamens equaling or slightly exceeding the upper lip of the corolla, the filaments flattened, glabrous or pilosulous toward base; capsules not seen.

Type in the U. S. National Herbarium, No. 1995097, collected along gully on highway between Ubaté and Susa, Department of Cundinamarca, Colombia, 2,600 meters altitude, September 15, 1947, by Oscar Haught (No. 6179).

17. **Diplaptera koiei** Leonard, sp. nov.  

**Suffrutex, caulibus deorsum subteretibus, parce subtomentosis, sursum subhexagonis, pilis albidis, curvatis; lamina foliorum siccate lacte viridis, ovata, subacuta vel subobtusa, basi cuneata vel rotundata et in petiolum breviter decurrens, aliquanto firma, integra, supra parce hirsuta, pilis ascendentibus, subtus dense tomentosa, pilis albidis, costa et venis lateralibus obscuris; petioli dense hirsuti, pilis albidis, ascendentibus; inflorescentiae cymosae subsessiles, axillares et terminales, cymis flabelliformibus, supremis confluentibus thyrsos**
densos terminales formantibus; cymulae saepe 3; bracteae cymas subtendentes foliiformes; bracteae cymulae subtendentes inaequales, exteriores oblongo-ovatae acutae, interiores breviores, anguste lanceolatae, acuminatae, extus dense hirsutae, pilis patulis vel ascendentibus, intus puberulae, costa obscura; bracteae calyces subtendentes anguste lanceolatae, acuminatae, ciliatae, puberulae, costa prominente; calycis segmenta anguste triangularia, longe acuminata, subglabra, ciliolata, subhyalina; corolla parce pubescent, labio superiore anguste ovato, apice obtuso vel rotundato, labio inferiore anguste ovato, apice 3-lobato, lobis brevibus, rotundatis; stamina exserta.

Suffruticose plants up to 0.5 meters high or more, drying bright green; stems subterete, 2.5 mm. in diameter at base, hexagonal and subtomentose toward tip, the pubescence dense at tip of plants, be-

Figure 132a.—*Diciplentera koiei* Leonard (*Kie* 5056): *a*, Tip of plant; *b*, outer bract subtending cymule; *c*, inner bract subtending cymule; *d*, one of inner bracts subtending calyx; *e*, calyx segment; *f*, corolla. (*a, f*, Natural size; *b–d*, twice natural size; *e*, 3½ times natural size.)

coming sparser towards base, the hairs whitish, variously curved, up to 0.5 mm. long; leaf blades ovate, up to 4.5 cm. long and 2 cm. wide, subacute to subobtuse at tip, cuneate to rounded at base and decurrent on the petiole, moderately firm, the upper surface sparingly hirsute, the hairs ascending, up to 0.8 mm. long, the lower surface densely subtomentose, the hairs whitish, up to 0.75 mm. long, the costa and lateral veins (4 or 5 pairs) rather obscure; petioles up to 5 mm. long, densely hirsute with whitish, ascending hairs about 0.45 mm. long; cymes axillary and terminal, the uppermost confluent, forming a thyrsus up to 3 cm. long and 1.5 cm. broad, the cymes sub-
sessile, fanlike, usually composed of 3 cymules; bracts subtending the cymes leaflike, mostly about 12 mm. long and 5 mm. wide, the pubescence that of the leaves; bracts subtending the cymes unequal, the outer oblanceolate, that of the middle cymule 15 mm. long, 3.5 mm. wide, acute, those of the lateral ones 11 mm. long, 2.5 mm. wide, subacute, the inner bracts narrowly lanceolate, that of the middle cymule 12 mm. long and 1.5 mm. wide, acuminate, those of the lateral cymes 10 mm. long and 1.5 mm. wide, acute, the outer surface of all of the cymule bracts rather densely hirsute with spreading or ascending yellowish hairs up to 0.5 mm. long, the inner surface of the cyme bracts puberulous, the costa obscure, the bracts (2 pairs) subtending the calyx narrowly lanceolate, 7 mm. long, 1.25 mm. wide, acuminate, puberulous and ciliate, the hairs spreading or ascending, up to 0.25 mm. long, the costa prominent, the margins subhyaline; calyx 5.5 mm. long, the segments narrowly triangular, sharply acuminate, 3 mm. long and 1 mm. wide at base, subglabrous, ciliolate, subhyaline; corolla rather sparingly pubescent, the hairs mostly spreading, up to 0.25 mm. long, some of them gland-tipped, the tube about 2 cm. long, 5 mm. broad at mouth, the lips 1 cm. long, the upper one narrowly ovate, 5 mm. wide at base, obtuse or rounded at tip, the lower lip narrowly ovate, 5.5 mm. wide at base, 3-lobed, the lobes about 1 mm. long, rounded; stamens exserted 6 mm. beyond the mouth of the corolla tube, the anther lobes linear, about 1.75 mm. long and 0.25 mm. broad, apiculate at tip, one superposed about 0.75 mm. above the other; ovary and capsule not seen.

Type in the Herbarium of the Botanical Museum of the University of Copenhagen, collected at Ubaté, Department of Cundinamarca, Colombia, 2600 meters altitude, June 1, 1952 by M. Koé (No. 5056).

The color of the corolla is not apparent in the dried material.

18. Dicliptera danielii Leonard, sp. nov.

Herba, caulibus debilibus, subhexagonis, glabris vel ad nodos pilos paucos retrorses curvatos ferentibus; lamina foliorum ovato-lanceolata, graciliter acuminata, basi angustata, membranacea, integra vel undulata, supra glabra vel parce hirsuta, costa et venis pubescentibus, obscuris, subtus glabra, costa et venis lateralisibus aliquanto prominentibus, venulis prominentibus reticulatis, cystolithis utrinque subnigris, obscuris; petioli aliquanto breves, subtus glabri, canale pubescentem, pilis subbrunnescentibus, curvatis; capitula fere terminata, pedunculis brevibus, bifarii pilosulis; bracteae cymas subtendentes parvae, subulatae, carinatae, costa et venis parce ciliolatis; bracteae majores cymulas subtendentes inaequalibus, lanceolatae, acutae, deorsum rotundatae et carinatae, sursum planae, subcoriaceae, ciliolatae, supra minute hirtellae, subtus parce hirtellae, pilis praecipue in costa et venis positis; bracteae intimae parvae,
anguste lanceolatae, acutae, subalbidae, 1-nervatae, ciliolatae, glabrae vel ad costam pilos minitos ferentes; calycis segmenta anguste triangularia, acuta, 3-nervata, subtilliter pubescentia, pilis ascendentibus; corolla 2.5 cm. longa, angusta, labis subaequalibus, labio posteriore ovato, subobtuso, labio inferiore oblongo, apice 3-lobato, lobis parvis, triangularibus, obtusis; stamina vix exserta, filamentis planis, deorsum parce pilosis.

**Figure 133.**—Dieliptera danielii Leonard (Bro. Daniel 2970): a, Node showing leaf and inflorescence; b, portion of leaf blade (upper surface) to show reticulation of veinlets; c, one of the pair of bracts subtending the cyme; d, cymule; e, pubescence of margin of the larger outer bract subtending cymule; f, one of the larger of the innermost bracts; g, one of the smaller of the innermost bracts; h, calyx lobe; i, pubescence near tip of calyx lobe. (a, b, Natural size; c, d, f, g, twice natural size; e, 18 times natural size; h, 5 times natural size; i, about 30 times natural size.)

Herbs; stems weak, ascending, 30 cm. high or more, subhexagonal, glabrous or bearing a few minute retrorsely curved hairs near the nodes; leaf blades ovate-lanceolate, up to 9 cm. long and 3 cm. wide, slenderly acuminate, narrowed at base, membraneous, entire or undulate, the upper surface glabrous or sparingly hirsute except the costa and lateral veins, these more or less densely pubescent, the venation obscure, the lower surface glabrous or nearly so, the costa and lateral veins rather prominent, the veinlets prominently reticulated, the cystoliths blackish, inconspicuous even under a lens; petioles up to 1.5 cm. long, glabrous beneath, the channel pubescent with brownish curved hairs similar to those of the costa; capitula mostly axillary or only the very uppermost more or less confluent, the peduncles up to 3 mm. long, pilosulous in 2 lines; bracts subtending the cymes subulate, 4 mm. long, 0.5 mm. wide at base, carinate, the costa and margins sparingly ciliate; bracts subtending the cymule unequal, the larger 10 to 15 mm. long and 3 to 3.5 mm. wide, the smaller one 7 to 8 mm. long and 1.5 mm. wide, both lanceolate, acute,
rounded and carinate toward base, flat toward tip, subcoriaceous, ciliolate, the inner or upper surface minutely hirtellous, the lower surface sparingly hirtellous, the hairs curved and confined chiefly to costa and veins, these prominent, the larger pair of the innermost bracts 7 mm. long and 1.5 mm. wide, the smaller 4.5 mm. long and 1 mm. wide, both pairs narrowly lanceolate, acute, whitish, 1-nerved, ciliolate, glabrous or the costa bearing a few minute hairs; calyx 4 mm. long, the segments narrowly triangular, 3 mm. long, 1 mm. wide at base, acute, 3-nerved, finely pubescent, the hairs ascending; corolla 2.5 cm. long, the tube 1.5 mm. broad at base, narrowed to 1 mm. at 6 mm. above base, 4 mm. broad at mouth, the lips subequal, about 8 mm. long, the upper one ovate, 5 mm. broad toward base, subobtuse, the lower lip oblong, 3 mm. wide, 3-lobed at apex, the lobes triangular, about 1 mm. long and broad, obtuse; stamens reaching the tip of the upper lip, the filaments flat, sparingly pilose toward base; capsules not seen.

Type in the U. S. National Herbarium, No. 1879088, collected in Jardín, southwest of Antioquia, Department of Antioquia, Colombia, July 1942, by Brother Daniel (No. 2970). Isotype: US.

The color of the corolla is not apparent in the dried material studied.

19. Dicliptera scandens Leonard, sp. nov. 

Suffrutex diffusus, ramosus, caulibus subhexagonis, deorsum glabris, sursum puberulis, pilis curvatis, praeerque in angulis positis; lamina foliorum oblongo-lanceolata, acuta (apice ipso obtuso vel subacuto), basi angustata, in petiolum decurrens, membranacea, (sicca) saturate viridis, utrinque glabra vel in costa et venis lateralis plus minusve hirtella; petioli graciles, glabri vel canale plus minusve hirtelli; capitula fere terminalia, confluentia, racemum densum latum brevem formantia, pedunculis brevibus, parce hirtellis, pilis curvatis; bracteae cymas subtendentes parvae, subulatae, hirtellae; bracteae majores cymulas subtendentes inaequales, lanceolatae, acuminatae, aliquanto dense hirtellae, virides; bracteae intime anguste lanceolatae, albidae, ciliolatae, marginibus hyalinis; calycis segmenta triangularia, 3-nervata, dense pubescentia, pilis ascendentibus; corolla pallide salmonacea, subtiliter pubescens, tubo aliquanto angusto, labiis aequalibus, labio superiore ovato, obtuso, labio inferiore ovato, trilobato, lobis parvis, obtusis; stamina vix exserta, filamentos planos, deorsum parce et minute pilosi.

A clambering suffrutescent herb up to 13 meters high; stem subhexagonal, glabrous or the upper portions puberulous, the hairs minute, curved, confined more or less to the angles; leaf blades oblong-lanceolate, up to 12 cm. long and 3.5 cm. wide, acuminate (the tip itself obtuse or acutish), narrowed at base and briefly decurrent on the
petiole, thin, drying dark olive green, glabrous on both sides or the costa and lateral veins (5 or 6 pairs) more or less hirtellous; petioles slender, up to 2 cm. long, glabrous or the channels more or less hirtellous; capitula mostly terminal, forming short compact thyrsi up to about 2 cm. long and 3 cm. broad, the cymes 3- to 5-parted, the peduncles up to 4 mm. long, flattened, puberulous, the subtending bracts subulate, up to 2.5 mm. long, and 1 mm. wide, connate at base, sparingly hirtellous and ciliolate; cymules borne on hirtellous peduncles about 1 mm. long, the larger outer bracts of the cymule unequal, lanceolate, acute, ciliolate, sparingly hirtellous, the larger bract 14 mm. long and 4 mm. wide at middle, the costa and a pair of lateral nerves predominating, the smaller bract 9 mm. long and 2 mm. wide near base, the costa prominent, the innermost bracts narrowly lanceolate, slenderly acuminate, whitish, ciliolate, the hairs ascending, up to 250 µ long, the margins hyaline, the larger pair 6 mm. long and 1 mm. wide near base, the smaller pair 4 mm. long and slightly less

![Figure 134](image-url)
than 1 mm. wide at base; calyx 5 mm. long, the segments triangular, 3 mm. long and 1.5 mm. wide at base, acute, strongly 3-nerved, ciliolate and densely hirtellous, the hairs ascending, up to 250μ long; corolla pale salmon, finely pubescent, the hairs up to 0.7 mm. long, spreading, a few of them gland-tipped, the tube about 2 cm. long, 2.5 mm. broad at base, narrowed at 5 mm. above base to 1 mm., thence gradually enlarged to 6.5 mm. at mouth, the lips subequal, about 1 cm. long, the upper lip ovate, 7 mm. wide near base, the lower lip oblong, 7 or 8 mm. wide at throat, 3-lobed at apex, the lobes ovate, 2.5 mm. long, 1.5 mm. wide at base, obtuse; stamens reaching the tip of the lips, the filaments flat, glabrous near tip, sparingly and minutely pilose toward base, the hairs spreading or retrorsely curved, up to 550μ long; capsules not seen.

Type in the U. S. National Herbarium, No. 1515091, collected at La Sierra, 18 kilometers north of Medellín, Department of Antioquia, Colombia, 2,000 meters altitude, January 1931, by W. A. Archer (No. 1354).

20. *Dichiptera sarcochroma* Leonard, sp. nov. Figure 135

Herbs up to 1 meter tall; stems ascending, branched, leafy, subhexagonal, deorsum glabratis, crassis, sursum puberulis, pilis minutis et retrorsely curvatis; lamina foliorum ovato-lanceolata, acuminata, basi angustata, membranacea, integra vel undulata, (sicca) saturate oleo-viridis, utrinque glabra vel subglabra, costa et venis lateralis gracilibus sed aliquanto prominentibus, cystolithis sub lente conspicuis, fere albidis; petioli graciles, glabri vel in canale parce puberuli, pilis curvatis; capitula axillaria, pedunculis brevibus, puberulis; bracteae cymas subtendentes parvae, subulatae, glabrae; bracteae majores cymulas subtendentes inaequales, ciliolatae, glabrae, graciliter venosas, costa plus prominente quam venis lateralis; bractea superior rhomboe-ovata, acuta, inferior lanceolata, acuta, cuspidata; bracteae intimae anguste lanceolatae, acuminatae, minute ciliolatae, 1-nervatae, sursum hirtellae, marginibus subhyalinis; calycis segmenta anguste triangularia, parva, ciliolata, acuta, 3-nervata, sursum hirtella, subhyalin; corolla incarnata, parce et minute pubescens, tubo aliquanto angusto, labiiis subaequalibus, ovatis, labio superiore obtuso, inferiori trilobato, lobis parvis, rotundatis.

Herbs up to 1 meter tall; stems ascending, branched, leafy, subhexagonal, the upper portions puberulous, the hairs minute and retrorsely recurved, the lower portions glabrous, stout, up to 7 mm. in diameter or more; leaf blades ovate-lanceolate, up to 16 cm. long and 6 cm. wide slightly below the middle, narrowed at base, acuminate, thin, entire or undulate, drying dark olive green, both surfaces glabrous or nearly so, the costa and lateral veins (5 or 6 pairs) slender
but rather conspicuous, the cystoliths conspicuous under a lens, about 0.25 mm. long, usually whitish; petioles slender, 5 cm. long, glabrous or the channels sparingly puberulous with curved hairs; capitula axillary, the lowermost peduncles up to 7 mm. long, puberulous, those of the thyrsi up to 0.5 mm. long, puberulous; bracts
subtending the cymes subulate, usually up to 3.5 mm. long and 0.5 mm.
wide, glabrous; outer bracts subtending the cymes unequal, glab-
rous, ciliolate, delicately veined, the costa more pronounced than
the lateral veins, the superior bract rhombic-ovate, 12 mm. long,
5 mm. wide near the middle,acute, the inferior bract lanceolate,
7 mm. long and barely 2 mm. wide slightly below the middle, acute,
cuspidate; innermost bracts narrowly lanceolate, acuminate, thin,
minutely ciliolate, 1-nerved, hirtellous toward tip, the margins
subhyaline, the larger pair 5 to 6 mm. long and 1 mm. wide near
base, the smaller pair 4 mm. long and 0.75 mm. wide near base;
calyx 3 mm. long, the segments narrowly triangular, 2 mm. long and
0.75 mm. wide at base, 3-nerved, acute, ciliolate, hirtellous toward
tip, subhyaline; corolla flesh-colored, sparingly and minutely pubes-
cent, the lower portion of the tube 1 mm. broad, the throat 4 mm.
broad, the lips subequal, ovate, about 4 mm. long, the upper lip
obtuse, the lower one 3-lobed, the lobes about 0.5 mm. long and wide,
rounded; capsules not seen.

Type in the U. S. National Herbarium, No. 1852703, collected in
forest at La Laguna, on the left side of the valley of the Rio San-
juniquín, Department of El Valle, Colombia, 1,250 to 1,400 meters
altitude, December 10-20, 1943, by J. Cuatrecasas (No. 15468).

Dicliptera sarcochroma is very closely related to D. cuatrecasasii,
resembling it in many respects. Both are lush growers, have large
thin and nearly glabrous leaf blades, thick subglabrous stems and
similar bracts. In D. sarcochroma, however, the long marginal hairs
of the larger bracts subtending the cymes are entirely lacking.
The inflorescence of D. cuatrecasasii is much more crowded than that
of D. sarcochroma, forming dense terminal spikedlike thyrsi. The
epithet sarcochroma (σάρξ, flesh, and χρώμα, color) alludes to the color
of the corollas.

21. Dicliptera hazenii Leonard, sp. nov.

Herba vel suffrutex, caulibus ascendentibus, subramosis, subhex-
agonis vel deorsum teretibus, glabris vel sursum praeципue in nodis
minute et parce hirtellis; folia reflexa, laminis ovato-lanceolatis,
acuminatis (apice ipso obtuso vel acuto), basi angustatis, in petiolum
breviter decurrentibus, membrandaceous, integris vel undulatis, (siccis)
saturate oleo-viridibus, supra glabris vel parce hirtellis, costa et
venis lateralibus aliquanto dense hirtellis, pilis curvatis et sub-
adpressis, subtus glabris vel parce hirtellis, costa et venis aliquanto
hirtellis, venulis majoribus parallelis, minoribus crasse reticulatis,
prominentibus, cystolithis albidis, parvis, petioli breves, pubescentes,
pilis minutis adpressis; capitula praeципue axillaria vel sursum
aggregata, thyrsos densos terminales formantia; pedunculi inaequalis,
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hexagoni, glabri vel aliquanto et minute hirtelli, pilis retrorse subadpressis; bracteae cymas subtendentes anguste lanceolatae, carinatae, 1-nervatae, ciliolatae, glabrae vel pilos paucos minutos ferentes; bracteae majores cymulas subtendentes inaequales; bractea superior lanceolata, acuta, basi angusta, 3-nervata, viridis (vel basi marginibus albida), minute et aliquanto hirtella extus et in marginibus pilos sursum adpressos subtus ascendentes ferens; bractea inferior oblonga, acuminata, ciliolata, 3-nervata, sursum subviridis, deorsum albida, utrinque minute hirtella; bracteae intimae anguste lanceolatae, acuminatae, ciliolatae, albidae vel apice subvirides; calycis segmenta anguste triangularia, acuminata, obscure plurinervata, minute ciliolata, glabra vel apice minute hirtella; corolla rutila, subtiliter pubescens, pilis patulis, tubo anguste hypocrateriformi, labiis subaequalibus, ovatis, labio superiore obtuso, labio inferiore apice trilobato, lobis rotundatis; stamina vix exserta, filamentis planis parce pilosis, pilis retrorse ascendentibus; capsulae parvae, complanatae, dense puberulae, pilis patulis vel basi retrorse ascendentibus; semina brunnea, suborbicularia levia vel obscure aspera.

Suffrutescent herbs up to 1 meter high or more; stems ascending, sparingly branched, subhexagonal (or the lower portions terete), glabrous or the tips minutely and sparingly hirtellous especially at the nodes; leaves usually reflexed, the blades ovate-lanceolate, up to 8 cm. long and 3 cm. wide, acuminate (the tip itself blunt or sharp), narrowed at base and briefly decurrent on the petiole, firmly membranaceous, entire or undulate, drying dark olive green, the upper surface glabrous or sparingly hirtellous except the costa and lateral veins (5 or 7 pairs), these rather densely hirtellous, the hairs curved and subappressed, the lower surface glabrous or sparingly hirtellous except the costa and lateral veins, these moderately hirtellous, the hairs curved and subappressed, up to 0.5 mm. long, the veinlets coarsely reticulate, the cystoliths whitish, 375μ long; petioles up to 5 mm. long, pubescent, the hairs minute, appressed; capitula mostly axillary but several of the uppermost confluent, forming a short terminal spikelike thryse, the peduncles of the capitula unequal, up to 6 cm. long, successively shorter toward summit of the plant, all subhexagonal, glabrous or moderately and minutely hirtellous, the hairs retrorsely subappressed; cymes usually 5-parted, the subtending bracts narrowly lanceolate, 2.5 mm. long, 1 mm. wide at base, carinate and 1-nerve, glabrous or bearing a few minute hairs, ciliolate, the larger of the outer bracts subtending the cymules lanceolate, 8 to 10 mm. long, 1.5 to 2.25 mm. wide slightly above the middle, acute, gradually narrowed from above the middle to the base, 3-nerved, green (or the basal marginal area whitish), minutely and moderately densely hirtellous, the hairs about 350μ long, upwardly appressed on
the outer surface and margins, erect on the inner surface, the smaller outer bract subtending the cymules oblong, about 6.5 mm. long and 1.25 mm. wide, acuminate at the tip, ciliolate, 3-nerved, the upper half greenish, the lower half whitish, the pubescence that of the outer bract, the innermost bracts narrowly lanceolate, acuminate, ciliolate, whitish, the larger pair 6 mm. long, 1 mm. wide, the inner pair 4.5 to 5

Figure 136.—Dicliptera hazenii Leonard (Penell, Killip & Hazen 8695): a, Node to show inflorescence; b, larger, outer bract subtending the cymule; c, marginal hairs of same; d, the smaller of the outer pair of bracts subtending the cymule; e, one of a pair (larger) of the innermost bracts; f, one of the pair of the smaller innermost bracts; g, calyx, spread to show lobes; h, portion of calyx lobe enlarged to show marginal hairs; i, tip of corolla, spread to show lobes of lower lip. (a, Natural size; b, d-g, twice natural size; c, 12½ times natural size; h, 10 times natural size; i, 2½ times natural size.)

mm. long, 0.75 mm. wide near base; calyx 4.5 mm. long, the segments narrowly triangular, 3 mm. long, 0.75 mm. wide near base, acuminate, obscurely several-nerved, glabrous except the tips, these minutely hirtellous; corolla peach red, up to 12 mm. long, finely pubescent, the hairs spreading, about 0.25 mm. long, the tube 2.25 mm. broad at base, narrowed at 3 mm. above base to 1 mm., thence gradually enlarged to 4.5 mm. at mouth, the lips subequal, ovate, 7 mm. long,
and 5 mm. wide near base, the upper lip obtuse, the lower 3-lobed, the lobes suborbicular, 0.75 mm. long and wide, rounded; stamens reaching the tip of the upper lip, the filaments flat, sparingly pilose, the hairs about 0.5 mm. long, retrorsely ascending; capsules 9 mm. long, 5 mm. broad, 2 mm. thick, densely puberulous, the hairs 375 μ long, spreading, or the lowermost retrorsely ascending; seed brown, smooth or obscurely roughened, flat, suborbicular, barely 3 mm. in diameter, about 0.5 mm. thick.

Type in the U. S. National Herbarium, No. 1142664, collected on the bank of Río Quindío, above Armenia, Department of Caldas, Colombia, 1,300 to 1,500 meters altitude, July 25, 1922, by Francis W. Pennell, Ellsworth P. Killip, and Tracy E. Hazen (No. 8695). Isotype: Ph.

A specimen collected in a clearing along the Río San Rafael below Cerro Tatamá, Department of Caldas, Colombia, 2,200 to 2,400 meters altitude, September 7-11, 1922, by Francis W. Pennell (No. 10320) (G) is also of this species.

Pennell states that the corollas are jasper red externally and jasper pink internally. He tells us, furthermore, that this plant is a "tall herb," but there is no mention of its exact height.

22. Dicliptera inamoena Leonard, sp. nov.

Herba, caulisibus erectis vel ascendentibus, subhexagonis, glabris vel parce puberulis, pilis retrorse curvatis, appressis, minutis; lamina foliorum (infima non visa) oblongo-ovata, acuta vel acuminata (apice ipso obtuso), basi obtusa, in petiolum breviter decurrentis, integra vel undulata, subcoriacea, supra glabra, costa et venis lateralis obscuris, costa dense puberula, pilis curvatis, subitus (sub lente) minute punctata, glabra vel parce hirtella, costa et venis lateralis aliquanto prominentibus, cystolithis subnigris; petioli brevibus, glabri vel parce puberuli, pilis curvatis; capitula axillaria et terminalia, sursum aggregata, thyrsus densum formantia, pedunculis brevibus (vel infimis elongatis), hexagonis, puberulis, pilis retrorse curvatis, minutis, pedunculis cymularum brevibus, quadrangularibus, puberulis, pilis retrorsis, minutis; folia cymas subtendentes parva; bractea major exterior cymulam subtendens lanceolata, acuta, deorsum angustata, extus minute et aequaliter puberula, pilis minutis, arcte appressis, venulis obscuris, intus glabra vel minute hirtella, costa et venis ac venulis reticulatis, prominentibus; bractea minor cymulam subtendens lanceolata, acuminata, aliter bracteae superiori similis; bracteae intimae anguste lanceolatae, acuminate, pallide vel sursum virides, extus minute adpressae puberulae, intus subglabrae; calycis segmenta anguste triangulare, minute puberula, albida; corolla minute pilosa, tubo aliquanto angusto, labiis aequalibus,
labio superiore ovato, acuto, inferiore late ovato, apice rotundato, trilobato, lobis parvis, rotundatis; stamina vix exserta, filamentis planis, glabris vel deorsum parce pilosis; ovarium minute hirtellum.

Herbs up to 30 cm. high or more; stems erect or ascending, subhexagonal, glabrous or sparingly puberulous, the hairs retrorsely curved, appressed, 375µ long; leaf blades (only the upper ones present) oblong-ovate, up to 5.5 cm. long and 2.2 cm. wide, acute or acuminate (the tip itself blunt), obtuse at base and briefly decurrent on the petiole, entire or undulate, firmly membranaceous, the upper surface glabrous except the costa and lateral veins (4 or 5 pairs), these obscure, puber-

Figure 137.—Dicliptera inamoena Leonard (Triana, Túquerres): a, Tip of branch to show inflorescence; b, enlarged portion of leaf blade (lower surface) to show minute punctae; c, the larger of the outer pair of bracts subtending the cymule; d, marginal hairs of same; e, the smaller of the outer pair of bracts subtending the cymule; f, one of the innermost bracts; g, calyx; h, marginal hairs of one of the calyx segments. (a, Natural size; b, about 10 times natural size; c, e-g, twice natural size; d, 13 times natural size; h, 20 times natural size.)

ulous with minute curved hairs, the costa sometimes densely so, the lower surface minutely scurfy under lens, glabrous or sparingly hirtellous, the hairs about 0.2 mm. long, the venation more prominent than above, the cystoliths up to 0.2 mm. long, blackish; petioles up to 5 mm. long, glabrous or sparingly puberulous with curved hairs; capitula axillary, the uppermost aggregated to form terminal spike-like dense thyrsi about 2 cm. long and 1.5 cm. broad, the peduncles up to 5 mm. long (or the lowermost elongated, up to 6.5 cm. long),
hexagonal, puberulous, the hairs retrorsely recurved, about 125 μ long, the cymules subsessile, their peduncles 0.5 mm. long, quadrangular, retrorsely puberulous; cymes 5-parted, subtended by small leaves up to 2.5 cm. long and 12 mm. wide, similar, except in size, to the lowermost stem leaves, the larger outer bract subtending the cymule lanceolate, 12.5 mm. long, 4 mm. wide (measurements made from middle cymule), acute, narrowed from middle to base, the outer surface minutely and evenly puberulous, the hairs 150 μ long, closely appressed, the venation obscure, the inner surface glabrous or minutely and sparingly hirtellous, the costa, lateral veins and reticulated veinlets more prominent than on the outer surface, the smaller outer bract subtending the cymule lanceolate, 9 mm. long, 2 mm. wide, long-acuminate, the lower half not appreciably narrowed, pale toward base, in other respects resembling the larger bract; innermost bracts narrowly lanceolate, up to 8 mm. long and 1.25 mm. wide, acuminate, pale or greenish toward tip, the outer surface minutely appressed puberulous, the inner surface essentially glabrous; calyx 4.5 mm. long, minutely puberulous, whitish, the segments narrowly triangular, 3 mm. long and 0.75 mm. wide at base; corolla about 2 cm. long, pilose, the hairs spreading, about 0.25 mm. long, the tube 1.5 mm. broad at base, narrowed at 4.5 mm. above base to 0.75 mm., 3 mm. broad at mouth, the lips equal, 4 mm. long, the upper lip ovate, 2.5 mm. wide at base, acute, the lower lip broadly ovate, 3.25 mm. wide near base, the rounded tip 3-lobed, the lobes 0.25 mm. long and wide, obtuse; stamens barely exserted, the filaments sparingly and retrorsely pilose toward base; ovary sparingly and minutely hirtellous; capsules not seen.

Type in the Kew Herbarium, collected at Túquerres, Department of Nariño, Colombia, 1,700 meters altitude, June 1853, by J. Triana (No. 4093-1). Isotype: Col.

The color of the corolla is not apparent in the dried material of the type. The specific epithet alludes to the weedy appearance of the plant.

23. Dicliptera megalochlamys Leonard, sp. nov. Figure 138

Herba luxurians, caulibus subhexagonis, retrorse puberulis; lamina foliorum oblongo-ovata, acuminata (apice ipso obtuso), basi angustata, tenuis, integra vel undulata, utrinque glabra, costa et venis lateralibus puberulis, cystolithis minutis, inconspicuis, atrobrunneis; petioli graciles, puberuli; cymae axillares pleurumque 3-partitae, pedunculis hexagonis, puberulis; bracteae cymas subtendentes subulatae; cymulae pedunculatae, bracteis cymulam subtendentibus magnis, duobus subsimilibus, late ovatis, obtusi et apiculatis, basi truncatis, firmis, integris, ciliolatis (pilis curvatis), glabris vel parce puberulis, costa et
venis lateralibus prominentibus, venulis conspicuis, crasse reticulatis; flores plures, conferti, sessiles; bracteae intimae plures, parvae, triangulares, acutae, ciliatae et parce hirtellae; calyx tenuis, subalbidus, intus glaber, extus dense puberulus, pilis glanduliferis et eglanduliferis instructus, segmentis anguste triangularibus, acuminatis; corolla alba, deorsum glabra, sursum hirtella, bilabiata, labio superiore lanceolato, apice obtuso, inferiore oblongo, apice minute trilobato, lobis parvis, rotundatis; stamina leviter exserta; antherae loculi superpositi; filamenta subglabra vel deorsum parce hirtella; ovarium apice parce hirtellum, basi annulum striatum, glabrum, minute lobatum ferens; capsulae ovatae, planae, acutae, puberulae; retinacula oblique acuta.

Coarse herbs up to 60 cm. high or more; stems subhexagonal, retrorsely puberulous, the lower portions 5.5 mm. or more in diameter; leaf blades oblong-ovate, up to 14 cm. long and 8 cm. wide, acuminate (the tip itself obtuse), narrowed at base, sometimes obliquely so, thin, entire or undulate, both surfaces glabrous except the costa and lateral veins (4 to 6 pairs), these puberulous, the hairs 125 to 200μ long, curved, subappressed, the cystoliths minute, inconspicuous,
dark brown, up to 250µ long; petioles slender, up to 6 cm. long or more, puberulous; cymes axillary, peduncled, usually in 3-parted peduncled cymes, these solitary or in pairs, the inflorescence of mature plants forming a loose panicle up to 30 cm. long and 10 cm. broad; peduncles of the cymes up to 15 mm. long from base to fork, above fork up to 1 cm. long (lateral) and 15 mm. long (middle), ascending hexagonal, puberulous with curved hairs; bracts subtending the cyme subulate, up to 4 mm. long and about 0.25 mm. wide at base; bracts subtending the cymes similar in size or one slightly smaller than the other, both broadly ovate, 1.2 to 2 cm. long, 2 to 2.5 cm. wide, obtuse and apiculate at tip, truncate at base, firm, entire, ciliolate with curved hairs, otherwise glabrous or sparingly puberulous near base, the venation prominent, the costa and the 3 or 4 pairs of lateral nerves predominating, the veinlets coarsely and conspicuously reticulate, the intercostal areas if viewed under lens and against light, minutely reticulate; flowers 8 or more, crowded, sessile, the subtending bracts (several pairs) triangular, 1.5 mm. long and wide, acute, ciliate and sparingly hirtellous; calyx thin, whitish, 6 mm. long, subglabrous within, densely puberulous without a mixture of straight stout truncate or gland-tipped hairs 50µ long and longer straight or curved pointed ones up to 200µ long, the calyx segments narrowly triangular, 3 mm. long and 1 mm. wide at base, acuminate; corolla white, 2 cm. long, the lower half glabrous, the upper hirtellous, the hairs spreading, 125µ long, the tube 2 mm. broad at base, narrowed at 1 cm. above base to 1.5 mm., the mouth about 2.5 mm. broad, the upper lip lanceolate, 14 mm. long, 5 mm. wide, obtuse at tip, the lower lip oblanceolate, about 12 mm. long, 3.5 mm. wide near tip, minutely 3-lobed, the lobes rounded, about 0.5 mm. long and broad; stamens exserted about 6 mm. beyond the mouth of the corolla tube, the anther lobes superposed, 1.5 mm. long, 0.75 mm. wide, the filaments subglabrous or sparingly hirtellous toward base; ovary sparingly hirtellous at tip, the basal portion enclosed by a striate glabrous minutely lobed coriniform disk 1.25 mm. long and 1 mm. broad; capsules ovate, 1 cm. long, 5 mm. broad, 1.75 mm. thick, acute, puberulous; retinacula 1 mm. long, obliquely acute; seed not seen.

Type in the herbarium of the New York Botanical Garden, collected in forest at Boca Antizales, on Río Esmeralda, Department of Bolívar, Colombia, 800 to 1,100 meters altitude, February 26, 1918, by Francis W. Pennell (No. 4499).

A specimen collected at Tocarema, 2,200 meters altitude (ex Herb. Bayón) (Valle), is also of this species.
24. *Dicliptera batilliformis* Leonard, sp. nov.

Herba diffusa, caulibus ascendentibus, subhexagonis, deorsum glabris, sursum bifariam puberulis, pilis curvatis; lamina foliorum oblongo-ovata, acuminata (apice ipso subacuto), basi angustata, tenuis, integra vel undulata, utrinque glabra, costa et venis lateralisibus basi dense puberulis, pilis subbrunneis et curvatis, cystolithis sub lente conspicuis; petioli aliquanto graciles, subitus glabri, supra puberuli; cymulae solitariae vel in paribus, axillares; pedunculi glabri vel bifariam puberuli, apice complanati, prope basim geniculati, aliquando bifurcati, in nodis bracteis parvas subulatas ferentes; bracteae cymulas subtendentes subsimiles, ovatae, apice rotundatae vel late obtusae et apiculatae, basi truncatae vel rotundatae, subchartaceae, glabrae, costa et venis lateralisibus prominentibus, venulis crasse reticulatis, prominentibus; flores plures, subsessiles; bracteae intimae parvae, triangulares, subsimiles, acutae; calyx basi glaber, sursum dense puberulus, pilis conicos vel subtruncatis et gracilibus acutis intermixtis instructus, segmentis triangularibus, acutis; corolla alba labio purpureo-maculato, tubo deorsum glabro, sursum hirtello, limbo bilabiato, labio superiore obovato, rotundato vel obtuso, labio inferiore anguste ovato, apice trilobato, lobis parvis, rotundatis; stamina exserta, filamentis planis, hirtellis; antherae loculi superpositi; ovarium glabrum, annulo cupuliformi.

Rambling suffrutescent herbs up to 1.3 meters high; stems up to 2 cm. in diameter at base, ascending, subhexagonal, glabrous or the tips puberulous, the hairs curved and confined chiefly to the grooves; leaf blades oblong-ovate, up to 15 cm. long and 6.5 cm. wide, acuminate (the tip itself subacute), narrowed at base, thin, entire or undulate, both surfaces glabrous except the costa and basal portions of the lateral veins (5 or 6 pairs), these and the costa densely puberulous, the hairs brownish and curved, the cystoliths 125 to 175μ long, conspicuous under a lens; petioles rather slender, up to 5.5 cm. long, glabrous ventrally, the channel puberulous as is the costa; cymes solitary or in pairs, axillary, the peduncle glabrous or bifariamente puberulous, flattened and 3 to 3.5 mm. broad at tip, forked at 3 to 5 mm. above base, the portion above the node up to 3 cm. long, bearing at node a pair of minute subulate bracts about 1 mm. long, these often deciduous; the large cymule bracts similar but slightly different in size, the posterior bract up to 23 mm. long and 20 mm. wide, the anterior up to 18 mm. long and 15 mm. wide, both ovate, rounded or broadly obtuse and apiculate at tip, truncate or rounded at base, subchartaceous, glabrous, bearing prominent cystoliths, conspicuously veiny, the veinlets coarsely reticulate, the costa extended through the flattened portion of the peduncle; flowers
several, subsessile, subtended by several pairs of thin subcostate triangular acute ciliate bracts about 1 mm. long and wide; calyx 3.5 mm. long, densely puberulous except the glabrous basal portion of the narrowly campanulate tube, the pubescence a mixture of conical or subtruncate and more slender sharply pointed hairs, the calyx segments triangular, 1 mm. long and 0.75 mm. wide at base, acute; corolla white with purple-mottled lip, glabrous except the medial portions and outer surface of the lips, these hirtellous, the hairs spreading, about 0.25 mm. long, the tube 12 mm. long, 2.5 mm. broad, the mouth 4 mm. broad, the upper lip obovate, about 11 mm. long and 5 mm. wide, rounded or obtuse, the lower lip narrowly ovate, 14 mm. long and 4 mm. wide, 3-lobed at apex, the lobes about 1 mm. long, rounded, the middle one 1 mm. wide, the lateral ones slightly narrower; the stamens slightly exceeding the upper lip of the corolla, the anther lobes superposed, 2 mm. long and 0.75 mm. broad, the filaments flattened, dorsally hirtellous, the hairs up to 80 µ long; ovary glabrous, the disk low and cupuliform; capsules not seen.

Type in the herbarium of the New York Botanical Garden, collected along a stream in thick forest in the region of Mount Chapón, De-

The specific epithet alludes to the shovel-shaped cymule bracts. *Dicliptera batilliformis* is closely related to *D. megalochlamys* differing chiefly from that species in its rounded ovate cymule bracts definitely longer than broad, and the short-stalked simple or forked cymes. The cymule bracts of *D. megalochlamys* are broader than long and cymes 3-parted instead of forked, the subtending bracts of the node larger, and the basal segment of the peduncle considerably longer.

25. *Diciptera sanctae-martae* Leonard, sp. nov. Figure 140

Herbs up to 30 cm. high; stems erect or ascending, subhexagonal, glabrous or moderately puberulous, the hairs curved; leaf blades oblong-lanceolate to oblong-ovate, subacuminate (the tip itself obtuse), narrowed at base, thin to moderately firm, entire or undulate, both surfaces glabrous or the costa and lateral veins (5 or 6 pairs) sparingly and minutely hirtellous, the cystoliths conspicuous under a lens, about 0.5 mm. long, crowded and parallel on costa of the upper surface; petioles up to 4.5 cm. long, glabrous or sparingly hirtellous; cymes solitary or in pairs, axillary, mostly 3-parted, the peduncles
from base to node up to 2 cm. long, from node to cymes, up to 2.2 cm. long, subhexagonal, slightly flattened, glabrous or sparingly hirtellous, the hairs more or less curved, the cystoliths prominent under a lens; bracts subtending the cymes subulate or sometimes narrowly lanceolate, up to 4 mm. long, glabrous or sparingly hirtellous; cymule bracts suborbicular, up to 13 cm. long and wide, the posterior bract about 2 mm. longer and wider than the anterior bract, both bracts rounded and subapiculate at tip, cordate at base, thin, green (or in a small basal area whitish), glabrous or sparingly ciliatae, the costa rather prominent, the lateral veins and reticulations of the veinlets rather obscure, the cystoliths prominent under a lens; flowers several, subsessile, the subtending bracts lanceolate, 2.25 mm. long, 0.75 mm. wide, acumin-

Figure 140.—*Dicliptera sanctae-martae* Leonard (H. H. Smith 1411): a, Inflorescence; b, one of a pair of bracts produced at peduncle node; c, cymule bracts; d, one of the innermost bracts subtending flowers; e, calyx; f, tip of calyx segment to show pubescence; g, corolla; h, tip of stamen; i, pistil. (a, Half natural size; b, d, e, 3 times natural size; c, g, natural size; f, 40 times natural size; h, 4½ times natural size; i, 7 times natural size.)

ate, subhyaline, glabrous or sparingly ciliolate; calyx 2.25 mm. long, whitish, subhyaline, minutely hirtellous except the glabrous basal portion, the hairs ascending, the calyx segments triangular, 1.25 mm. long, about 0.5 mm. wide at base, acute; corolla 15 to 20 mm. long, rosy, moderately hirtellous (the basal portion glabrous), the hairs retrorse, up to 250μ long, the corolla tube 2 mm. broad at base, narrowed at 2 mm. above base to 1 mm., the mouth 2.5 mm. broad, the upper lip ovate, about 1 cm. long and 6 mm. wide, rounded at tip, the lower lip oblong, up to 11 mm. long, and 2.5 mm. wide, 3-lobed
at tip, the lobes rounded, about 0.5 mm. long and broad; stamens barely reaching tip of the upper corolla lip, the anther lobes superposed, about 1 mm. long and 0.5 mm. wide, the filaments flattened, glabrous at tip, sparingly pilose toward base; style slightly shorter than the stamens, the stigma bilobed, the lobes linear, obtuse, about 0.5 mm. long; ovary glabrous or very sparingly hirtellous, the basal disk oblique, about 0.5 mm. long; capsules not seen.

Type in the U. S. National Herbarium, No. 703911, collected along stream in damp woods, near Cacagualito, vicinity of Santa Marta, Department of Magdalena, Colombia, “1500 feet” altitude, December 1898, by H. H. Smith (No. 1411). Isotypes: GH, K, Mo, NY, S.

Dicliptera sanctae-martae, when compared with other Colombian species, is well marked by its small suborbicular cordate cymule bracts. According to Smith, it was not observed anywhere except in the type locality.

26. Dicliptera rhombochlamys Leonard, sp. nov. Figure 141

Herbs up to 40 cm. high or more; stems erect or ascending, subhexagonal, puberulous with curved hairs; leaf blades ovate, up to 8 cm. long and 3 cm. wide, obtuse or subacuminate with blunt tip or sometimes acute, narrowed at base, moderately firm, entire or undulate, both surfaces glabrous or nearly so except costa and lateral veins (4 or 5 pairs), these more or less puberulous with curved hairs, the cystoliths numerous and conspicuous, up to 0.5 mm. long; petioles
rather slender, up to 2 cm. long, puberulous with curved hairs or sometimes glabrous beneath; cymes solitary or in pairs, axillary, 3-parted, the peduncles up to 5 mm. long from base to fork and 3 to 12 mm. long above fork, subhexagonal, puberulous, the hairs upwardly curved and subappressed; bracts at fork of peduncle subulate, 3 mm. long and 0.25 mm. wide at base; cymule bracts rhombic, the posterior bracts up to 15 mm. long and 13 mm. wide, the inferior slightly smaller, both acute or subobtuse, narrowed at base, firm, glabrous or sparingly puberulous toward base; interior bracts subtending the flowers narrowly triangular, 1.5 mm. long, 0.5 mm. wide at base, acute, puberulous, the hairs subappressed; calyx 3 mm. long, hirtellous except the glabrous base, the slender pointed hairs (up to 100μ long and ascending) intermixed with gland-tipped hairs about 25μ long, the segments narrowly triangular, 1.75 mm. long, 0.5 mm. wide at base, acute; corollas up to 17 mm. long, violet, finely and rather densely pilosulous except the basal portion, the hairs spreading or retrorsely curved, up to 0.25 mm. long, the tube 1.25 mm. broad at base, narrowed to 1.5 mm. slightly above base, thence gradually narrowed to 2 mm. at mouth, the upper lip narrowly ovate, 9 mm. long, 4 mm. wide, subobtuse, the lower lip lightly longer and narrower
than the upper, 3-lobed at tip, the lobes 0.75 mm. long and 0.5 mm. wide, rounded at tip; stamens exserted 6 mm. beyond mouth of corolla tube, the anther lobes superposed, 1 mm. long and 0.5 mm. broad, the filaments flattened, retrorsely and sparingly pilosulous toward base; capsules ovoid, flattened, 8 mm. long, 4 to 5 mm. broad, 1 mm. thick, densely and retrorsely pilosulous, the hairs white, up to 0.2 mm. long; retinacula 1 mm. long, obliquely cucullate and acute; seed not seen.

Type in the U. S. National Herbarium, No. 1041359, collected in quebrada thicket east of Neiva, Department of Huila, Colombia, 700 to 1,500 meters altitude, July 31, 1917, by H. H. Rusby and F. W. Pennell (No. 487). Isotypes: GH, NY.

A specimen collected at Anolaima, Department of Cundinamarca, 2,200 meters altitude, August 1855, by J. Triana (K), is also of this species.

The specific epithet is derived from ῥόμβος and τως, in allusion to the rhomboid cymule bracts.

27. Dicliptera nanodes Leonard, sp. nov.

Herba parva, caulibus erectis vel ascendentibus, subhexagonis, glabris; lamina foliorum ovata, acuta vel subacuminata (apice ipso subobtuso), basi angustata, aliquanto firma, integra vel undulata, utrinque glabra, costa et venis lateralibus obscuris, cystolithis sub lente pluribus et prominentibus; petioli aliquanto breves, glabri; cymae solitariae, 2- vel 3-partitae; pedunculi glabri; bracteae cymes...
subtendentes subulatae, glabrae; bracteae cymularum rhombico-

ovatae, acutae vel subacutae, basi angustatae, subchartaceae, glabrae, costa et venis reticulatis sub lente prominentibus, bractea inferior aliquanto minor quam superior; flores plures, sessiles; bracteae intimae lanceolatae, acutae, ciliatae, costa prominente; calycis segmenta anguste triangularia, acuta, ciliata, puberula, pilis brevibus, glanduliferis; corolla matura ignota; capsulae ovoideae, complanatae, puberulae, sursum pilis patulis vel ascendentibus, deorsum pilis retrorsis; retinacula parva, oblique cucullata, glabra vel prope basim parce puberula; semina suborbicularia, complanata, subbrunnea, leviter rugosa.

Low weak herbs up to 12 cm. high; stems erect or ascending, subhexagonal, glabrous; leaf blades ovate, up to 6 cm. long and 3 cm. wide, acute to sub acuminate (the tip itself sub obtuse), narrowed at base, moderately firm, entire or undulate, both surfaces glabrous, the costa and lateral veins (3 or 4 pairs) obscure, the cystoliths numerous and prominent under a lens, up to 375μ long, straight or slightly curved; petioles up to 5 mm. long, glabrous; cymes axillary, solitary, 2- or 3-parted, the peduncles glabrous, 1.5 to 2 mm. long from base to fork, 5 to 7 mm. long from fork to base of the cymule bracts, the pair of bracts produced at the peduncle nodes subulate, about 2 mm. long, glabrous; cymule bracts rhombic-ovate, acute to subacute, narrowed at base, firm, subchartaceous, glabrous, the veins coarsely reticulate, the costa and reticulations moderately prominent under a lens, the posterior bract up to 12 mm. long and 10 mm. wide, the anterior up to 10 mm. long and 5.5 mm. wide, more sharply acute at tip than the posterior bract; flowers several, sessile; bracts subtending the flowers lanceolate, 1.5 mm. long, 0.5 mm. wide near base, acute, ciliate, the hairs up to 75μ long, ascending, the costa prominent; bractlets similar to the bracts but smaller; calyx 2 mm. long, the basal portion glabrous, the lobes narrowly triangular, 1.5 mm. long, 0.3 to 0.4 mm. wide at base, acute, ciliate, the hairs ascending, 75μ long, the costa bearing a few hairs similar to the marginal ones, the outer surface of the calyx segments moderately puberulous with subpapilliform glandular hairs about 25μ long; mature corolla not seen; style slender, about 17 mm. long, the stigma oblong and rounded, slightly broader than the style, sparingly puberulous toward base; capsules ovoid, 5 mm. long, 3 to 4 mm. broad, 1 mm. thick, puberulous, the hairs spreading or ascending at tip of capsule, but retrorse towards base; retinacula 1 mm. long, obliquely cucullate, glabrous or bearing a few minute hairs toward base; seed suborbicular, flattened, about 2.5 mm. in diameter, light brown, slightly and minutely roughened.
Type in the U. S. National Herbarium, No. 1830088, collected at Tocaima, Department of Cundinamarca, July 22, 1934, by E. Pérez-Arbeláez (No. 3106).

*Dicliptera nanodes* is characterized by its small size, glabrous or nearly glabrous parts and relatively broad leaf blades. The specific epithet is from the Greek *nanodes*, meaning dwarfish.

28. *Dicliptera columbiana* Leonard, sp. nov.

Herba, caulibus erectis vel ascendentibus, subhexagonis, glabris vel parce vel dense bifariam hirtellis, pilis recurvatis; lamina foliorum ovata, subacuta vel subacuminata, apice ipso obtuso, satis firma, integra vel undulata, utrinque glabra, costa et venis lateralis plus minusve puberulis, pilis recurvatis, cystolithis pluribus sed inconspicuis, atroviridibus vel subnigris; petioli aliquanto graciles, glabri vel supra puberuli; cymae plerumque solitariae, axillares, 2- vel 3-partitae; pedunculi hexagoni, angusti alati, hirtelli, pilis recurvatis; bracteae cymas subtendentes lineari-subulatae, acutae vel obtusae; bracteae cymosae subtendentes aliquanto magnae, bracteae inferior aliquanto minor quam superior, ambae late ovatae, obtusae, basi truncatae, tenues, virides, glabrae vel parce puberulae, costa prominente, nervis lateralis inconspicuis, venulis crasse reticulatis, sub lente prominentibus; bracteae intimae parvae, ovatae,
Herbs up to 30 cm. high; stems erect or ascending, subhexagonal, glabrous or sparingly to densely puberulous in 2 lines, the hairs recurved; leaf blades ovate, up to 5.5 cm. long and 2.5 cm. wide, subacute or if subacuminate, the tip itself obtuse, narrowed at base, drying dark olive green, rather firm, entire, undulate, both surfaces glabrous except costa and basal portions of lateral veins (5 or 6 pairs), these sparingly to rather densely puberulous with recurved hairs, the cystoliths numerous but inconspicuous, dark green or blackish; petioles rather slender, up to 1.5 cm. long, glabrous or the channels more or less puberulous; cymes mostly 2-parted (sometimes 3-parted), the peduncles below the node 2 mm. long, hexagonal, hirtellous, above node, 6 to 10 mm. long, hexagonal and narrowly winged, hirtellous, the hairs recurved, 0.2 mm. long, the bracts borne at the node of the peduncle linear-subulate, 2 to 4.5 mm. long, acute to obtuse, the larger cymule bract up to 16 mm. long and 17 mm. wide, the smaller up to 13 mm. long and 13.5 mm. wide, both broadly ovate, obtuse, truncate at base, firm, green, glabrous or sparingly puberulous, the costa rather prominent, the lateral nerves inconspicuous, the veinlets coarsely reticulated, rather obscure unless viewed with a lens; innermost bracts ovate, about 1.25 mm. long and 0.5 mm. wide, acute to subacute, sparingly hirtellous; calyx 3 mm. long, puberulous with a mixture of glandular and eglandular hairs, the calyx segments narrowly triangular, 2 mm. long and 0.75 mm. wide at base, acute; corolla purplish (lilas o moradas), finely pubescent, about 10 mm. long, the upper lip ovate, about 7 mm. long and 2 mm. wide, obtuse, the lower lip about 8 mm. long and 4 mm. wide, 3-lobed at tip, the lobes broadly ovate, rounded, 0.5 mm. long; anther cells superposed, 1.25 mm. long and 0.5 mm. broad; filaments flattened, sparingly hirtellous; capsules ovoid, 8 mm. long, 4 mm. wide, 1.5 mm. thick, flattened, obtusish at tip, densely and retrorsely puberulous, the retinacula usually bilobed, 1 mm. long; seed suborbicular, flattened, 2.5 to 3 mm. in diameter, 1.5 mm. thick, dark brown, roughened by minute retrorse prickles.

Type in the U. S. National Herbarium, No. 1931893, collected along trail between Guaduas and Alto de Aguaclara, at the Hacienda Paramillo, west of Guaduas, Department of Cundinamarca, Colombia,
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altitude 1,040 to 1,320 meters, July 24, 1947, by H. García-Barriga (No. 12355). García-Barriga's No. 12347 (US), collected at the same time and place, is also of this species.

*Dicliptera columbiana* is related to *D. megalochlamys* and resembles it in many ways; however, *D. columbiana* can be recognized by its much shorter peduncles, and smaller stature, cymule bracts, and leaf blades.

29. **Dicliptera compacta** Leonard, sp. nov.

Suffrutescens, caulibus erectis vel ascendentibus, subhexagonis, glabris vel nodis puberulis; lamina foliorum lanceolata, subacuminata (apice ipso obtuso), basi angustata, firma, integra vel undulata, utrinque glabra, costa et venis aliquanto obscura, cystolithis sub lente prominentibus; petioli glabri vel in marginibus canalis puberuli,

![Diagram of Dicliptera compacta](image)

**Figure 144.—Dicliptera compacta** Leonard (Triana, Copó): a, Node to show inflorescence and leaf blade; b, tip of cymule bract to show venation and cystoliths; c, a pair of the innermost bracts; d, calyx; e, tip of calyx segment to show pubescence. (a, Natural size; b, twice natural size; c, 3½ times natural size; d, 3 times natural size; e, 20 times natural size.)

pilis curvatis; cymae plures, axillares, compactae, 3-partitae; pedunculi infra nodum breves, glabri, hexagoni, apice complanati, angulis acutis; bracteae cymas subtendentes parvae, subulatae; bracteae cymulam subtendentes aliquanto magnae, bractea inferior aliquanto minor quam superior, ambae late ovatae, obtusae, plus minusve apiculatae, basi truncatae vel leviter cordatae, glabrae, subchartaceae, costa et venis prominentibus, venulis crasse reticulatis; bracteae intimae basi connatae, anguste triangulares, acutae, ciliatae, subhyalinae, cystolithis prominentibus instructae; calycis segmenta anguste triangularia, acuta, puberula, pilis glanduliferis et eglanduliferis intermixtis.

Suffrutescent plants up to 30 cm. high or more; stems erect or
ascending, subhexagonal, glabrous or the nodes puberulous with curved hairs; leaf blades lanceolate, up to 10 cm. long and 3 cm. wide, sub acuminate (the tip itself obtuse), narrowed at base, glabrous, the costa and veins (5 or 6 pairs) rather obscure, the cystoliths prominent and numerous under a lens, 250 to 375μ long; petioles up to 2 cm. long, glabrous or the margins of the channel puberulous with curved hairs; cymes 3-parted, usually several in each axil, the peduncles 2 mm. long from base to fork, 10 to 12 mm. long from fork to base of cyme bracts, glabrous, hexagonal, flattened toward tip, the angles acute, the cystoliths parallel, prominent under a lens; bracts produced at the fork of the cyme subulate, 2.5 mm. long, 0.25 mm. broad at base; cymule bracts ovate, obtuse and more or less apiculate, truncate or shallowly cordate at base, glabrous, firm, subchartaceous, the costa and the coarse reticulations of the veins prominent, the cystoliths numerous and conspicuous under a lens, the upper bract about 15 mm. long and wide, the lower 10 mm. long and wide; innermost bracts subtending the flowers connate at base, narrowly triangular, 1.5 mm. long, 0.5 mm. wide at base, acute, ciliate, subhyaline, bearing prominent cystoliths; calyx 3 mm. long, puberulous or glabrous near base, the pubescence a mixture of acute ascending hairs up to 100μ long and shorter gland-tipped ones; corollas, ovaries and capsules not seen.

Type in the Kew Herbarium, collected at Copo near Tequendama, Department of Cundinamarca, 500 meters altitude, July 1833, by J. Triana (No. 4093-4). Isotype: Col.

_Dicliptera compacta_ can be distinguished from _D. columbiana_, possibly its closest relative, by the crowded inflorescences and the relatively longer leaf blades. The specific epithet alludes to the crowded cymes.

**Subtribe 11b. Odontonemiinae**

_Odontonemiinae_ Lindau; Engl & Prantl, Pflanzenf. IV. 3b: 287, 334. 1895

Shrubs or herbs; inflorescence variable; flowers mostly large and brightly colored; bracts and bractlets small; calyx mostly 5-parted, rarely 4-parted or more or less 2-lipped; corolla 2-lipped, the tube frequently long; stamens usually 2; staminodes 0 or 2; anther cells equally or unequally affixed, muticous or spurred; capsules 4-seeded. In Colombia the following genera are represented:

26. Odontonema
27. Razisea
28. Siphonoglossa
26. ODONTONEMA Nees

Odontonema Nees in Linnaea 16: 300. 1842. The epithet is derived from the Greek words δόντιον, tooth, and νήμα, thread, referring to toothed filaments. Type species: Odontonema lucidum Nees (Justicia lucida Andr.). Type locality: "in Insula Barbados."

Thrysacanthus Nees in Mart. Fl Bras 9: 97, pi. 13. 1847. The epithet is derived from θηρός, thyrse, and ἄκανθος, acanthus. Type species: Thrysacanthus barlerioides Nees.

Herbs or shrubs; leaves often rather large, opposite, entire or undulate; flowers borne in narrow terminal panicles or racemes; calyx 5-parted, the segments subulate; corollas white, red, or yellow, the tube relatively slender, the throat only slightly enlarged, the limb 2-lipped, the lips subequal, the upper lip 2-lobed, the lower 3-lobed, the lobes usually rounded; stamens 2, the anther lobes parallel, narrow, blunt at base; staminodes 2; capsules clavate, the solid basal portion slender; seeds 4.

The genus consists of 40 species or more, limited to tropical regions of the Western Hemisphere. Odontonema strictum (Nees) Kuntze (also known as Justicia coccinea) is often found in cultivation. It is frequently difficult to distinguish between Odontonema and Pseuderranthemum, especially if the specimens offer only immature flowers. The flowers of both genera possess two stamens and two staminodes. The corollas of Pseuderranthemum, however, are usually smaller with very small regular lobes, the tube very narrow, and the stamens included. Those of Odontonema are larger, often several centimeters long, the limb definitely 2-lipped, the lobes rather large and the stamens exserted or at least reaching the mouth of the corolla tube.

KEY TO THE SPECIES

Leaf blades reduced from above middle to a narrow rounded or subauriculate base.

Flowers scarlet; panicle relatively broad (5 cm.) 1. O. coccineum
Flowers white; panicle narrow (2 cm.) 2. O. stenostachyum

Leaf blades cuneate at base.

Vines

Shrubs.

Corolla lobes suborbicular. 4. O. rubrum
Corolla lobes oblong or oblong-lanceolate.

Corolla up to 16 mm. long; leaf blades up to 7 cm. long. 5. O. interruptum
Corolla up to 3.5 cm. long; leaf blades up to 15 cm. long.

Corollas 2.5 to 3.5 cm. long. 6. O. bracteotatum
Corollas 1.5 to 1.7 cm. long. 6a. O. bracteotatum var. parviflorum

1. Odontonema coccineum Leonard, sp. nov. Figure 145

Frutex gracilis, erectus, caulisibus subquadrangularibus, glabris, lenticellis parvis, orbicularibus vel ellipticis, pleurumque in angulis instructis, cystolithis parvis, subpunctiformibus, inconspicuis; lamina
foliorum oblonga, acuminata (apice ipso obtuso), basi angustata, rotundata, firma, integra vel undulata vel leviter crenata, glabra, supra costa et venis obscuris, subtus minute albo-punctata, costa et venis lateralis prominentibus, venulis crasse reticulatis, cystolithis minutis, inconspicuis; petioli breves, glabri; panicula terminalis, pedunculata, aliquanto densa, pedunculis et rhachibus parce hirtellis;

Figure 145.—*Odontonema coccineum* Leonard (*a*-i, Haught 2055; j, Haught 2841): a, Leaf blade; b, basal portion of panicle; c, tip of panicle; d, calyx and pistil; e, corolla; f, pubescence of corolla enlarged to show shape of hairs; g, stamen and staminode; h, pubescence of anther; i, one of the hairs from the anther enlarged to show shape; j, valve of disrupted capsule. (*a*-c, Half natural size; *d*, 3 times natural size; *e*, a little more than natural size; *f*, 20 times natural size; *g*, 3 times natural size; *h*, 25 times natural size; *i*, 50 times natural size; *j*, three-fourths natural size.)
bracteae subulatae, carinatae, parce hirtellae et ciliatae; pedicelli parce hirtelli; calycis segmenta subulata, glabra vel parce hirtella; corolla coccinea, puberula, subventricosa, bilabiata, labiis subaequalibus, superiore bilobato, lobis angusti ovatis, apice rotundatis, inferiore prope basim trilobato, lobis oblongis apice rotundatis, subcucullatis; stamina vix exserta, filamentis complanatis, glabris vel basi parce hirtellis, antheris oblongis, lateribus puberulis; staminodia inchoata; ovarium glabrum; stylus gracilis, glaber; lobi stigmatis minuti, recurvati, angusti; capsulae clavatae, glabrae, obtusae et apiculatae; retinacula subobtusa et subcucullata; semina suborbicularia, plana, brunnea, rugosa.

Shrubs up to 2 meters high, slender, erect; stems subquadrangular, glabrous, bearing scattered circular or elliptical corky lenticels mostly about 0.5 mm. in diameter, these borne chiefly on the angles, the cystoliths minute, subpunctiform, inconspicuous; leaf blades oblong, up to 24 cm. long and 7.5 cm. wide slightly above middle, acuminate (the tip itself obtuse), narrowed to a rounded base about 1 cm. wide, firm, entire, undulate, or shallowly and indistinctly crenate, glabrous, the cystoliths numerous, inconspicuous except under high magnification, 125μ long, the lower surface minutely white-punctate, the costa and lateral veins (9 or 10 pairs) obscure above, prominent beneath as are also the coarsely reticulate veinlets; petioles up to 5 mm. long, stout, glabrous; panicles terminal, peduncled, rather dense, up to 15 cm. long and about 5 cm. broad, the branches flattened, ascending, 1 to 3 pairs at each node, the lowermost up to 4 cm. long, the others successively shorter toward tip of panicle; peduncles 2 to 7 cm. long, secondary peduncles up to 2.5 cm. long, both rachis and peduncles sparsely hirtellous, the hairs about 0.25 mm. long, ascending; lowermost branches of the panicle subtended by small leaf blades; bracts subulate, up to 3 mm. long, 0.75 mm. wide at base, carinate, sparingly hirtellous and ciliolate; pedicels 3 to 5 mm. long, sparingly hirtellous; calyx 5 mm. long, glabrous or sparingly hirtellous, the segments subulate, 3.5 to 4 mm. long, 1 mm. wide at base, carinate, sparingly hirtellous and ciliolate; pedicels 3 to 5 mm. long, sparingly hirtellous; calyx 5 mm. long, glabrous or sparingly hirtellous, the segments subulate, 3.5 to 4 mm. long, 1 mm. wide at base; corollas bright scarlet, puberulous (the hairs flattened, triangular, 25 to 75μ long), subventricose, 2.5 cm. long, the tube 3 mm. broad at base, narrowed at 4 mm. above base to 2 mm. thence enlarged to 5 mm. at throat, the lips subequal, 12 mm. long, the upper lip 2-lobed, the lobes narrowly ovate, 6 mm. long and 2.5 mm. wide, the lower lip 3-lobed nearly to base, the lobes oblong, 3 mm. wide, these and the lobes of the upper lip rounded at tip, subcucullate; stamens slightly exserted, 7 mm. long, the filaments 4 mm. long, flattened, glabrous or sparingly hirtellous at base, the anthers oblong, 1 mm. broad, their lateral surfaces puberulous, the hairs erect, 75μ long, the staminodes 0.5 mm. long, glabrous; ovary glabrous; style about 2 cm.
long, slender, glabrous, the stigma lobes recurved, 0.25 mm. long, as broad as the style; capsules clavate, glabrous, 2.5 cm. long, 6 mm. broad, 4.5 mm. thick, obtuse and apiculate; retinacula 3.5 mm. long, subobtuse and subcucullate; seed subobbiculare, about 6 mm. in diameter, 1.5 mm. thick, brown, furrowed.

Type in the U. S. National Herbarium, No. 1742321, collected along Viscaina Creek, 31 km. south of El Centro, in the vicinity of Barranca Bermeja, Magdalena Valley, between the Río Sogamoso and the Río Carare, Department of Santander, Colombia, 100 meters altitude, November 3, 1936, by Oscar Haught (No. 2055).

Antioquia: Dense woods along the Savaletas railway line between Puerto Berrio and Río Nuz, 300 to 500 meters altitude, Dec. 12, 1884, Lehmann 4104 (K).

Santander: Damp place in lowland windfall along Margarita Creek, vicinity of Barranca Bermeja, 100 to 500 meters altitude, October 7, 1934, Haught 1379 (US). Along stream in forest about El Centro, vicinity of Barranca Bermeja, 100 meters altitude, June 11, 1939, Haught 2841 (US).

Without locality: Purdie s.n. (K).

Odontonema coccineum is a well-marked species easily recognized by its tall slender habit, by its large glabrous firm leaf blades narrowed to a small rounded base and supported by a short stout petiole, and by its rather large and compact panicle of brilliant showy crimson flowers. The leaf blades resemble those of Odontonema amplexicaule (Nees) Kuntze of Brazil, but that species has a racemose inflorescence and pubescent stems.

2. Odontonema stenostachyum Leonard, n. sp. nov.

Frutex gracilis, caulibus subquadrangularibus, (siccis) nigris, aliquanto puberulis; lamina foliorum sessilis vel subsessilis, late lanceolata vel oblongo-ovata, acuminata (apice ipso obtuso), basi angustata, plus minusve auriculata, aliquanto firma, undulata, supra (sicca) subnigra, glabra vel costa parce hirtella, cystolithis obscuris, minutis, subtus (sicca) atrotina, glabra, costa et venis lateralis parce hirtellis, panicula (sicca) nigra, terminalis, solitaria, longa, angusta, pedunculo et rhache hirtellis; bracteae parvae, glabrae vel parce hirtellae; pedunculi secundarii breves; pedicelli puberuli; bracteolae subulatae, acuminatae, carinatae, glabrae vel parce puberulae; calycis segmenta subulata, acuminata, glabra vel apice parce puberula; corolla alba, glabra, lobis ellipticis, rotundatis, venosis; stamina (immatura) brevia; staminodia parva; capsulae clavatae, basi solido gracili, (siccae) nigrae, obscure puberulae vel glabratae; semina atrobrunnea, plana, rugosa.

Slender, sparingly branched shrubs up to 1 meter high or more; stems subquadrangular (the angles rounded), drying blackish, moderately puberulous, the hairs ascending, about 0.25 mm. long, the basal
portion of the stem 7 mm. in diameter or more; leaves sessile or sub-
 sessile, the blades broadly lanceolate or oblong-ovate, up to 26 cm.
long and 8.5 cm. wide, acuminate (the tip itself blunt), narrowed to a
more or less subauriculate base, moderately firm, undulate, the upper
surface drying blackish, glabrous or the costa sparingly hirtellous,
the hairs about 0.25 mm. long, the cystoliths obscure and minute,
125μ long, the lower surface drying dark olive green, minutely rough-
ened, glabrous except the costa and lateral veins (about 20 pairs),
these sparingly hirtellous, conspicuous, the veinlets delicately and rather coarsely reticulate; panicles drying black, terminal, solitary, narrow, up to 47 cm. long and 2 cm. broad, the peduncle up to the first pair of bracts as much as 20 cm. long, the lowermost internode up to 9 cm. long, the other successively shorter toward tip of panicle, the lowermost nodes (1 or 2) sterile, the others bearing fascicles of crowded short branches, the peduncle and rachis moderately hirtellous, the lowermost pair of bracts lanceolate, up to 7 mm. long, 1.5 mm. wide at base, acuminate, glabrous or sparingly hirtellous, the others similar but successively smaller toward tip of panicle; secondary peduncles up to 2 mm. long, pedicels up to 6 mm. long, both peduncles and pedicels puberulous; bracts of the panicle branches subulate, up to 3 mm. long, 0.75 mm. wide at base, carinate, glabrous or nearly so; corollas white, glabrous, about 1 cm. long (immature), the lobes elliptical, 8 mm. long, 3.5 mm. wide, rounded, the veins prominent; stamens 3 mm. long, the anthers 2 mm. long, 1 mm. broad, the staminodes 0.5 mm. long, rounded at tip; capsules clavate, 20 mm. long, 4.5 mm. broad, 3.5 mm. thick, drying black, obscurely puberulous or glabrous with age, the solid stipitate portion 12 mm. long, slender; retinacula 4 mm. long, minutely striate, 0.75 mm. thick at base, the tip thin and suberose; seed brownish black, flattened, about 3 mm. in diameter, roughened.

Type in the U. S. National Herbarium, No. 1995100, collected in rain forest along Carretera al Mar near Villa Artega, Department of Antioquia, Colombia, 150 meters altitude, December 26, 1948, by F. López and M. J. Sánchez (No. 63). Isotype: US, 1995101.

Hodge’s No. 7034 (US), collected in the same locality, August 4–8, 1947, is also of this species.

Odontonema stenostachyum is easily recognized if compared with other Colombian species by its long slender panicle of relatively small white corollas and by its subauriculate leaf blades. The specific epithet is from the Greek, στενός, slender, and στάκχος, spike, i. e. inflorescence.

3. Odontonema ampelocaule Leonard, sp. nov.  

Frutex scandens, caulibus glabris vel parce et minute strigosis, cortice pannoso; lamina foliorum oblongo-elliptica, breviter acuminata (apice ipso obtuso), basi angustata, aliquanto firma, integra vel undulata, supra glabra, cystolithis minutis, subtus glabra, costa et venis prominentibus parce strigosis exceptis, venulis crasse reticulatis; petioli breves crassi, glabri vel parce strigosi; racemi terminales, graciles, pedunculo parce hirtello, pilis patulis vel ascendentibus,
rhache dense hirtella, pilis antrorse curvatis, septatis; bracteae linear-lanceolatae, subcarinatae, dense vel parce hirtellae et ciliatae; bracteolae anguste triangulatae, acutae, parce hirtellae et ciliatae; flores in nodis plures, pedicellis gracilibus, hirtellis, pilis fere patulis; calyces

Figure 147.—Odontonema ameloeaca Leonard (Garcia-Barriga 12473): a, Section from lower part of stem showing leaves; b, tip of branch showing inflorescence; c, portion of leaf blade (upper surface) showing veinlets and cystoliths; d, node of raceme showing bracts and bractlets; e, portion of internode of the raceme enlarged to show pubescence; f, calyx; g, stamen and staminode. (a, Half natural size; b, c, natural size; d, twice natural size; e, 18 times natural size; f, 4 times natural size; g, 6 times natural size.)

parce hirtelli, tubo campanulato, segmentis triangularibus, graciliter acuminatis; corolla aliquanto magna, rubra, puberula, tubo infundibulari, leviter ventricoso, intus basi dense retrorse piloso, labiis subaequalibus, lobis ovatis, rotundatis; stamina vix exserta, filamentis
planis, glabris vel pilis rectis ascendentibus praeditis, lobis antherarum divergentibus, dense dorso puberulis, pilis rigidis patulis; staminodia quam stamina brevioria, filamentosis planis, glabris, antheris sterilibus pilosis; stigma minute bilobatum, lobis obtusis; ovarium glabrum.

Vine; stems subquadrangular, glabrous or sparingly and minutely strigose, the bark sometimes separating in shreds loosely attached to the stems; leaf blades oblong-elliptic, up to 19.5 cm. long and 6.8 cm. wide, short-acuminate (the tip itself blunt), narrowed and acute or subacute at base, rather firm, entire or undulate, the upper surface glabrous, the cystoliths minute, up to 0.8 mm. long, the lower surface glabrous except the costa and veins (6 pairs), these sparingly strigose, the hairs up to 0.2 mm. long, the venation prominent, the veinlets coarsely reticulate; petioles up to 5 mm. long, glabrous or sparingly strigose; racemes terminal, slender, up to 25 cm. long, the peduncle 4 cm. long, 1 mm. in diameter, sparingly hirtellous, the hairs 0.25 mm. long, spreading or ascending, the lowermost internode of the raceme 6 cm. long, the others successively shorter toward the tip of the racemes, all rather densely hirtellous with curved ascending septate hairs up to 0.28 mm. long; bracts (the lowermost pair sterile) linear lanceolate, up to 5 mm. long and 0.5 mm. wide near base, hirtellous and ciliate; bractlets narrowly triangular, 1.5 mm. long, 0.25 mm. wide at base, acute, sparingly hirtellous and ciliate; flowers several at each node, the pedicels slender, up to 8 mm. long, hirtellous; calyx 3 to 4 mm. long, sparingly hirtellous, the tube campanulate, the segments triangular, 0.5 to 0.75 mm. wide at base, slenderly acuminate; flowers 2.5 cm. long, red, puberulous with hairs up to 1 mm. long, the tube 3 mm. broad at base, narrowed at 4 mm. above base to 1.25 mm., thence gradually enlarged to 6 mm. at mouth, slightly ventricose, densely and retrorsely pilose within near base, the lips subequal, 4 to 5 cm. long, the lobes 4 to 5 mm. long and 2.5 to 3 mm. wide, rounded, the margins rugose (dried flowers); stamens reaching the tip of the upper lip of the corolla, the filaments flattened, glabrous or bearing a few straight ascending hairs up to 0.24 mm. long, the anthers 3.25 mm. long and 1 mm. broad near base, the cells diverging, densely puberulous dorsally, the hairs stiff, spreading, up to 0.6 mm. long, the staminodes about two-thirds as long as the filaments of the fertile stamens, their filaments flat and glabrous, bearing sterile pilose anthers, the hairs up to 0.16 mm. long; style somewhat shorter than the stamens, the stigma bilobed, the lobes minute, obtuse; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 1932293, collected at the Hacienda Curiche, El Peñón, between the Ríos Bunque and Murca, Department of Cundinamarca, Colombia, 1,050 to 1,420 meters altitude, August 1–3, 1947, by H. García-Barriga (No. 12473).
The similarity of the leaf blades and inflorescence of *Odontonema ampelocaule* and *O. schomburgkianum* (Nees) Kuntze of British Guiana suggests a relationship between the two species. *O. schomburgkianum*, however, is a shrub only about 1 meter high and has a glandular inflorescence and larger flowers (up to 4 cm. long).

The type material consists of a section of stem about 45 cm. long bearing toward the lower end two short branches, one of which is terminated by the raceme. Both branches are noticeably reflexed. García-Barriga states in his label notes that the stems are quite thick ("tallos gruesos"), so the entire plant must reach a considerable height. Its scandent nature suggests its specific epithet which is from the Greek, 

\[\text{ἀμπελός},\ \text{vine, and καύς, stem.}\]

4. *Odontonema rubrum* (Vahl) Kuntze

*Justicia rubra* Vahl, Eclog. Amer. 2: 1. 1798. Type collected at Santa Marta, Department of Magdalena, Colombia, by Rohr.

*Thrysacanthus ruber* Nees in DC. Prodr. 11: 326. 1847. Based on *Justicia rubra* Vahl.


Suffrutescent, the branches spreading, the upper portions subterangular, rather sparingly hirtellous, the hairs spreading or ascending, up to about 0.5 mm. long, more or less curved and disposed in two lines, the lower portions subterete, light gray, subnitid; leaf blades lanceolate to elliptic, up to 10 cm. long and 5.2 cm. wide, short-acuminate, narrowed at base, moderately firm, entire or undulate, both surfaces glabrous or sparingly hirsute toward base, the hairs 1 mm. long, the upper surface drying dull olive, the costa and lateral veins (5 or 6 pairs) obscure, the lower surface lighter and nitid, the venation, including the coarsely reticulated veinlets, rather prominent; petioles up to 5 mm. long, glabrous or sparingly hirsute; spikes terminal, slender, the flowers more or less secund, the peduncle up to 2.5 cm. long, this and the rachis hirsute, the hairs spreading, 0.5 mm. long; bracts lanceolate, the lowermost pair 10 mm. long and 1.5 mm. wide, the others successively smaller toward tip of spike, all acuminate, glabrous or sparingly hirsute; bractlets similar to the bracts but much smaller; pedicels slender, ca. 4 mm. long, hirtellous, the hairs 125\(\mu\) long; calyx 5 mm. long, the segments narrowly triangular, 4 to 4.5 mm. long, 1 to 1.25 mm. wide at base, acute, sparingly to moderately puberulous, the hairs up to 50\(\mu\) long; corollas 2.5 cm. long, red, finely and moderately puberulous, the tube 2 mm. broad at base, narrowed at 5 mm. above base to 1.25 mm., thence gradually enlarged to 6 mm. at 15 mm. above base and constricted again at throat to 3 to 4 mm., the lips 5 mm. long, subequal, the upper deeply 2-lobed, the lower 3-lobed, the lobes suborbicular, 4 mm. long and 3 mm. wide, obtuse;
filaments about 9 mm. long, glabrous; anthers 3.5 mm. long, 1.5 mm. broad; staminodes 4 to 5 mm. long, glabrous; ovary glabrous; style about 2 cm. long, glabrous, the stigma linear, but slightly broader than the style; capsules not seen.

The largish red flowers more or less secund in terminal loose racemes suggest, as Nees points out in his description of *Thrysacanthus ruber*, the species *Odontonema schomburgkianum* from British Guiana. The above description was drawn from Smith’s No. 1390, a plant which differs in several respects from Rohr’s type. The leaf blades of Smith’s specimen are broadly lanceolate or elliptic (5.2 cm. wide) instead of narrowly lanceolate (2 cm. wide) as in Rohr’s collection, and the racemes are hirtellous instead of glabrous. The large red corollas, however, with their short lips divided into obtuse suborbicular lobes, typical of both Rohr’s and Smith’s specimens, leads one to include them in the same species. *O. bracteolatum* also varies in the relative width of the leaf blades and in the amount of pubescence on stems and inflorescences.

The following notes accompany H. H. Smith’s sheet in the New York Botanical Garden: “Shrub, 2–4 ft. with few branches, and often drooping or procumbent; air roots are frequent. Flower scarlet. Locally common in damp mountain forest about 5000 ft. The specimens were collected above Las Nubes, Dec. 17.”

**Magdalena:** Santa Marta, *H. H. Smith* 1390 (NY, GH, PH, S); Rohr s.n., represented by photograph Field Mus. No. 22203 (US).

5. *Odontonema interruptum* (H. B. K.) Kuntze


*Thrysacanthus interruptus* Nees in DC. Prodr. 11: 326. 1847. Based on *Justicia interrupta* H. B. K.


Shrub; branches terete, smooth, bearing scattered minute appressed hairs; leaf blades oblong, acuminate (the tip itself obtuse), narrowed at base, the upper surface blackish green, the lower pale, both surfaces reticulately veined, nitid, glabrous except the costa, this strigose-hirsute; petioles 4 to 6 mm. long, pubescent; racemes terminal, pedunculate, 7.5 to 10 cm. long; peduncles hirsute; flowers solitary, short-pedicelled, opposite, distant; bracts linear, hirsute, longer than the pedicels; calyx hirsute, the segments linear, equal; corolla 2-lipped, the upper lip 2-lobed, the lower 3-parted; stamens included, the anthers oblong, the locules approximate, parallel.

No specimens seen. The description is drawn from the original and that of Nees. The included stamens and small size of the corolla indicate a possibility that this may be a *Pseuderalanthemum*. A photograph of Humboldt’s specimen in the Berlin Herbarium is in
the U. S. National Herbarium (Field Mus. No. 9515); this shows that
the leaf blades are 5-7 cm. long and 2-2.6 cm. wide, and that the
corollas are about 1.6 cm. long, measurements somewhat larger than
those given by Nees.

6. Odontonema bracteolatum (Jacq.) Kuntze
   Odontonema bracteolatum Kuntze, Rev. Gen. Pl. 2: 492. 1891. Based on Justicia
   bracteolata Jacq.

Suffrutescent plants up to 3 meters high, sometimes becoming
diffuse and subscandent with age; stems erect, simple or sparingly
branched, the lower portions terete, 7 mm. in diameter or more,
glabrous, bearing minute subpunctiform cystoliths and low parallel
elongated lenticels (up to 3 mm. long), the upper portion and rachis
quadrangular or subquadrangular and more or less hirsute, the hairs
whitish, spreading or ascending, up to 0.5 mm. long; leaf blades
lanceolate or oblong-elliptic, up to 15 cm. long and 4.5 cm. wide but
usually narrower, acuminate, narrowed at base, moderately firm, dull
to subnitid, entire or undulate, both surfaces sparingly hirsute or
glabrous, the hairs ascending or spreading, up to 0.5 mm. long, the
cystoliths of the upper surface numerous, conspicuous under a lens,
up to 225μ long, the costa and lateral veins (5 or 6 pairs) obscure
to rather prominent, the veinlets coarsely reticulate; petioles up to
1 cm. long but usually only about 5 mm. long, hirtellous to hirsute,
or sometimes subglabrous; flowers borne in racemes or narrow terminal
loose to dense panicles usually 10 to 20 cm. long and 1 to 5 cm. broad,
the lateral branches of loose panicles usually basal, solitary or in pairs,
up to 2 cm. long, several-flowered, the upper portion of the panicle
often racemose, the flowers solitary in the axils of the bracts, the basal
nodes of the inflorescence often bearing a pair of small leaves; peduncles
of the lateral branches and pedicels slender, flattened, hirtellous, up to
5 mm. long; bracts subending the flowers subulate or narrowly tri-
angular, curved, up to 3 mm. long, carinate, hirtellous, the hairs
ascending, 0.25 mm. long; calyx 2 to 3.5 mm. long, hirtellous to
subglabrous, the segments lanceolate, slenderly acuminate, 0.5 to 0.75
mm. wide at base; corollas scarlet, 2.5 to 3.5 cm. long, moderately
pubescent, the hairs mostly spreading, 100 to 125μ long, the tube 3.5
mm. broad at base, narrowed at 6 mm. above base to 1.5 mm., thence
enlarged to 5 mm. at throat, the upper portion subventricose, the
upper lip oblong, 10 to 15 mm. long, 4 to 5 mm. wide, 2-lobed at tip,
the lobes oblong, 4 to 5 mm. long, 2 to 2.5 mm. wide, obliquely obtuse
at tip, the lower lip equaling or slightly longer than the upper, deeply
3-lobed, the lobes oblong-lanceolate, up to 13 mm. long and 3 mm.
wide, obliquely obtuse at apex; stamens reaching notch of the upper
lip of the corolla, the filaments flattened, hirtellous near base, the hairs
up to 150μ long, the anthers 4 mm. long and 1.5 mm. broad; staminodes up to 1 cm. long, tipped by rudimentary anthers; ovary glabrous; capsules clavate, up to 25 mm. long, 5 mm. broad, 4 mm. thick, the solid stipe slender, 1.5 mm. broad at base, 3.5 mm. broad at base of cavity, the tip of the capsule acute; retinacula 3 mm. long, subulate; seeds 4, suborbicular, 3.5 mm. long and broad, 1 mm. thick, light brown, deeply muricate.

*Odontonema bracteolatum* varies greatly in the relative width of leaf blades, the amount of pubescence of the rachis and upper portion of the stems, and in the amount of branching of the panicle. The leaf blades of Dugand & García-Barriga's No. 2493 do not exceed 21 mm. in width whereas in Allen's No. 866 they are as much as 4.5 cm. wide. Smith's Bonda specimen possesses a densely hirsute stem and rachis but a slender, lax, almost racemose inflorescence, only the lowermost flowers borne on sparingly branched peduncles. At the other extreme, Haught's No. 3946 has a rachis and upper stem portion almost glabrous and a compact crowded panicle, its lateral branches produced several in a cluster from the base to the tip of the inflorescence. Variation between these extremes are exhibited by the other specimens cited.

The species is usually found growing along shaded streams in forests at 70 to 800 meters altitude. It produces showy panicles of bright red corollas and blooms more or less throughout the year. Endemic.

**Atlántico:** Piojo, vicinity of Barranquilla, *Bro. Elias* 742 (US).

**Bolívar:** Between Cartagena and Turbaco, Dugand & Jaramillo 2852 (US).


**Norte de Santander:** La Esmeralda, *Killip & Smith* 20932 (GH, NY, US).

**Without Locality:** Photograph (Field Mus. No. 32704) of Jacquin Herbarium sheet from Vienna Herbarium (US).


*Folia angusta, lanceolata; corolla parva, 15-17 mm. longa, cetera formam typicam similis.*

Type in the U. S. National Herbarium, No. 2028723, collected at Cacaguilito, region of Santa Marta Mountains, Department of Magdalena, Colombia, "1500 ft." altitude, May 1899, by *H. H. Smith* (No. 1389, in part). Isotypes: Ph, NY. The variety is also represented by the following collections:

**Atlántico:** Hacienda Riodulce, vicinity of Los Pendales, 20 to 50 meters altitude, *Dugand & Jaramillo* 4153 (US).
400 CONTRIBUTIONS FROM THE NATIONAL HERBARIUM

Magdalena: Rincón Hondo, Allen 368 (Mo). Tucurina, Romero 608 (Ch). Donana, Giacomelto 78 (US).

Without Locality: Linden 703, represented by photograph Field Mus. No. 32706 (US).

Odontonema bracteolatum var. parviflorum differs in no way from the typical form except in the size of the corolla, this being 15 to 17 mm. long instead of 25 to 35 mm. long. The leaf blades of the specimens examined are predominantly narrow, not exceeding 3 cm. in width. However, narrow-leafed plants of the typical form with large corollas are common.

Nees' Thrysacanthus bracteolatus is based on Jacquin's plant and Linden's No. 703. Linden's collection, as can be readily seen from the photograph (No. 32706), is of the small-flowered form.

27. RAZISEA Oerst.


Shrubs bearing rather large, oblong-ovate, mostly glabrous leaves and terminal peduncled spikelike racemes of brilliant red flowers; pedicels short; bracts and bractlets lanceolate, small; calyx small, deeply segmented, the segments 5, narrowly triangular and short-acute; corolla narrowly infundibular, slightly curved, the lips short, the upper one narrow and acute, the lower lip broad, 3-lobed at tip, the lobes small and suborbicular; stamens 2, exserted, the filaments flattened; anthers 1-celled, blunt at each end; style exserted, the stigma 2-parted; ovary glabrous; capsules clavate, 4-seeded.

Distribution: Costa Rica, Panamá, and Colombia.

The genus consists of a single species.

1. Razisea spicata Oerst. Figure 148


Type collected in dense mountain woods of Aguacate, Costa Rica, by Oersted.

Shrubs up to 3 meters high; stems subquadrangular, nitid, glabrous or puberulous, the hairs minute, white, curved, disposed more or less in two rows; leaf blades oblong-ovate to elliptic, up to 21 cm. long and 9 cm. wide, short-acute, narrowed at base and decurrent on the petiole, rather thin, entire or undulate, the upper surface glabrous, subnitid, the cystoliths minute, obscure, the lower surface minutely white-papillose, drying a lighter green than the upper surface, glabrous or the lateral veins (8 to 12 pairs) and margins of the costa puberulous, the cystoliths sometimes numerous and conspicuous under a lens, up to 150μ long, the venation rather prominent, more so than above; petioles up to 5 cm. long, glabrous; flowers
borne in narrow terminal spikelike racemes up to 20 cm. long and 6 cm. broad, the flowers erect or ascending, usually numerous, the peduncle up to 3 cm. long, glabrous or bifariously puberulous; rachis puberulous; pedicels up to 1.5 mm. long, puberulous, the hairs curved; lowermost bracts narrowly triangular, up to 3 mm. long and 1.5 mm. wide at base, acuminate, glabrous, the other bracts similar but successively smaller toward tip of inflorescence; bractlets triangular, up to 2 mm. long and 0.75 mm. wide at base, acute, glabrous; calyx 5 mm. long,

depthly segmented, the segments narrowly triangular, 1 mm. wide at base, gradually narrowed to a slender tip, glabrous, bearing numerous minute cystoliths, these conspicuous under a lens; corolla brilliant red, glabrous or sparingly and minutely hirtellous, up to 4 cm. long, the tube 2.5 mm. broad near base, gradually enlarged to 7 mm. at mouth, the tip, before expansion, obliquely truncate, the upper lip ovate, 6 mm. long and about 4 mm. wide, abruptly bent before expansion of flower to cover the broad short more or less saccate
lower lip, this 3-lobed at tip, the lobes suborbicular, about 1 mm. long and broad; stamens exserted about 10 mm. beyond mouth of corolla tube, the filaments winged, glabrous; anthers glabrous, rounded at each end; style about as long as the stamens; ovary glabrous; capsules not seen.

Although limited in range in Colombia, this species seems to be rather widespread in Costa Rica and Panamá. In the last-named regions the species varies greatly in size of leaf blades, amount of pubescence, length of pedicels, and number of flowers.

**Boyacá:** Thick forested region of Mount Chapón, **Lawrence 198** (K, NY, S, US).

**Cundinamarca:** Forests of Paneo on the La Palma Highway, 1,000 meters altitude, **Haught 6013** (US). Sasaima, Herbarium of Fidel Pombo (Col).

### 28. SIPHONOGLOSSA Oerst.

*Siphonoglossa* Oerst. Vid. Medd. Nat. For. Kjøbenhavn, 1854: 159 1854. From the Greek *σιφων*, tube, and *γλανόσα*, tongue, in allusion, probably, to the slender-tubed corollas. Type species: *Siphonoglossa ramosa* Oerst. Type locality: Province of Tehuacán, Santa Lucía, Mexico.

Shrubs or suffrutescent herbs; bracts none; bractlets small; leaf blades entire; flowers sessile, solitary or few, borne in the axils of the uppermost leaf blades or occasionally on short peduncles; calyx segments 4, narrow, short-acuminate; corollas white, blue, or purple, the tube slender, elongated, terete, the limb 2-lipped, the upper lip entire or 2-lobed, the lower lip 3-lobed, spreading; stamens 2, adnate to the mouth of the corolla tube, included or exserted but not reaching beyond the upper lip of the corolla, the anthers 2-celled, the cells more or less superposed; staminodes none; stigmas slightly 2-lobed; capsules clavate, usually 4-seeded.

*Siphonoglossa* is small genus of tropical or subtropical plants consisting of about a dozen species, ranging from the southern United States to northern South America.

1. *Siphonoglossa calcarea* Leonard, sp. nov. **Figure 149**

*Suffrutex parvus*, caulibus striatus, teretibus, dense hirtellis, pilis albis, curvatis; lamina foliorum ovata, subacuta, basi rotundata, in petiolum breviter decurrens, supra glabra vel parce hirtella, costa dense hirtella, subtus mediocriter hirtella, costa et venis magis prominentibus, venulis subtiliter reticulatis; petioli graciles, breves, dense hirtelli, pilis curvatis; flores solitarii et axillares, vel pauci in pedunculis brevibus, dense hirtellis; bracteolae subulatae, parvae, hirtellae; calycis segmenta acuminata, hirtella; corolla purpurea, tubo angusto, cylindrico, hirtello, pilis patulis, bilabiata, labii subglabris, labio superiore ovato, rotundato, labio inferiore trilobato,
lobis ellipticis, rotundatis; stamina vix exserta, filamentis brevibus, glabris, loculis antherarum plus minusve superpositis; stylus sursum glaber, deorsum minute hirtellus; stigma lineari-lanceolatum; capsulae clavatae, dense hirtellae, pilis patulis; retinacula brevia, apice truncato-rotundata; semina 4, plus minusve complanata, tuberculata.

Small branched suffrutescent plants up to 8 cm. high; stems up to 2 mm. in diameter, terete, striate (at least the upper portions), densely hirtellous, the hairs white, variously curved, about 0.25 mm. long; internodes mostly 1 cm. long, occasionally up to 2.5 cm. long; leaf

Figure 149.—Siphonoglossa calcaria Leonard (Haught 3929): a, Portion of plant; b, portion of stem to show pubescence; c, leaf; d, node from upper portion of stem to show inflorescence; e, calyx and one of a pair of bractlets; f, anther. (a, c, Natural size; b, d, twice natural size; e, 2½ times natural size; f, 4 times natural size.)

blades ovate, up to 2 cm. long and 1.2 cm. wide, subacute, rounded at base and briefly decurrent on the petiole, the upper surface glabrous or sparingly hirtellous, the costa more densely so, the hairs about 0.25 mm. long, white, curved, the costa and lateral veins (4 or 5 pairs) delicate and rather obscure, the lower surface moderately and finely hirtellous, especially the veins, the hairs similar to those of the upper surface, the costa and lateral veins more prominent than those above, the veinlets rather finely and delicately reticulate; petioles slender, up to 4 mm. long, densely
hirtellous, the hairs similar to those of the leaf blades; flowers one
to several, sessile in the axils of the uppermost leaves or terminating
axillary peduncles up to 4 mm. long; these are the stems, densely
hirtellous; bractlets subtending the calyx subulate, up to 2.5 mm.
long, 0.25 to 0.5 mm. wide at base, gradually narrowed to a slender
point, hirtellous; calyx 5 mm. long, hirtellous, the segments narrow,
0.75 mm. wide at base, gradually narrowed to a slender tip; corollas
purplish red (Haught), 15 to 17 mm. long, hirtellous (the lobes
sparsely so), with spreading hairs about 0.25 mm. long, the tube
cylindric, 1.5 mm. in diameter at base, reduced at 3 mm. above base
to 1 mm., thence gradually enlarged to 1.5 mm. at mouth, the upper
lip ovate, about 5 mm. long and 2 mm. wide near base, the tip rounded,
the lower lip 3-parted, the lobes elliptic, about 6 mm. long and 3.5
mm. wide, rounded; stamens inserted near the mouth of the corolla
tube, the filaments 2.5 mm. long, glabrous, the anthers 1.5 mm. long,
their lobes more or less superposed; style about 15 mm. long, glabrous
toward tip, minutely hirtellous from about the middle to base, the
stigma linear-lanceolate; capsules clavate, 7 to 8 mm. long, 2.5 mm.
broad, about 1.5 mm. thick, densely hirtellous, the hairs spreading,
100μ long, mostly straight and spreading, the capsule narrowed to a
blunt tip, the solid basal stipe about 2.5 mm. long; retinacula 0.75
mm. long and nearly as broad, concave, rounded-truncate at tip;
seeds 4, about 1.25 mm. in diameter, somewhat flattened, tuberculate.

Type in the U. S. National Herbarium, No. 1708760, collected on
very dry limestone soil at La Paz, Department of Magdalena, Colombia,
200 meters altitude, January 14, 1944, by Oscar Haught (No.
3929).

Tribe 12. Isoglossae

IV, 3b: 287. 1895.

This tribe has Gürtelpollen (pollen grains usually lens-shaped
or ellipsoidal with a pore at each of the poles and a prickly belt around
the equator), and 2- or 1-celled anthers.

Subtribe 12a. Porphyrocominae

Shrubs or herbs; flowers often borne in thick spikes, the bracts
imbricate; calyx 5-parted, the segments equal or unequal; corolla
2-lipped; stamens 4 or 2; anthers 2-celled, the sacs equally or unequally
affixed; capsules 4-seeded. Four Colombian genera are represented:

29. Fittonia
30. Kalbreyeriella
31. Syringidium
32. Megaskepasma
29. FITTONIA E. Coem.


Herbs; leaves petioled, ovate, the blades rounded, cordate at base, the costa and veins colored; spikes peduncled, terminal, the flowers borne singly in the axils of the rather conspicuous ovate rounded overlapping 4-ranked bracts; calyx 5-parted, the segments lanceolate, ciliate; corolla hypocrateriform, 2-lipped, the upper lip narrow, entire, incurved, the lower one recurved, 3-lobed; stamens 2, included, attached to the corolla tube near its throat, the anthers 2-celled, the cells equal; capsules 4-seeded.

In addition to the type species, two others, *F. argyroneura* E. Coem. and *F. gigantea* Linden, have been described, both based on Peruvian material. Because of their attractive foliage with its brightly colored veins they are often found cultivated in greenhouses.

**KEY TO THE SPECIES**

Veins of the leaf blades white ............................................. 1. *F. argyroneura*
Veins of the leaf blades purple ........................................... 2. *F. verschaffeltii*

1. *Fittonia argyroneura* E. Coem.

**Figure 150**

Repent herbs; stems pilose or subtomentose, the hairs dull whitish, more or less spreading, up to 2.5 mm. long, more or less disposed in two lines; leaf blades ovate, up to 6 cm. long and 4.5 cm. wide, obtuse or rounded at apex, rounded and subcordate at base, rather thin, entire or undulate, ciliate, the hairs up to 0.75 mm. long, spreading; the upper surface glabrous or sparingly hirtellous, nitid, drying bright green, marked by conspicuous white coarsely netted veins, the lower surface drying dull green, the costa and lateral veins (4 or 5 pairs) pilose, not colored as above; petioles up to 2.5 cm. long, pilose except the more or less glabrous channels, the hairs spreading, up to 1.75 mm. long; flowers borne in terminal peduncled spikes up to 3 cm. long or more and about 1 cm. broad, the peduncles (up to 6 cm. long) and rachises pilose, the bracts quadripartite, ovate, up to 8 mm. long, and 5 mm. wide, obtuse to subacute, apiculate, ciliate and sparingly pilose, the hairs whitish, spreading or ascending, up to 1 mm. long, some of them gland-tipped; bractlets subhyaline, lanceolate, up to 5 mm. long, 0.75 mm. wide near base, gradually narrowed to a slender tip, rather sparingly hirtellous; calyx 5 mm. long, sparingly hirtellous or the basal portion glabrous, the segments narrowly lanceolate, 4 mm. long, 0.5 mm. wide at base, gradually narrowed to slender tips; corolla pale yellow, 12 to 13 mm. long, the throat 2.5 mm. broad, the
upper lip ovate, 2.5 mm. long, rounded, the lower lip 3-lobed, the lobes similar in size to the upper lip; stamens reaching the tip of the lobes, the anthers 2.5 mm. long, the lobes narrow, parallel, rounded at base, the filaments 4 mm. long, pubescent; ovary glabrous or sparingly hirtellous at tip. Style as long as the stamens, glabrous, the stigma bilobed, the lobes about 0.1 mm. long; capsules not seen.

_Fittonia argyroneura_, a forest plant, is mostly prostrate with only the tips ascending, the nodes rooting and the leaves often resting flat on the ground. All the species of the genus are distinguished by the conspicuous colored netted veining of the upper surface of the leaf blades. This one prefers rather low altitudes (300 to 760 meters). Specimens from Peru, Bolivia, and Colombia are in the U. S. National Herbarium.

Lehmann gives the following field notes: "No. 4985: Weeds with thin stems up to 50 cm. in length, creeping on ground and ramified in form of a broad tail. Leaves paper-like, dark green with a network of milky white nerves. Flowers a delicate sulphur yellow. Colombia. Grows very frequently in small islands in dense damp forests around Las Juntas del Dagua, western littoral region of Buenaventura, 0-500 meters. Flowers in September and October.—Note: This species also occurs on the coast of Barbacoas and on the East Andes of Cuenca in the district of Gualaquiza Jabaros up to an altitude of 1000 meters."

"No. 5600.—Weed with procumbent stems up to 50 cm. in length. Leaves dark green with silver-white nerves. Flowers yellow. Colom-
bia. Grows on slate rubble in dense forests around Las Juntas del Dagua, West Andes of Cali, 200–400 m. March.”

**EL VALLE: Cisneros, Killip 35534 (US). La Margarita, Río Diga Valley, Killip 34892 (US). Dagua, Lehmann 4985 (K), 5600 (K).**

**Locality Indefinite:** “Prov. del Chocó i Barbañás i Buenaventura,” 10 meters altitude, March 1852. *Triana* s. n. (K).

**2. Fittonia verschaffeltii** (Lem.) E. Coem.

*Gymnostachyum verschaffeltii* Lem. *Illust. Hort.* **10:** pl. 372. 1863. Based on cultivated material originally from Perú or Colombia.


Reptent or ascending herb up to 30 cm. long; stems pilose to sub-tomentose; leaf blades ovate to elliptic, up to 10 cm. long and 7 cm. wide, rounded or obtuse at tip, cordate at base, the upper surface dull green, the costa and conspicuously reticulated veins purple; spikes up to 8 cm. long and 1.5 cm. wide; peduncles up to 12 cm. long, pilose or sub-tomentose, the hairs disposed more or less in two rows; bracts oval, up to 13 mm. long and 8 mm. wide; corolla white or yellow.

Herbarium specimens of *Fittonia argyroneura* and *F. verschaffeltii* are very similar and dried specimens are extremely difficult to separate, especially since the purple coloring of the veins invariably fades. The habit of growth, pubescence, inflorescence, and corollas of the two species are practically identical. The upper surface of the leaf blades of *F. verschaffeltii* has been described as duller, the epidermis composed of more densely placed conical cells so as to present a velvety appearance in fresh plants. In contrast, the leaves of *F. argyroneura* are smoother and of a nitid green color. This contrast, strong as it may be in live plants, is weak indeed if herbarium material is studied and unless there yet remains a slight trace of the purple coloration in the veins, or the specimen is accompanied by proper field notes, it is practically impossible to decide to which of the two species any given specimen might belong.

In the Putumayo region, according to Schultes, the plant is called “Mee-ná-ku-ru” by the Kofán natives and is used medicinally. The two species treated here, as well as the suffrutescent *F. gigantea* Linden of Perú, are found in cultivation.

**Cauca:** Between Juntas and La Peñita, Dagua Valley, Pittier 1506 (US).

**Caquetá:** Florencia, Pérez-Arbeláez 733 (US)

**Putumayo:** Quebrada Conejo, Schultes 3480 (GH).
30. KALBREYERIELLA Lindau


Herbs or shrubs; leaves petioled, usually ovate or oblong-lanceolate; flowers borne in spikes, racemes or narrow panicles, these spicate or racemose toward tip; bracts and bractlets shorter than the calyx; calyx deeply segmented, the segments 5, lanceolate, thin, slenderly acute; corolla broadly tubular, slightly ventricose, scarlet, glabrous or hirtellous, rostrate at tip before the expansion of the lips; the upper lip in expanded flowers erect, narrow, embracing the stamens and pistil, the lower lip triangular, recurved, minutely trilobate at tip; stamens 2, exserted; anthers 1-celled (one of them 2-celled in *K. cabrerae*); ovary glabrous; mature capsules not seen.

The genus *Kalbreyeriella* is closely related to *Razisea*, differing mainly in its rostrate corollas (before expansion). Lindau described *K. rostellata* as having a 4-parted calyx, but I have found only 5-parted ones in the many specimens that I have examined of this genus, including the isotype material in the Kew Herbarium of Lindau's species.

**KEY TO THE SPECIES**

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<th>Corolla yellow</th>
<th>1. <em>K. cabrerae</em></th>
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<tbody>
<tr>
<td>Herbaceous or suffrutescent; corollas glabrous or minutely strigose at tip; leaf blades narrowed at base; flowers borne in spikes or racemes (spicate toward tip)</td>
<td>2. <em>K. rostellata</em></td>
</tr>
<tr>
<td>Shrubs; corollas densely hirtellous toward tip, the hairs spreading or ascending, more or less septate; leaf blades noticeably large, rounded and cuneate at base; flowers borne in narrow panicles, these spicate or racemose toward tip</td>
<td>3. <em>K. gigas</em></td>
</tr>
</tbody>
</table>

1. **Kalbreyeriella cabrerae** Leonard, sp. nov.  

Suffrutex, caulibus subquadrangularibus, deorsum glabris sursum plus minusvedense et minute puberulis, pilis appressis; lamina foliorum oblongo-obovata vel oblonga, plus minusve abrupte acuminata, apice gracilis et aliquando curvata, basi cuneata et in petiolum currens, aliquanto tenuis, integra vel undulata, supra parce hirsuta, pilis subappressis, subitus in costa et venis minute strigosa, cystolithis subintegris; petioli alati, glabri; racemi terminales, angusti, floribus ad nodos 2 vel pluribus, rhache et pedunculo plus minusve dense hirtellis, pilis appressis vel ascendentibus; bracteae et bracteolae similis, lanceolatae, acuta, graciliter nervata, minute ciliolata; corolla lutea, tubo anguste campanulato, deorsum glabro.
sursum puberulo, pilis plerumque patulis et curvatis, apice rostrata, labio superiore lanceolato, labio inferiore ovato, conduplicato, apice minute trilobato, lobis apice rotundatis; stamina vix exserta, glabra, antheris apice rotundatis vel mucronatis, una uniloculari, altera biloculari; capsulae glabrae; semina plana, brunnea, muricata.

Suffrutescent plants up to 1.3 meters (type 5 ft. high, Schultes and Cabrera). Stems subquadrangular, glabrous below, the upper portions more or less densely and minutely puberulous the hairs appressed, up to 0.16 mm. long; leaf blades oblong-obovate to oblong, up to 32 cm. long and 13.5 cm. wide, more or less abruptly acuminate, the tip slender and sometimes curved, cuneate at base and decurrent on the
petiole, rather thin, entire or undulate, the upper surface sparingly hirsute, the hairs 0.5 mm. long, subappressed, the lower surface minutely strigose on costa and veins, the hairs mostly closely appressed, up to 0.16 mm. long, the venation moderately prominent (lateral veins 12 to 14 pairs); cystoliths blackish, up to 0.2 mm. long; petioles up to 7 cm. long, winged nearly to the base, the width of the wing expanse 1 to 2 cm. at base of leaf blade; glabrous or nearly so; flowers borne in narrow racemes (up to 20 cm. long and 3 cm. broad), several to a node or in pairs near tip of inflorescence, the rachis and peduncle (up to 2.5 cm. long) minutely and densely hirtellous, the hairs up to 0.2 mm. long, appressed to ascending; bracts lanceolate, up to 6 mm. long and 2 mm. wide at base, gradually narrowed to a slender tip, subcarinate, glabrous or nearly so, ciliolate; bractlets similar to the bracts in size and shape, glabrate; pedicels up to 5 mm. long, sparingly and minutely hirtellous to glabrous; calyx red, the segments lanceolate, 25 mm. long, 3 mm. wide near base, gradually narrowed to a slender tip, subcarinate, glabrous, delicately nervet, minutely ciliolate; corolla yellow (Schultes and Cabrera), up to 4 cm. long (probably longer when fully expanded), the tube narrowly campanulate, 3 mm. broad at base, 6 mm. broad at throat, the lower part glabrous, puberulous above, the hairs more or less spreading and curved, up to 0.32 mm. long, the tip of the corolla rostrate, the upper lip lanceolate, 11 mm. long, 3.5 mm. wide at base, the lower lip ovate, conduplicate, 12 mm. wide at base, gradually narrowed to an obtuse tip, this 3-lobed, the lobes 1 mm. long, 0.5 mm. wide, rounded at tip; stamens 2, glabrous, exserted several mm. beyond mouth of corolla tube but slightly shorter than lips (perhaps more exserted in fully expanded flowers); anthers 5.5 mm. long, 1.5 mm. broad, rounded at both ends, the connective extended at tip, forming a small mucro, one of the anthers 2-lobed, the extra lobe about 4 mm. long; style reaching tip of corolla lips, the stigma oval, obtuse, about 0.75 mm. long and 0.5 mm. wide; capsule glabrous, about 2 cm. long, 4-seeded, the seed-bearing portion 11 mm. long, 4 mm. broad and 3 mm. thick; retinacula 2.5 mm. long, the tip lacerate and rounded; seed brown, flattened, ovate, 4 mm. long, 3 mm. broad, 0.5 mm. thick, the tip bearing an undulate rounded crest, 0.5 mm. long at middle, the surface of the seed muricate.

Type in the U. S. National Herbarium, No. 2124645, collected at Mocoa, Comisarfa of Putumayo, Colombia, "1,800-2,400 feet" altitude, March 16, 1953, by Richard Evans Schultes and Isidoro Cabrera (No. 19093). Schultes and Cabrera's No. 19095, collected nearby on the same day, is also of this species.
Kalbreyeriella cabrerae is a well-marked species differing from the other two Colombian species in its large oblong to oblong-obovate leaves and the yellow flowers.

2. Kalbreyeriella rostellata Lindau

Kalbreyeriella rostellata Lindau, Notizbl. 8: 143. 1922. Type collected in shady woods near Plateado, Department of Antioquia, Colombia, 2,300 meters altitude, March 31, 1880, by W. Kalbreyer (No. 1524).

Suffrutescent plants up to 1 meter high; stems erect or ascending, simple or sparingly branched, glabrous to moderately hirtellous, the hairs appressed, ascending or recurved, up to 0.25 mm. long, septate; leaf blades oblong-lanceolate, oblong or oblanceolate, up to 24 cm. long and 10 cm. wide but usually about 10 cm. long and 4.5 cm. wide, short-acuminate, narrowed at base, moderately firm, entire or undulate, the upper surface glabrous to moderately pilose with curved ascending red-septate hairs up to 1 mm. long, the costa and lateral veins (9 or 10 pairs) moderately prominent, sometimes red, the lower surface glabrous or the costa and lateral veins hirtellous, the hairs about 0.25 mm. long, mostly curved and ascending, the venation more prominent than above, the cystoliths conspicuous under a lens, mostly straight or slightly curved, up to 225 μ long, these often absent on the upper leaf-surface; petioles usually about 2 cm. long but occasionally reaching 4 cm., glabrous or sparingly hirtellous; flowers borne in terminal loose peduncled spikes or racemes (spicate toward tip) up to 20 cm. long, the peduncles up to 2 cm. long, these and the rachises glabrous or sparingly or even densely hirtellous, the hairs variously curved, up to 0.25 mm. long, sometimes septate, the lowermost internodes 10 to 15 mm. long, the others successively shorter toward tip of inflorescence, the pedicels of the lowermost flowers slender, up to 4 mm. long, minutely hirtellous in two lines; bracts lanceolate, the lowermost 5 to 10 mm. long, and 2 to 3 mm. wide, the others becoming smaller towards tip of inflorescence, all acute, glabrous to moderately pilose; bractlets similar to the bracts but somewhat longer; calyx 16 mm. long, 5-parted, deeply segmented, the segments lanceolate, 10 mm. long, 3 mm. wide at middle, acute, thin, minutely and sparingly ciliolate, faintly nerved; corollas a bright showy red, up to 5.5 cm. long, glabrous or sparingly and minutely strigose at tip, this rostrate and recurved before expanding, the tube about 2.5 mm. broad at base, enlarged rather abruptly at 5 mm. above base to 12 mm. at middle, thence reduced to 10 mm. at mouth, the upper lip lanceolate, acute, 13 mm. long, 4 mm. wide at base, erect in expanded flowers, the tip straight or recurved, the lower lip triangular, recurved, 14 mm. wide at base, narrowed to an acute 3-lobed tip, the lobes about 1 mm. long and 0.5 mm. wide; stamens attached near base of corolla tube,
about 5 cm. long, exserted 15 mm. beyond mouth of corolla tube and slightly exceeding the upper lip which partially enfolds them, the anthers 5 mm. long and 1 mm. broad at middle, narrowed toward both ends to bluntish tips, both anthers and filaments glabrous; disc 1 mm. long, this and the ovary glabrous; style slightly shorter than the stamens, glabrous; capsules not seen.

There is variation in the amount of pubescence and the size of the leaf blades. The type material is strictly glabrous except the very young leaves. In Ariste-Joseph’s No. 1085, the upper surfaces of the leaf blades are conspicuously covered with red-septate hairs; other specimens show the same character to a more or less marked degree. Again, the leaf blades of Ariste-Joseph’s material do not exceed 9 cm. in length nor 2.8 cm. in width, whereas those of Cuatrecasas’ No. 15160 are as much as 24 cm. long and 9 cm. wide. The type material possesses leaves intermediate between these two extremes.

The specific epithet alludes to the acutely tipped unexpanded corollas. The species is endemic in Colombia; it is partial to thick shady forests, usually of the middle altitudes (900 to 1,600 meters), although Haught’s No. 4723 was collected as low as 100 meters. Its dark green leaves and brilliant red flowers make it an especially beautiful and conspicuous species.

Antioquia: Shady woods near Plateado, Kalbreyer 1524 (isotype, K). Low wet forest along the Río Chigorodo, 10 km. northeast of Chigorodo, Haught 4723 (US).

Boyacá: High thick forests in the region of Mount Chapón, Lawrance 234 (US); 367 (K, Mo, NY, S, US); 694 (GH, US).

Caldas: La Selva, von Sneidern 5293 (US).

Cauca: Quebrada Aguacalera, near its junction with Río Plateado, Core 1377 (US).


El Valle: Chorrera La Elsa in the densely forested valley of Río Dagua, Killip 34807 (US); Río Dagua Valley between La Elsa and Río Blanco, Killip 34738 bis (US). Woods about La Laguna, on the left bank of Río Sanquinín, Cuatrecasas 15388 (Ch, US). Piedra de Molier, left bank of Río Dagua, Cuatrecasas 15160 (US). Quebrada de San Juan, below Queremal, Río Dagua Valley, Cuatrecasas 22728 (US).

3. Kalbreyerella gigas Leonard, sp. nov.

Suffrutex, caulibus glabris vel subtiliter bifarium puberulis, pilis albis, appressis vel ascendentibus; lamina foliorum ovata, grandis, breviter acuminata (apice ipso obtuso?), basi rotundata et cuneata, in petiolum decurrens, crenata, supra subnitida, glabra vel parce hirtella, costa et venis aliquanto dense puberulis, pilis appressis, cystolithis paucis minutis inconspicuis, subtus glabra, sub lente minute papillosa, cystolithis pluribus et conspicuis, costa et venis
lateralibus prominentibus, venulis crasse reticulatis; petioli crassi, subitus glabri, canale pilosa; paniculae terminales, angustae, floribus apice panicularum sessilibus et solitariis, pedunculo subtiliter bifariam hirtello, rhache dense hirtella, pilis subbrunneis, varie curvatis; bracteae lanceolatae, calyce breviores, glabrae vel parce hirtellae, ciliatae; bracteolae similes sed minores; calycis segmenta coccinea, lanceolata, acuta, nervata, glabra vel apice hirtella, cystolithis gracilibus, parallelis; corolla coccinea, parce punctata, basi glabra, apice dense hirtella, labio superiore erecto, anguste lanceolato, labio inferiore triangulari, recurvato, acuto, apice minute trilobato; stamina exserta, filamentis planis, glabris vel basi parce pilosis; antherae glabrae, basi et apice rotundatae; ovarium glabrum.

Shrub; stems glabrous or finely and bifariously puberulous, the hairs white, appressed or ascending, up to 0.25 mm. long; leaf blades ovate, up to 35 cm. long and 10.5 cm. wide or more, short-acuminate (the tip probably blunt), rounded near base to a width of 3 cm., thence gradually narrowed and decurrent on the petiole, rather thin, crenate, the upper surface subnitid, glabrous or sparingly hirtellous except costa and lateral veins (about 15 pairs), these rather densely puberulous with appressed hairs up to 0.5 mm. long, the scattered hairs of the intercostal areas ascending, the cystoliths minute, inconspicuous and scattered, 100 to 150 μ long, the lower surface glabrous or nearly so, minutely papillose under a lens, the cystoliths numerous and conspicuous, the costa and lateral veins prominent, much more so than above, the veinlets coarsely and rather conspicuously reticulate; petioles (wingless portion) up to 5 cm. long, glabrous beneath, the channel pilose, the hairs ascending, septate, up to 0.5 mm. long; flowers borne in narrow spikelike panicles up to 20 cm. long and 5 cm. broad (near base), the peduncle up to 4 cm. long, its pubescence that of the stems, the rachis densely hirtellous, the hairs brownish, variously curved, up to 0.5 mm. long, the lowermost internode about 12 mm. long, the others successively shorter toward tip of the inflorescence, the lowermost flowers several, borne on branches about 10 cm. long, the uppermost flowers sessile, solitary, the pedicels about 2 mm. long, hirtellous, the lowermost pair of bracts leaflike, lanceolate, up to 14 mm. long and 6 mm. wide, acuminate, the succeeding pair of bracts firm, narrowly lanceolate, keeled, 13 cm. long, 3 mm. wide at base, gradually narrowed to a slender tip, glabrous or sparingly hirtellous, ciliate, the marginal hairs about 0.25 mm. long, ascending, the other bracts thin, lanceolate, 9 mm. long and 3 mm. wide, successively smaller toward tip of inflorescence, all acute, with about 3 pairs of delicate nerves, glabrous or sparingly hirtellous, ciliate, the lateral pair of bracts, those subtending the flowers, similar
but somewhat smaller; calyx crimson, 25 mm. long, deeply segmented, the segments lanceolate, 5 mm. wide, sharply acute, thin, delicately nervet, glabrous or sparingly hirtellous at tip, marked by slenderly linear parallel cystoliths; corollas 5 to 6 cm. long, crimson, distantly punctate, sparingly hirtellous except towards tip, here densely so,

\[\text{Figure 152.—Kalbreyeriella gigas Leonard (Cuatrecasas 11271): a, Base of leaf blade; b, tip of same; c, enlarged portion of lower surface to show cystoliths and minute papillae; d, base of inflorescence; e, tip of same; f, lower bract; g, one of the upper bracts; h, one of a pair of lateral bracts; i, calyx; j, anther; k, stigma; l, pubescence of tip of corolla. (a, b, d, e, Half natural size; c, 7 times natural size; f-h, j, k, twice natural size; i, 1\frac{1}{4} times natural size; l, 12 times natural size.)}\]

the hairs about 0.25 mm. long, some of them septate, the corolla tube about 1 cm. broad from near base to mouth, the upper lip erect, narrowly lanceolate, 2 cm. long, 5 mm. wide at base, the lower lip triangular, recurved, 12 mm. wide at base, narrowed to a slender 3-lobed tip, the lobes ovate, about 1 mm. long and 0.75 mm. wide; stamens exserted 15 mm. beyond mouth of corolla tube, the filaments flat, glabrous or bearing several minute hairs near base; anthers 6 mm.
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long, 1.5 mm. broad, rounded at tip and base, glabrous; style reaching tip of the upper corolla lip, glabrous, the stigma conical; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 1798547, collected in damp forests between Achipayaco and Mocoa, Comisaría of Putumayo, Colombia, 450 to 500 meters altitude, December 25, 1940, by J. Cuatrecasas, No. 11271.

When compared with K. rostellata, Kalbreyeriella gigas is easily recognized by its dense narrow panicle, large crimson calyces and remarkably large leaf blades. The specific epithet, gigas, is from the Greek γίγας meaning giant, in allusion to the large size of the plants of this species.

31. SYRINGIDIIUM Lindau

Syringidium Lindau, Notizbl. 8: 142. 1922. Diminutive of στυχήμα, a little pipe, apparently in allusion to the nearly tubular corolla. Type species: S. atropurpureum Lindau (Colombia).

Small herbs; stems subquadrangular; leaves medium-sized, lanceolate, hirtellous; flowers borne in terminal hairy raceme-like panicles exceeding the uppermost leaves; bracts small, lanceolate; calyx 5-lobed, the segments lanceolate; corolla subcylindrical, 4-lobed at tip, the posterior lobe or lip minutely 2-lobed at tip; stamens 2, the anthers 1-celled; pollen grains subelliptical, aculeate, 2-pored; seeds 4.

Lindau places his genus after Porphyrocoma. Its subtubular corolla and lax inflorescence separate it from Stenostephanus. Both genera have 4-lobed (indistinctly 2-lipped) corollas and exserted stamens with 1-celled anthers, but in Stenostephanus the corolla tube is markedly ventricose and the inflorescence dense and spikelike. The genus Syringidium is represented by a single species.

1. Syringidium atropurpureum Lindau

Syringidium atropurpureum Lindau, Notizbl. 8: 142. 1922. The specific epithet alludes to the dark purple corollas. Type collected in open place in forest at Espíritu Santo, vicinity of Ocaña, Norte de Santander, Colombia, November 18, 1879, by W. Kalbreyer (No. 1252). Type in the Berlin Herbarium. Photograph in U. S. National Herbarium (Field Mus. No. 8802).

Small repent herbs up to about 30 cm. long; stems subquadrangular, hirtellous, the hairs mostly upwardly curved, mostly about 0.3 mm. long or a few up to 0.5 mm. long; leaf blades lanceolate, up to 10 cm. long and 2.5 cm. wide, short-acuminate (the tip itself blunt), narrowed at base, moderately firm, entire, both surfaces hirtellous, the hairs curved, ascending, 0.2 to 0.5 mm. long; the costa and lateral veins (8 to 9 pairs) rather prominent; petioles 5 to 15 mm. long,
hirtellous; flowers borne in lax racemelike panicles up to 10 cm. long and 1 to 3 cm. broad, the peduncles (up to 3.5 cm. long) and the rachis densely hirtellous, the hairs mostly spreading, up to 0.25 mm. long, whitish, the branches of the panicle (lowermost up to 1 cm. long) slender, densely hirtellous, bearing at tip a pair of small bracts sub-tending a mature flower and 2 flanking immature ones; bracts sub-tending the branches of the inflorescence lance-subulate, the lowermost up to 5 mm. long and 0.75 to 1 mm. wide, gradually narrowed to a subacute tip, hirtellous; pedicels of mature flowers about 1 mm. long,

hirtellous; calyx 5 mm. long, densely hirtellous, the segments 5 mm. long, 0.5 mm. wide at base, gradually narrowed to a subacute tip; corolla 2 cm. long, densely white-pubescent (except the narrow glabrous portion), the hairs spreading or ascending, up to 0.64 mm. long, the corolla tube geniculate, 2.5 mm. broad at base, narrowed at 3 mm. above base to 1.5 mm., thence rather abruptly enlarged into a sub-cylindric subventricose tube 5.5 mm. broad near middle and 3.5 mm. broad at throat, the posterior lobe (or lip) broadly ovate and rounded, 2 mm. long, 2.5 mm. wide, minutely 2-lobed at tip, the 3 anterior lobes (lower lip) ovate, 1.5 mm. long and broad, rounded; stamens exserted

Figure 153.—Syringodium atropurpureum Lindau (Kalbreyer 1252): a, Tip of plant; b, node of inflorescence; c, corolla; d, hairs from corolla; e, posterior lip of the corolla; f, one of the anterior lobes; g, anther. (a, Half natural size; b, 3 times natural size; c, 1½ times natural size; d, 50 times natural size; e, f, 5 times natural size; g, 7 times natural size.)
8 to 10 mm. beyond the mouth of the corolla tube, glabrous, the anthers 2.5 mm. to 3 mm. long and 1 mm. broad, rounded at both ends; style about 15 mm. long, the stigma minute; ovary glabrous; mature capsules not seen.

Norte de Santander: Espíritu Santo, Kalbreyer 1252 (K, isotype).

32. MEGASKEPASMA Lindau

_Megaskepasma_ Lindau Bull. Herb. Boiss. 5: 666. 1897. Derived from the Greek μεγάς, large, and φακάμα, a covering, in reference to the large bracts. Type species: _M. erythrochlamys_ Lindau.

Suffruticose; leaves large, oblong, abruptly acuminate with a blunt tip and cuneate at base, petioled; flowers borne in a terminal spike, the bracts and bractlets large, conspicuous, colored; calyx segments 5, equal; corollas narrowly hypocrateriform, the upper lip minutely bifid, the lower 3-lobed; stamens 2, the anthers bilocular; stigma subcapitate; capsules unknown.

The genus is monotypic.

1. _Megaskepasma erythrochlamys_ Lindau

_Megaskepasma erythrochlamys_ Lindau, Bull. Herb. Boiss. 5: 666. 1897. The specific epithet is from the Greek ἱππός, red, and χλάμα, bract. The type was collected in the Province of Mérida, Venezuela, by Funck & Schlim (No. 1171).

Suffruticose, up to 2 meters high; stems quadrangular, brown-puberulous; leaf blades oblong, up to 19 cm. long and 7 cm. wide (the lowermost probably larger), short-acuminate (the tip itself rounded and apiculate), cuneate at base, rather firm, entire or undulate, both surfaces sparingly and minutely hirtellous, the hairs confined chiefly to costa and lateral veins (12 to 15 pairs), up to 0.56 mm. long, cystoliths none; spikes solitary, terminal up to 18 cm. long and 4 cm. broad, the peduncle (about 3.5 cm. long) and rachis brown-puberulous, the hairs up to 0.32 mm. long, usually variously curved; bracts ovate, up to 44 mm. long and 17 mm. wide, subobtuse and mucronulate at tip, narrowed at base, purple or red, sparingly and finely strigose, the hairs up to 0.56 mm. long, confined chiefly to the costa; bractlets ovate-lanceolate, subfalcate, up to 36 mm. long and 8 mm. wide, acute, the pubescence similar to that of the bracts; calyx segments lanceolate, up to 15 mm. long and 3 mm. wide at base, narrowed to a slender blunt tip, rather densely hirsute, the hairs upwardly curved, brown, vitreous, up to 0.48 mm. long, some of the shorter ones gland-tipped; corolla white (Lindau) (becoming deep pink when young, Killip & Smith), pilosulous, the hairs mostly retrorsely curved, up to 0.4 mm. long, white, the corolla tube about 22 mm. long, 2 to 3 mm. broad,
straight or slightly curved, the upper lip lanceolate, 36 mm. long and 5 mm. wide, bilobed at tip, the lobes oblong, 1.5 mm. long, 0.5 mm. wide, recurved, the lower lip narrowly cuneate, 32 mm. long, 9 mm. wide near the middle, 3-lobed, the lobes 7 mm. long and 3 mm. wide,

obtuse; stamens exserted about 3 cm. beyond the mouth of the corolla tube, the anthers 4.5 mm. long, 1.5 mm. broad, the bases of the lobes mucronulate; ovary 2 mm. long, glabrous; capsules not seen.

**Santander:** Bucaramanga (cultivated), Killip & Smith 14979 (US).

**Subtribe 12b. Isogloeminae**

Shrubs or herbs; inflorescence and bracts variable; calyx 5-parted; corolla 2-lipped; stamens (in Colombian genera) 2; anthers 1-lobed,
muticous; capsules 4-seeded. Three Colombian genera are represented:

33. Habracanthus
34. Hansteinia
35. Stenostephanus

33. HABRACANTHUS Nees

Habracanthus Nees in DC. Prodr. 11: 312. 1847. (From ἀγάτης, graceful, and ἁκάνθος, acanthus). Type: Habracanthus silvaticus Nees. Type collected between San Bartolo and Pueblo Nuevo, Chiapas, México, by Linden.

Herbs or shrubs; leaves usually ovate to oblong, moderately firm, usually entire, hirtellous to glabrate, the venation usually prominent at least on the lower surface; flowers borne in terminal loose to dense panicles, the branches usually forked, the pedicels erect, the pubescence consisting of acute hairs or these mixed with gland-tipped trichomes; calyx deeply 5-parted, the segments narrowly lanceolate, those of some of the species bearing glandular trichomes; corolla glabrous or pubescent, blue, red, yellow, hypocretiform, ringent, the lower portion of the corolla tube narrow, the upper part rather abruptly enlarged, tubular or subventricose, the upper lip narrow, entire, often contorted in dried material, the lower lip usually oblong-cuneate, 3-lobed at tip, the lobes rounded; stamens 2, exserted, divergent, the anthers 1-celled, the filaments attached below the middle of the anther; style exserted, the stigma minute; ovules 4; capsules 4-seeded, clavate, the lower half sterile and stipiform; seeds ovate-subtund, discoid, more or less tuberculate, truncate and somewhat oblique at base, the angular raphe prominent.

Habracanthus consists of about 40 species, these found in México, Central America, and northern South America.

KEY TO THE SPECIES

A. Corollas blue or lavender.
   Pedicels and rachilla hirtellous, the hairs minute and eglandular; corolla pale lavender. 1. H. sysei
   Pedicels and rachilla pilose or pubescent; corollas blue.
   Panicles rather dense, ovoid; the longer hairs of the pedicels, rachilla and calyx segments conspicuous, spreading and gland-tipped. 2. H. trichotus
   Panicles elongate and very lax; pedicels, rachilla and calyx segments pubescent, the hairs not conspicuously long and gland-tipped. 3. H. cyaneus

A. Corollas variously colored, red, yellow, sulphur, purple, or bicolorered.
B. Calyces without gland-tipped trichomes.
   Panicles dense.
   Corollas greenish yellowish white. 4. H. cuatrecasassii
   Corollas violet-purple or wine-red.
   Leaf blades ovate; panicles conical. 5. H. aequalis
   Leaf blades oblong; panicles cylindric. 6. H. pycnostachys
Panicles open.

Calyces hispidulous.................... 7. *H. hispidulus*

Calyces glabrous to hirtellous, the hairs soft and septate.

Calyces rather densely hirtellous.

Panicles acute at tip.................... 8. *H. heliophilus*

Panicles rounded at tip.................. 9. *H. erythranthus*

Calyces nearly glabrous, bearing a few hairs on the margins or tips.

Upper surface of the leaf blades conspicuously pilose.

10. *H. putumayensis*

Upper leaf surface nearly glabrous or sparingly and inconspicuously hirtellous.

Calyx segments lanceolate, up to 7 mm. long, drying greenish, the nerves more or less conspicuous; bracts subtending the branches of the inflorescence ovate to suborbicular, 1 to 1.5 cm. long.

11. *H. floriferus*

Calyx segments linear, up to 12 mm. long, drying blackish, the nerves inconspicuous; bracts subtending the branches of the inflorescence cordate, up to 3 cm. long...... 12. *H. callianthus*

B. Calyces bearing at least a few gland-tipped trichomes.

Panicles lax, their branches few; leaf blades small, usually less than 10 cm. long.

Branches of the inflorescence densely and conspicuously pillose.

13. *H. pilosus*

Branches of the inflorescence hirtellous.

Corollas up to 2.5 cm. long, bright red............ 14. *H. killipii*

Corollas up to 1.5 cm. long, rose.................. 15. *H. charien*

Panicle branches numerous and crowded.

Inflorescence conspicuously pilose.

Hairs of inflorescence whitish, glandular; corolla red, conspicuously ventricose at middle, narrowed to throat, long-pilose.

16. *H. smithii*

Hairs of inflorescence yellowish, jointed; corolla yellow, not ventricose, broadened to throat, minutely pubescent......... 17. *H. zanthothrix*

Inflorescence not conspicuously soft gray-pilose.

Corollas, at least the tips, more or less pilose or hirtellous.

Corollas lemon yellow.......................... 18. *H. zantholeucus*

Corollas orange-red.......................... 19. *H. ampeleinus*

Corollas strictly glabrous.

C. Calyces with numerous glandular trichomes.

Panicles open and diffuse.

Corolla wine red.............................. 20. *H. caucensis*

Corolla scarlet with yellow tip.............. 21. *H. antipharmacus*

Panicles compact.

Leaf blades 4 to 7 cm. long, 2 to 3 cm. wide... 22. *H. macrochilus*

Leaf blades 12 to 19 cm. long, 5.5 to 7 cm. wide.

23. *H. oresbius*

C. Calyces with few trichomes, these mostly at the tips of the segments.

Panicles dense to rather dense, narrowly ovoid or subcylindric.

Leaves and the leaf-like bracts subtending the branches of the inflorescence slenderly acuminate......... 24. *H. corei*
Leaves and leaf-like bracts subtending the branches of the inflorescence short-acuminate.

Leaf-like bracts subtending the branches of the inflorescence relatively large and conspicuous, the lowermost up to 4 cm. long and 3 cm. wide. 25. *H. lamprus*

Leaf-like bracts subtending the branches of the inflorescence, relatively small, the lowermost about 10 mm. long and 16 mm. wide. 26. *H. congestus*

Panicles rather open, broadly ovate or indefinite, many of the branches axillary and extending for some distance down the stems.

Acute hairs of the rachis 0.3 to 0.4 mm. long.

Corollas red with yellow tinge. 27. *H. diversicolor*

Corollas lake-red. 28. *H. pennellii*

Acute hairs of the rachis up to 0.16 mm. long.

Calyx segments subulate, gradually narrowed into slender recurved tips. 29. *H. microcalyx*

Calyx segments narrowly triangular or lanceolate, the tips erect.

Corollas bright red. 30. *H. hylobius*

Corollas sulphur yellow. 31. *H. scolnikae*

1. *Habracanthus syscius* Leonard, sp. nov.

Herba vel suffrutescent, caulibus ascendentibus, basi in nodis radicantibus, subquadrangularibus, glabris vel sustrum minute strigosis, nodis tumidis; lamina foliorum ovata vel oblongo-ovata, apice graciliter acuminata, basi angustata, in petiolum decurrens, vel lamina ultima acuta vel breviter acuminata, basi obtusa vel rotundata, aliquid sarma, integra vel undulata, supra ubique appresso-hirsuta, subitus fere omnino glabra, costa et venis lateribus aliquidus conspicius et hirsutus exceptis, cystolithis conspicius vel nullis; petioli qui sulci, vulgo appresso-hirsuti, paniculae axillares et terminales, saepes multae, rigidae sed graciles, aliquidus parvae, pedunculis gracilibus, hirtellos, ramis inflorescentiae gracilibus, hirtellis, pilis ascenditibus; bracteae parvae, anguste triangulares, acutae, parce hirtellae; calycis segmenta anguste linearis, aliquidus hirtella, pilis minutis, ascenditibus, aliquidus pilis parvus longis glandulosus intermixtit; corolla lilacina pallida, minute puberula, tubo subcylindrico, labio superiore lineare, apice angusto, contorto, labio inferiore plus minusve patulo, ovato, apice 3-lobato, lobis parvis, obtusis; stamina erecta, exserta, filamenti gracilis, antheris purpureis; capsulae clavatae, glabrae; semina plana, suborbiculata, minute tuberculata.

Herbaceous or suffrutescent plants up to 1 meter high; stems ascending and rooting at the lower nodes, branched, subquadrangular, glabrous or minutely strigose, the hairs up to 0.16 mm. long, upwardly appressed, the nodes of the stem swollen, the internodes 1 to 5 cm. long, those of the lower part of the stem 5 mm. in diameter; leaf
blades ovate to oblong-ovate, up to 9 cm. long and 2.5 cm. wide, the larger and lower blades slenderly acuminate at the tip, narrowed and decurrent on the petiole at base, the uppermost blades acute to short-acuminate (the tip itself subacute), rounded at base, all moderately firm, entire or undulate, the upper surface evenly appressed-hirsute, the hairs about 0.16 mm. long, the lower surface essentially glabrous, the costa and lateral veins (7 or 8 pairs) moderately conspicuous,

Figure 155.—Habracanthus syscius Leonard (Fosberg & Fassett 21733): a, Node showing lateral panicle and leaf blade; b, portion of tip of leaf blade (upper side enlarged to show pubescence); c, node of inflorescence enlarged to show bracts and pubescence; d, calyx; e, corolla; f, anther (cell dehisced). (a, Natural size; b, about 10 times natural size; c, 4 times natural size; d, 2½ times natural size; e, ½ times natural size; f, ½ times natural size.)

appressed-hirsute, the hairs similar to those of the upper surface, the cystoliths inconspicuous or lacking; petioles slender, 1.5 cm. long (unwinged portion), appressed-hirsute; panicles axillary and terminal, becoming rather numerous, rigid but delicate, up to 5 cm. long and 2 to 4 cm. broad, the branches in pairs or solitary near the tip of the panicle, the peduncles slender, up to 3.5 cm. long and slightly over 0.25 mm. in diameter, the internodes of the panicle slender, up to 13 mm. long, hirtellous, the hairs ascending, about 0.16 mm. long, the lowermost branches subtended by small leaves, the others by small bracts, these narrowly triangular, 1.5 mm. long, barely 0.5 mm. wide at base, acute, sparingly hirtellous; calyx 8 mm. long, the segments
narrowly linear, 7 mm. long and 0.5 mm. wide, faintly 3-nerved, acute, moderately hirtellous with sharply ascending rigid hairs up to 0.1 mm. long and sometimes also bearing a few slender spreading elongate-glandular trichomes about 0.5 mm. in length; corolla pale lavender, minutely puberulent, 12 to 15 mm. long, the upper lip 8 mm. long, linear, about 2 mm. wide at base, narrowed to a slender contorted tip, the lower lip ovate, 5 mm. wide, 3-lobed at tip, the lobes about 1 mm. long and 0.5 to 0.75 mm. wide, obtuse at tip, stamens erect, exserted 10 mm. beyond the mouth of the corolla tube, the anthers 2 mm. long and 0.5 mm. wide, purplish, the filaments glabrous; style slightly exceeding the stamens, the stigma minute, subcapitate, the style glabrous; capsules clavate, flattened, 9 mm. long, 3 mm. broad and 1 mm. thick, glabrous; seed flat, suborbicular, about 2.25 mm. long and 2 mm. wide, white, minutely tuberculate.

Type in the U. S. National Herbarium, No. 2059037, collected on a steep, densely wooded slope of Quebrada Riocito, on the Hacienda San Luis, 6 km. northwest of Gramalote and 35 km. west of Cúcuta, Department of Norte de Santander, Colombia, 2,400 meters altitude, April 8, 1944, by R. F. Fosberg and N. C. Fassett (No. 21733).

Fosberg states in his label data that the Quebrada Riocito is on the headwaters of Río Peralonso and that the woods where his specimen was collected were rather dry, at least during the season of his visit, and that it was not a typical rain forest. Only one plant was seen.

The salient characters of Habracanthus syscius are the numerous, axillary, rather small, graceful but rigid panicles with their rather densely hirtellous rachises and pale lavender flowers, the slenderly petioled and tipped leaves, and the tumid, swollen jointed, ascending stems, glabrous below and minutely strigose toward tip. The specific epithet is from the Greek word συκεύς, meaning “in deep shade” in allusion to the habitat of the plant.

2. Habracanthus trichotus Leonard, sp. nov.

Herba, caulibus subquadrangularibus, pilosis, pilis ascendentibus, septatis; lamina foliorum oblongo-ovata, acuminata (apice ipso subobtuso), basi acuta vel (in foliis superioribus) rotundata, membranacea, integra vel undulata, utrinque nitida, aliquanto hirsuta, pilis ascendentibus, septatis, praecipue in costa et venis lateralibus postis, cystolithis prominentibus; petioli hirsuti, pilis ascendentibus, septatis; panicula terminalis, aliquanto densa, rigida, ovoidea, basi foliata, ramis plus minusve patulis vel ascendentibus, 1-vel 2-furcatis, cymas laxas helicoideas formantibus, rhachibus pilosis, pilis patulis vel leviter ascendentibus, septatis, pilis longioribus apice glandulosis; bracteae parvae, lineares, apice subobtusae, aliquanto pilosae; calycis segmenta anguste linearia, apice subobtusa, subtiliter 3-nervata,
aliquanto pilosa, pilis brevibus eglandulosis et pilus longioribus glandulosis intermixtis; corolla parva, caerulea, glabra, subventricosa, labio superiore ovato, apice rotundata, labio inferiore ovato, 3-lobato, lobis triangularibus, apice rotundatis; capsulae clavatae, glabrae vel deorsum parce pilose; retinacula apice erosa; semina suborbicularia, plana, tuberculata.

Figure 156.—Habracanthus trichotus Leonard (Cuatrecasas, Schultes, & E. Smith 12419): a, Tip of plant; b, portion of lower surface of leaf blade enlarged to show pubescence and cystoliths; c, portion of inflorescence enlarged to show calyx and bracts; d, portion of rachis enlarged to show pubescence; e, section of calyx segment (inner surface) enlarged to show veins; f, corolla; g, capsule valve. (a, Half natural size; b, 5 times natural size; c, twice natural size; d, e, 6 times natural size; f, 6 times natural size; g, twice natural size.)

Herbs; stems subquadrangular, pilose, the hairs ascending, septate, up to ca. 0.4 mm. long; leaf blades oblong-ovate, up to 12 cm. long and 3.8 cm. wide, acuminate (the tip itself subobtuse), obtuse or rounded at base (the larger lower leaves acute), rather thin, entire or undulate, both surfaces nitid, moderately hirsute, the hairs ascending, up to 0.5 mm. long, septate, more numerous on the costa and lateral veins (8 or 9 pairs) than in the intercostal areas, the cystoliths prom-
inent, up to 0.16 mm. long, the venation moderately prominent; petioles up to 2 cm. long, rather densely hirsute, the hairs similar to those of the costa and leaf blades; panicles rather dense, ovoid, rigid, 14 cm. long, 8 cm. broad just below the middle, rounded at tip, the lower half leafy, the branches few-flowered, usually once or twice forked, forming loose helicoid cymes, the rachises densely pilose, the hairs spreading or slightly ascending, septate, up to 1.25 mm. long, the longer ones tipped by elongate glands, the lowermost branches subtended by typical oblong-ovate acutely based leaves, the middle branches by smaller ovate subsessile, round-based leaves about 2.5 cm. long and 1 to 1.5 cm. wide, the uppermost branches and the flowers subtended by linear bracts 1 to 2 mm. long and about 0.25 mm. wide at base, gradually narrowed to a bluntish tip, rather sparingly pilose; calyx 9 to 11 mm. long, deeply segmented, the segments narrowly linear, 0.75 mm. wide near the base, gradually narrowed to a bluntish tip, faintly 3-nerved, rather sparingly hirsute, the shorter hairs eglandular, about 0.5 mm. long, the longer glandular ones up to 1.5 mm. long; corollas blue, glabrous, 6 mm. long and 2.25 mm. broad (immature), subventricose, the upper lip ovate, 2 mm. long, rounded at tip, the lower lip ovate, 3-lobed, the lobes triangular, about 1.25 mm. long, rounded at tip; capsules clavate, 1 cm. long, 4 mm. broad, 2 mm. thick, glabrous or the solid stipe (4 mm. long) bearing a few hairs (?); retinacula 2 mm. long, about 1 mm. wide, the tip rounded and shallowly erose; seeds suborbicular, flattened, tuberculate.

Type in the U. S. National Herbarium, No. 1850282, collected in forest between Alto del Loro and Alto de Santa Inés, Region del Sarare, Department of Norte de Santander, Colombia, 1,800 to 2,200 meters altitude, October 18 to 21, 1941, by J. Cuatrecasas, R. E. Schultes, and E. Smith (No. 12419).

Habracanthus trichotus agrees with H. cyaneus Lindau in having blue flowers but differs in other respects. Contrasting sharply is the rigid, ovoid, and much denser panicle of H. trichotus. Those of H. cyaneus are very slender and lax, with only a few branches. Furthermore, the leaves of this new species are considerably larger than those of H. cyaneus, the corollas are glabrous instead of pilose, and the rachises densely pilose with spreading septate hairs instead of inconspicuously pubescent.

The height of the plant cannot be determined from the herbarium specimen, a lateral branch, but, judging from the thickness of the small section of main stem (about 5 mm.) represented, it could reasonably be as much as a meter. The plant was probably somewhat clambering in habit. Since the few corollas available are apparently immature or poorly developed, no complete description can be given.
The specific epithet is from the Greek word \( \text{περιχωρός} \), furnished with hairs, in allusion to the densely pilose inflorescence.

3. Habracanthus cyaneus Lindau

*Habracanthus cyaneus* Lindau in Bull. Herb. Boiss. 5: 668. 1897. Type collected in “páramos,” in the province of Ocaña, Department of Norte de Santander, Colombia, 2,700 to 3,300 meters altitude, by Schlim (No. 381).

Suffrutescent plants; young branches pubescent, becoming bifariously pilose, the lowermost portions glabrate; leaf blades ovate, up to 8 cm. long and 2 cm. wide, but mostly smaller, long-acuminate, narrowed at base, sparingly pilose, the cystoliths conspicuous; petioles 5 to 15 mm. long, pubescent; panicles lax, the peduncles and pedicels long and pubescent; bracts filiform, 3 to 5 mm. long; calyx segments 8 mm. long and 1 mm. wide, becoming about 12 mm. long in fruit, pubescent; corolla blue, ventricose, the tube 9 mm. long, 5 mm. broad at middle, 4 mm. at mouth, pilose without, the upper lip obtuse, 4 mm. long and 2 mm. wide, the lower lip 5 mm. long, 5 mm. wide at middle, trilobate, the middle lobe 2 mm. long and wide, the lateral lobes 1.5 mm. long and wide; filaments 12 mm. long, attached near the base of the corolla tube; anthers 3 mm. long, slightly exerted; style 15 mm. long; capsule 14 mm. long, 3 mm. wide, glabrous, the stipe 5 mm. long; seeds 4.

Herbarium material not seen. Description compiled from the original.

4. Habracanthus cuatrecasasi Leonard, sp. nov. Figure 157

Herbs up to 1 meter high or more; stems quadrangular, glabrous, the nodes more or less tumid; leaf blades lanceolate, up to 20 cm. long and 5.3 cm. wide, gradually narrowed from below middle to an
acute more or less falcate tip, cuneate at base, one side attached
to petiole about 5 mm. above the other, rather firm, shallowly and
obscurely crenate, glabrous except the ciliate margins, their hairs
curved, ascending, conspicuously septate, the cystoliths minute and
obscure, the costa and lateral veins prominent beneath, less so
above, the veinlets coarsely reticulate; petioles up to 3 mm. long,
glabrous; panicles terminal, about 8 cm. long and 5 cm. broad, the

nodes of the stems below the terminal panicle bearing for some
distance small apparently abortive cymose inflorescences up to 2 cm.
long, the branches of the terminal inflorescence subhelicoid, the
entire panicle strictly glabrous, the pedicels 1.5 mm. long, 0.75 mm.
and 5 mm. wide, short-acuminate, the ultimate bracts lanceolate,
about 4 mm. long and 1.25 mm. wide, acute; calyx 9 mm. long, glabrous, marked by slender linear cystoliths up to 0.2 mm. long, the calyces of the sterile axillary branches about 3 mm. long; corolla about 2 cm. long, glabrous, greenish-yellowish-white, the tips a sordid violet, the tube 3 mm. broad at mouth, slightly narrowed just below mouth, the upper lip linear, about 2 mm. wide, acute at tip, curled, the lower lip spreading, about 9 mm. long and 8 mm. wide, 3-lobed at tip, the lobes about 1 mm. long, obtuse; stamens exerted 15 mm. beyond the mouth of the corolla tube, glabrous, the anthers 4 mm. long and about 1 mm. broad, muticous at both ends; ovary glabrous; capsules not seen.

Type in the Herbarium of the Chicago Natural History Museum, No. 1273513, collected in open woods of Cajón de Pulido, Quebrada del Río Hacha, Cordillera Oriental, Comisaría del Caquetá, Colombia, 1,700 meters altitude, March 26, 1940, by J. Cuatrecasas (No. 8740).

5. Habracanthus aglae Leonard, sp. nov. Figure 158

Erect herbs or suffrutescent plants probably up to 1 meter high or more; stems subquadrangular, glabrous, the cystoliths numerous and parallel, up to 0.25 mm. long, conspicuous under a lens; leaf blades ovate, up to 17 cm. long and 9 cm. wide (the uppermost pair suborbicular, about 6 cm. in diameter), short-acuminate (the tip itself blunt), obtuse at base, entire or undulate, rather thin, minutely hirtellous, the hairs up to 0.3 mm. long, ascending, confined chiefly to costa and veins, the venation (lateral veins usually 12 pairs) prominent, the cystoliths obscure, blackish; petioles up to 5 cm. long, or those of the uppermost pair 1 cm. long, 1.5 to 2 mm. thick, glabrous or the channels sparingly hirtellous, the cystoliths similar to those of the stem; panicle terminal, dense and conical, about 13 cm. long and 7 cm. broad, the
3 nodes below the dense flowering portion of the inflorescence bearing sterile inflorescence branches about 1 cm. long, the upper leaves subtending similar branches up to 4 cm. long, the branches of the panicles forming helicoid cymes, the rachis and rachilla glabrous, bearing numerous cystoliths like those of the stems, the pedicels erect, about 2 mm. long, glabrous; calyx segments linear, 6.5 mm. long, 1 mm. wide at base, acute, glabrous or bearing occasionally a few minute acute hairs at tip, the cystoliths conspicuous under a lens; bracts subtending the branches of the panicle suborbicular, sessile, about 5 mm. in diameter, glabrous, the ultimate bracts ovate-lanceolate, 3 mm. long and 1 mm. wide near base, acute, glabrous; corolla wine-red, glabrous, the tube 17 mm. long, 4.5 mm. broad near base, narrowed at 7 mm. above base to 3 mm., thence enlarged to 6 mm. at mouth, the upper lip erect, narrowly linear, 12 mm. long, 1.25 mm. wide, delicately 3-nerved, obtuse at tip, coiled or contorted when dry, the lower lip spreading, ovate, 12 mm. long, 10 mm. wide, conduplicate,
rounded and 3-lobed at tip, the lobes 1 mm. long and wide, rounded; stamens exserted 1 to 2 cm. beyond the mouth of the corolla tube, glabrous, the anthers 6 mm. long and 1.5 mm. thick, muticous at both ends; style exserted about 2 cm. beyond mouth of the corolla tube, the stigmas minute and rounded; ovary glabrous; capsules not seen.

Type in the National Herbarium of Colombia, collected at Planada de Minchoy, between Sachamates and San Francisco de Sibundoy, Comisaria del Putumayo, Colombia, 2,100 meters altitude, December 30, 1940, by J. Cuatrecasas (No. 11435).

The specific epithet is from the Greek ἀγαθός, meaning bright or beautiful.

6. **Habracanthus pycnostachys** Leonard, sp. nov.

Robust herbs up to 1.5 meters high, becoming more or less shrubby; stems subquadangular, puberulous or the lower portions glabrate, the hairs up to 0.08 mm. long, mostly appressed; leaf blades oblong-elliptic or oblong-ovate, up to 22 cm. long and 8.5 cm. wide, short-acuminate (the tip itself obtuse), acute to subacute at base, moderately firm, entire or undulate, both surfaces minutely hirtellous, the hairs confined chiefly to costa and lateral veins (12 to 14 pairs), the hairs up to 0.13 mm. long, appressed or ascending, the costa, lateral veins and the coarsely reticulated veinlets prominent beneath, less so above, the cystoliths prominent, up to 0.2 mm. long; petioles up to 4 cm. long and 1.5 thick, minutely and inconspicuously hirtellous; flowers borne in short subhelicoid cymes, 4 to 8 at each node, these forming dense cylindric terminal panicles up to 22 cm. long and 4 cm. broad, the lowermost node of the inflorescence bearing a pair of ovate leaves up to 9 cm. long and 4 cm. wide, these sharply acuminate at tip, rounded
at base, the node above this separated by an internode as much as 6 cm. long and subtended by ovate foliaceous acuminate subsessile bracts up to 2.5 cm. long, the subsequent internodes successively shorter and the corresponding foliaceous bracts smaller toward tip of panicle, the lower internodes of the rachis puberulous, the upper rather densely hirtellous with subappressed or ascending septate hairs up to 0.32 mm. long, the pedicels stout, 1 to 3 mm. long, appressed hirtellous, erect; bracts subtending the flowers linear-subulate, up to 5 mm. long and about 0.5 mm. wide, acute, sparingly hirtellous; calyx segments lanceolate, 6.5 mm. long, 1 mm. wide at base, gradually narrowed to an acute tip, sparingly hirtellous, the hairs subappressed, mostly borne toward the tip, 0.2 mm. long; corolla violet-purple, recurved, glabrous, the tube 8 mm. long, about 4 mm. broad at base, narrowed to 2.5 mm. at throat, the upper lip erect, linear, 1 cm. long, 1.25 mm. wide,
subacute, the lower lip spreading-ovate, 1 cm. long, 0.5 mm. wide, rounded and subtruncate at tip and 3-lobed, the lobes low, 0.75 mm. long and 1 to 1.5 mm. wide, rounded at tip; stamens glabrous, recurved, exserted 7 mm. beyond the mouth of the corolla tube; anthers 5 mm. long, 1.5 mm. thick; style exserted 2.5 cm. beyond the mouth of the corolla, violet-purple, glabrous, the stigma lobes ovate, minute; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 1853812, collected at Los Cárpatos, in the valley of the Rio Cali, Department of El Valle, Colombia, about 2,000 meters altitude, November 3, 1944, by J. Cuatrecasas (No. 18515).

Also of this species are Cuatrecasas' No. 23929, collected at Las Colonias, above Queremal, valley of the Rio Diguá, Department of El Valle, 1,950 to 2,050 meters altitude, March 20, 1947, and J. M. Duque’s No. 1660 collected at El Recuerdo, valley of the Río Cali, 1,600 to 1,800 meters, June 15, 1938.

*Habracanthus pycnostachys* should be easy to recognize by its narrow cylindric panicles with recurved, violet-red flowers. The label of the type bears the following field notes: "Hierba robusta, 1.5 m. Hoja verde haz, verde envés. Brácteas verdes. Raquis, pedúnculo y cáliz purpúreo violáceo oscuro. Corola violeta rojiza oscuro. Filamentos y estilo id.” The label on Duque's sheet bears the following data: “Arbusto de 1 metro de altura, leñosos, y notable por sus bellas flores rojizas y digno de ser cultivado en jardines.”

The specific epithet is from the Greek words πυκνός, close and compact, and στάκχος, spike, in allusion to the narrowed dense panicle.

7. *Habracanthus hispidulus* Leonard, sp. nov.

*Herba* erecta vel ascendens, caulibus subquadrangularibus, plus minusve bifariam puberulis, pilis appressis vel ascendentibus; lamina foliorum lanceolata, breviter acuminata (apice ispe obtuso), basi angustata, in petiolum decurrens, aliquanto firma, integra vel undulata, utrinque puberula, pilis curvatis, subappressis vel ascendentibus, pilis subtus praecipue in costa et venis lateralisibus positis; petioli graciles, puberuli; paniculae terminales, modice dense, ramis cymosis 1-vel 2-furcatis; rhachillae et pedicelli plus minusve complanati, aliquanto vel dense hispiduli, pilis rigidis, plus minusve patulis, rectis vel leviter curvatis, septatis; bracteae subulatae, parce hirtella; calycis segmenta linearia, apice acuta, recurvata, extus aliquanto dense hispidulo, pilis rigidis rectis vel leviter curvatis, albidis, septatis, intus parce et minute hirtella; corolla punicea, pubescens, pilis septatis, tubo anguste hypocrateriformi, leviter ventricoso, labio superiore erecto, lineari, conduplicato, apice obtuso, integro, labio inferiore ovato, apice 3-lobato, lobis ovatis, apice rotundatis;
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stamina exserta, glabra; capsulae clavatae, glabrae; retinacula leviter curvata, apice truncata et erosa; semina (immatura) tuberculata.

Herb; stems erect or ascending, subquadrangular, sparingly and more or less bifariously puberulous, the hairs appressed or ascending, up to 0.25 mm. long; leaf blades lanceolate, up to 10.5 cm. long and 3.3 mm. wide, short-acuminate (the tip itself blunt), narrowed at

Figure 160.—Habracanthus hispidulus Leonard (Hodge 6585): a, Tip of plant to show inflorescence and leaves; b, portion of leaf blade (under surface) enlarged to show pubescence and cystoliths; c, node of inflorescence enlarged to show bracts; d, calyx; e, portion of calyx tube enlarged to show pubescence; f, anther. (a, Natural size; b, c, about 5 times natural size; d, 3 1/2 times natural size; e, 14 times natural size; f, 5 times natural size.)

base and decurrent on the petiole, moderately firm, entire or undulate, both surfaces puberulous, the hairs curved, subappressed or ascending, up to 0.32 mm. long, septate, those of the lower surface confined chiefly to costa and lateral veins (8 to 10 pairs), the venation scarcely prominent, but more so beneath than above, the cystoliths prominent, up to 0.16 mm. long; petioles slender, up to 3 cm. long, puber-
ulous; panicles terminal and also axillary, the terminal ones about 8 cm. long and 6 cm. broad, moderately dense, the branches cymose, once- or twice-forked, the lowermost internodes 1 cm. long, the others successively shorter toward tip of panicle, the pedicels rather slender, up to 5 mm. long; these and the internodes of the panicle more or less flattened, moderately to densely hispidulous, the hairs rigid, more or less spreading, straight or somewhat curved, septate; bracts subulate, up to 6 mm. long and 0.5 mm. wide, sparingly hirtellous; calyx segments linear, up to 8 mm. long and 1.25 mm. wide, the tip acute and recurved, ciliolate, the outer surface rather densely hispidulous, the hairs rigid, straight or slightly curved, whitish, sepalate, up to 0.25 mm. long, the inner surface of the segments sparingly and minutely hirtellous; corolla scarlet, minutely pubescent, the hairs up to 0.16 mm. long, spreading or ascending, sepalate, the tube narrowly hypocrateiform, 2.3 cm. long, about 2 mm. broad from base to about 8 mm. above base, thence first rather abruptly then gradually enlarged to 5 mm. at throat, the upper lip erect, slender, linear, conduplicate 1 cm. long, about 0.5 mm. wide from costa to margin, obtuse at tip, the lower lip slightly spreading, ovate, 7 mm. wide, rounded and 3-lobed at tip, the lobes about 0.75 mm. long and 1 mm. wide, obtuse or rounded at tip; stamens exserted 11 mm. beyond the mouth of the corolla, glabrous, the anthers linear, slightly curved, 4.5 mm. long, 0.75 mm. broad; style about 5 mm. longer than the stamens, glabrous, retinacula 2 mm. long, slightly curved, truncate and erose at tip, seed (immature) whitish, tuberculate.

Type in the Gray Herbarium, collected in woods at base of a peak near Santa Elena, on the road from Medellín to Río Negro, Department of Antioquia, Colombia, 2,300 to 2,500 meters altitude, October 13, 1945, by W. H. Hodge (No. 6585).

Habracanthus hispidulus is characterized by its mostly spreading, slenderly petioled, lanceolate leaf blades, its noticeably though minutely hispidulous calyces and axes of the inflorescence, and its bright scarlet corollas.

8. Habracanthus heliophilus Leonard, sp. nov.

Herba, caulibus subquadrangularibus, puberulis, pilis retrorse curvatis, subappressis vel ascendentibus: lamina foliorum oblongo-elliptica vel leviter oblanceolata, breviter acuminata (apice ipso obtuso), basi angustata, ali quanto firma, integra vel undulata, puberula, pilis appressis vel ascendentibus, septatis, subtus pilis praecipue in costa et venis prominentibus positis, cystolithis prominentibus; petioli graciles, puberuli, pilis praecipue appressis; paniculae terminales, longae, angustae, ramis infinis panicularum foliis suffultis; rami panicularum furcati; rhachis strigoso-puberula, pilis rigidis; rhachillae
hirsutae, pilis patulis, septatis; pedicelli erecti, dense hirtelli, pilis patulis, septatis; bracteae anguste lanceolatae, parce hispidulae; calycis segmenta lanceolata, acuta (apice saepe recurvata), obscure trinervata, extus aliquanto dense hirtella, pilis rigidis, acutis, patulis vel ascendentibus, septatis, intus papillosa; corolla aliquanto pubes-cens, tubo angusto, labio superiore erecto, angustissimo, apice integro,

labio inferiore plus minusve patulo, ovato, apice 3-lobato, lobis ovatis, apice rotundatis; stamina exserta, glabra, antheris angustis; capsulae clavatae, glabrae.

Herbs up to 1 meter high; stems subquadrangular, puberulous, the hairs retrorsely curved, appressed or ascending, 0.1 to 0.2 mm. long;
leaf blades oblong-elliptic or slightly oblanceolate, short-acuminate (the tip itself obtuse), narrowed at base, moderately firm, entire or undulate, puberulous, the hairs appressed or ascending, up to 0.3 mm. long, sepalate, those of the under surface more numerous on costa and lateral veins (10 to 12 pairs) than on the intercostal areas, the venation beneath prominent, less so above, the cystoliths prominent, up to 0.25 mm. long; petioles slender, up to 4 cm. long, 1 mm. thick, puberulous, the hairs up to 0.2 mm. long, mostly appressed; flowers borne in short, forked panicles (1 to 2 cm. long), the lower axillary, the upper forming a narrow terminal acute panicle (about 2.5 cm. broad), the rachis and rachilla rather densely pubescent, the hairs of the rachis appressed, those of the rachilla spreading; pedicels 1 to 1.5 mm. long, erect, densely hirtellous, the sepalate hairs about 0.3 mm. long; primary branches of the inflorescence subtended by small subsessile ovate leaves 4 to 15 mm. long and 3 to 19 mm. wide, the pedicels subtended by linear-lanceolate bracts up to 10 mm. long and 0.5 mm. wide, these sparingly hispidulous; calyx segments lanceolate, acute, 8 mm. long, 1.25 mm. wide, acute (the tips often recurved), obscurely 3-nerved, the outer surface rather densely hirtellous with rigid sharp sepalate spreading or ascending hairs up to 0.25 mm. long, the inner surface papillose; corolla moderately pubescent, the hairs more or less spreading, sepalate, up to 0.25 mm. long, most numerous on the lips and on the dorsal portion of the tube, this narrow, 2 mm. broad, 12 mm. long, the upper lip linear, erect, 10 mm. long, about 1 mm. wide, the lower lip more or less spreading, ovate, about 3 mm. wide, 3-lobed at tip, the lobes 2.5 mm. long, the middle one 1.5 mm. wide, the lateral 1.25 mm. wide, all obtuse and subcucullate; stamens exserted slightly beyond the upper lip of the corolla, glabrous, the anthers 3 mm. long, 0.5 mm. broad; style about 8 mm. longer than the stamens, the stigma minute; capsules clavate, 8 mm. long, 3 mm. wide and about 2 mm. thick, glabrous; retinacula 2.5 mm. long, the tip obtuse, suberose; seeds not seen.

Type in the U. S. National Herbarium, No. 1951403, collected in the vicinity of Envigado, Department of Antioquia, Colombia, 1,600 meters altitude, October 1945, by Felix Molina (No. 35).

The color of the corolla is not apparent in the dried material. Molina states in his label notes that the plant was in an open and very sunny place, whence its specific epithet ἡλιος, the sun, and φιλος, loving.

9. Habracanthus erythranthus Leonard, sp. nov. Figure 162

Herba erecta, caulibus subquadrangularibus, aliucando parce puberulis vel deorsum glabratis, pilis curvatis, subapprcssis vel ascend-entibus, septatis; lamina foliorum oblongo-ovata vel oblongo-elliptica,
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breviter acuminata, basi cuneata, vel superiores basi rotundatae vel obtusae, membranacea, integra vel undulata, utrinque glabra vel parce puberula, costa et venis lateralibus vix prominentibus aliquando dense puberulis exceptis, cystolithis vix prominentibus; petioli foliorum inferiorum graciles, puberuli, superiorum breves; paniculæ terminales et laterales, ramis 1-vel 2-fureatis semi-helicoïdes, foliis parvis suffultis, rhachibus et pedicellis aliquando dense hirtellis, pilis patulis vel retrorse curvatis, conspicue septatis; segmenta calycis linear-lanceolata, aliquanto hirtella et ciliata, pilis septatis; corolla rubra, subtiliter pubescens, tubo anguste hypocrateriformi, labio superiore oblongo-ovato, erecto, apice obtuso et minute apiculato, labio inferiore plus minusve patulo, ovato, 3-lobato, lobis brevibus, apiculatis; stamina exserta, glabra, antheris linearibus, utrinque muticis; capsulae clavatae, glabrae; semina, plana, ovata, tuberculata.

Erect herbs up to 1 meter high; stems subquadrangular, rather sparingly puberulous or the lower portions glabrate, the hairs curved, subappressed or ascending, about 0.2 mm. long, sepal; leaf blades oblong-ovate or oblong-elliptic, up to 9 cm. long and 2.5 cm. wide, short-acuminate (the tip itself acute), cuneate at base or the uppermost rounded or obtuse, thin, entire or undulate, both surfaces glabrous or sparingly puberulous except costa and lateral veins, these more densely puberulous with appressed or ascending septate hairs up to 0.2 mm. long, the veinlets coarsely reticulate, these and the costa and lateral veins scarcely prominent but more so beneath than above, cystoliths scarcely prominent, up to 0.2 mm. long; petioles of the lower leaves slender, up to 1 cm. long, puberulous, those of the upper leaves very short (about 1 mm. long); flowers borne in terminal and axillary round-tipped panicles up to 20 cm. long and 5 cm. broad, the branches of the panicles once- or twice-forked, subhelicoid, the lowermost branches subtended by typical stem leaves, these becoming gradually smaller and more ovate with rounder bases toward the tip of the inflorescence, the rachis, rachilla and pedicels (1 to 5 mm. long) rather densely hirtellous with spreading or retrorsely curved and conspicuously septiculate hairs; calyx segments linear-lanceolate, up to 8 mm. long and 1 mm. wide, moderately hirtellous and ciliate with septiculate hairs up to 0.2 mm. long, these spreading or ascending; corollas red, finely and moderately pubescent (the hairs ascending, sepalate, 0.2 mm. long), about 23 mm. long (from base to tip of the upper lip), the tube 1.5 mm. broad at base, thence enlarged to 2 mm. at 5 mm. above base, and from that point gradually enlarged to 5 mm. at mouth, slightly saccate, the upper lip narrowly oblong-ovate, erect, about 9 mm. long and 1.5 mm. wide, the tip obtuse and minutely apiculate, the lower lip slightly spreading, ovate, 6 mm. long, about 8 mm. wide, 3-lobed at tip, the lobes 0.5 mm. long, 1 mm. wide at base, sharply
Contributions from the National Herbarium

Apiculate; stamens exceeding the upper lip of the corolla, glabrous, the anthers linear-oblong, 3 mm. long, 0.5 mm. broad, blunt at both ends; capsules clavate, 4-seeded, 12 mm. long, 4 mm. wide, about 2 mm. thick, glabrous; retinacula 2 mm. long, 0.5 mm. broad at base, narrowed to a subacute tip; seed (immature) whitish, flat, ovate, tuberculitate.

Type in the U. S. National Herbarium, No. 1995127, collected in damp forest at base of La Cumbre de Santa Elena, on the road from Medellín to Río Negro, Department of Antioquia, Colombia, about 2,500 meters altitude, April 2, 1949, by Rosa Scolnik, Jorge Araque Molina, and Fred A. Barkley (No. 19An.340).

Habracanthus erythranthus bears a general resemblance to H. scolnikae and may be closely related to it. The two species, however, should be easy to separate. The corollas of H. scolnikae are sulphur yellow, the segments of the calyx are tipped by several conspicuous

Figure 162.—Habracanthus erythranthus Leonard (Scolnik, Araque-M., & Barkley 19An.340): a, Tip of plant; b, portion (under surface) of leaf blade enlarged to show trichomes and cystoliths; c, calyx and bracts; d, portion of pedicel enlarged to show trichomes; e, one of the trichomes; f, corolla. (a, Natural size; b, 8 times natural size; c, twice natural size; d, 17 times natural size; e, 65 times natural size; f, about half natural size.)
glandular trichomes, the pedicels inconspicuously and very sparingly hirtellous, and the leaf blades, even the lowermost, are of an ovate type, whereas in *H. erythranthus* the corollas are red, the calyx segments are devoid of any glandular trichomes, the pedicels are densely hirtellous with conspicuously septate hairs, and at least the lowermost leaf blades are oblong-obovate or oblong-elliptic.

The specific epithet is from the Greek ἐρυθρός, red, and ἄνθος, flower, alluding to the color of the corolla.

10. *Habracanthus putumayensis* Leonard, sp. nov.  

Herbs or suffrutescent plants probably up to 1 m. high or more (only tips available for study); stems subquadrangular, glabrous or bifariously pilose in the nodal region, the hairs more or less spreading, up to 1 mm. long, septate; leaf blades ovate or rhombic-ovate, up to 12 cm. long and 5 cm. wide near middle, gradually narrowed to a short-subacuminate tip (the tip itself subobtuse) cuneate at base, moderately firm, entire or undulate, the upper surface conspicuously pilose, the hairs flaccid, ascending, up to 1 mm. long, septate, pilose on the costa and lateral veins (about 12 pairs), the cystoliths up to 0.144 mm. long, those of the upper surface black and inconspicuous, of the lower surface white, numerous and very conspicuous under a lens; petioles up to 3 cm. long, 1 mm. thick, the lower surface glabrous, the channels more or less pilose; panicles purple, up to 30 cm. long and 5 cm. broad, moderately dense, the lower branches subtended by typical stem leaves, the upper by deltoid-ovate leaf-like sessile bracts, rounded at tip, the lowermost of these about 4 mm. long and 2.5 mm.
wide, the others successively smaller, all glabrous or sparingly hirtel-
lous, the ultimate bracts triangular, about 3 mm. long and 1 mm.
wide at base, subacute; rachis and rachilla glabrous or bearing a few
scattered hairs up to 0.32 mm. long, these ascending and septate;
pedicels erect, up to 2 mm. long, glabrous, ascending; calyx 5 mm.
long, glabrous or bearing a few acute hairs up to 0.16 mm. long on
the outer surface, the inner surfaces glandular; corolla purple, glab-
rous, up to 23 mm. long, the tube up to 10 mm. long, about 2 mm.
broad at base, enlarged to 2.5 mm. at 2 mm. above base, narrowed
to 2 mm. at 4 mm. above base, thence enlarged to 3 mm. at mouth,
the upper lip erect, 13 mm. long, linear-lanceolate, about 1 mm. wide
at base, gradually narrowed to an acute tip, the lower lip spreading,
8 mm. long and wide, conduplicate, the tip 3-lobed, the lobes ovate,
about 1 mm. long and wide, obtuse; stamens exserted 15 mm. beyond
the mouth of the corolla tube, glabrous, the anthers 4 mm. long and
1.25 mm. thick, muticous at both ends; style exceeding the stamens
about 4 cm., the two stigma lobes minute, rounded; ovary glabrous;
capsules not seen.

11. Habracanthus floriferus Leonard, sp. nov. Figure 164

Suffrutex, caulibus subteretibus, glabris, cystolithis subpunctiformibus; lamina foliorum ovata, aliquanto magna, apice breviter acuminata, basi lata cuneata vel laminae foliorum supremorum basi rotundatae vel obtusae, integra vel undulata, supra parce pilosa, laxe pilosula praecipue in venis, costa et venis lateralibus et venulis crasse reticulatis prominentibus, supra venulis aliquanto obscuris, cystolithis sub lente gracilibus sed conspicuis; petioli longi, glabri, cystolithis minutis, pluribus, parallelis; paniculae floriferae terminales, densae vel sublaxae, ramis subhelicoideis, 1-vel 2-furcatae; paniculae inferiores parvae, forsan steriles, apetalae, calycibus reductis, parvis; bracteae ramos panicularum subtendentes ovatae vel suborbicularis vel superiores rotundatae et apiculatae, basi rotundatae, sessiles; bracteolae lanceolatae, acutae; rhachis et rhachilla glabrae vel parce pilosulae; calycis segmenta lanceolata, glabra, graciliter nervata; corolla purpurea, glabra, apicibus labiorum paulo hirtellorum excepta, labio superiore erecto, lineari, apice curvato vel cincinnato, apice cucullato et acuto, labio inferiore patulo, ovato, apice rotundato, 3-lobato, lobis brevibus, rotundatis; stamina exserta, glabra, antheris linearibus, utrinque muticis; ovarium glabrum.

Suffrutescent plants up to 3 meters high; stems subterete, glabrous, the cystoliths subpunctiform; leaf blades ovate, up to 19 cm. long and 8.5 cm. wide, short-acuminate, broadly cuneate at base or the smaller uppermost blades rounded to obtuse, rather thin, entire or undulate, sparingly pilose above with flaccid, septate hairs 1 mm. long or more, obscurely pilosulous beneath, especially on costa, lateral veins (10 to 12 pairs), and veinlets, these prominent beneath, rather obscure above, the cystoliths slender but prominent under a lens, up to 0.2 mm. long; petioles up to 8 cm. long, glabrous, the cystoliths minute, numerous and parallel; flower-bearing panicles terminal, up to 10 cm. long and about 6 cm. broad, dense to sublax, the stem bearing small axillary, mostly sterile cymes up to 2 cm. long, the branches of the inflorescence subhelicoid, usually once-forked; bracts subtending the branches of the inflorescence ovate to suborbicular, 1 to 1.5 cm. long, about 1 cm. wide, the lowermost acute, the upper rounded and apiculate, rounded and sessile at base, the rachis and rachilla glabrous or rather sparingly pilosulous, the hairs up to 0.3 mm. long, the pedicels up to 3 mm. long, sparingly hirtellous; bracts subtending the flowers lanceolate, about 4 mm. long and 1.25 mm. wide near base,
acute; calyx 8 mm. long, glabrous, the segments lanceolate, 7 mm. long, 1.5 mm. wide, acute, faintly 3- to 5-nerved, the cystoliths obscure, the calyces of the sterile lower axillary inflorescences 2 to 3 mm. long; corolla purple, glabrous except the tips of the lips (these hirtellous, the hairs about 0.2 mm. long and ascending), 2.5 cm. long from the base to tip of the upper lip, the tube 3 mm. broad at base, narrowed to 2.5 mm. at 6 mm. above base, 4 mm. broad at mouth, the upper lip linear, 1 cm. long, 1.25 mm. wide, the tip recurved or curled, cucullate and acute, the lower lip spreading, ovate, 1 cm. long, 7 to 8 mm. wide, rounded and 3-lobed at tip, the lobes 0.5 mm. long, 1.5 mm. wide, rounded; stamens exserted 25 mm. beyond the mouth of the corolla, glabrous, the anthers linear, 6 mm. long, 0.5

Figure 164.—Habracanthus floriferus Leonard (Cuatrecasas 8519): a, Leaf blade; b, hairs from margin of leaf blade; c, the upper flower-producing portion of the panicle; d, one of the lowermost nodes from the sterile basal portion of the panicle; e, calyx; f, anther. (a, Half natural size; b, 42 times natural size; c, d, natural size; e, about 4 times natural size; f, 5½ times natural size.)
mm. broad, muticous at both ends; ovary glabrous; mature capsules not seen.

Type in the U. S. National Herbarium, No. 1799125, collected at the Quebrada del Río Hacha, below Gabinete, Cordillera Occidental, Comisaria de Caquetá, Colombia, 2,100 to 2,250 meters altitude, March 23, 1940, by J. Cuatrecasas (No. 8519).

12. Habracanthus callianthus Leonard, sp. nov. Figure 165

Herba, caulibus subquadrangularibus, deorsum glabris, sursum parce lutescenti-strigillosis; lamina foliorum oblongo-ovata vel late oblongo-lanceolata, graciliter acuminata, saepe plus minusve curvata (apice ipso obtuso), basi cuneata, submembranacea, integra vel leviter undulata, glabra vel parce et minute hirtella, pilis subappressis, costa et venis lateralibus subtus conspiciuis, supra obscuris; petioli aliquanto longi, glabri vel parce et minute hirtelli, paniculæ terminales, ovoideae, foliiferæ, rhache et rhachillis et pedicellis plus minusve hirtellis, pilis recurvatis; bracteæ ramos inflorescentiæ subtendentes foliaceæ cordatae, acutae, sessiles vel subsessiles; bracteolæ lanceolatae, glabrae vel parce hirtellæ; calycis segmenta linearia, acuminata (apice plus minusve curvato), glabra vel minute et parce hirtella; corolla coccinea, glabra, labio superiore lineari, apice obtuso, recurvato vel cincinato, labio inferiore patulo, ovato, apice 3-lobato, lobis brevibus, rotundatis; stamina exserta, antheris linearibus, utrinque muticis; capsulae clavatae, glabrae; semina suborbicularia, subbrunnea, plus minusve muricata.

Herbs up to 1.5 meters high; stems subquadrangular, glabrous or rather sparingly yellowish-strigillose, the hairs up to 0.16 mm. long; leaf blades oblong-ovate or broadly oblong-lanceolate, up to 18 cm. long and 7 cm. wide, short and rather slenderly acuminate, often more or less curved (the tip itself blunt), cuneate at base, moderately thin, entire or lightly undulate, minutely pilosulous above on the surfaces, pilosulous beneath on the veins and veinlets, the costa and lateral veins (10 or 12 pairs) moderately prominent beneath, the veinlets coarsely reticulate, obscure; petioles up to 5 cm. long and 2 mm. thick, glabrous or bearing a few minute hairs; panicles ovoid, terminal, usually up to 20 cm. long and 10 cm. broad, more or less diffuse to rather dense, especially at and near the tip, the branches forked with a flower in the fork, the lowermost branches of the panicle subtended by foliage leaves, the upper with cordate, acuminate, subsessile bracts up to 3 cm. long, the uppermost and flowers subtended by lanceolate acuminate bracts up to 6 mm. long and 1.25 mm. wide near base, glabrous or sparingly hirtellous, the rachis and rachilla more or less hirtellous, the hairs recurved, up to 0.25 mm. long, the pedicels up to 8 mm. long and 0.38 mm. thick, moderately to rather
densely hirtellous with recurved hairs up to 0.3 mm. long; calyx segments linear, up to 12 mm. long and 1.5 mm. wide near base, acuminate (the tip more or less recurved), glabrous or bearing a few minute hairs on margins and near the tip; corolla scarlet, up to 24 mm. long, glabrous, the upper lip about 1 cm. long and 2 mm. wide, the tip obtuse, recurved or coiled, the lower lip ovate, spreading, 1 cm. long and about 8 mm. wide, 3-lobed at tip, the lobes 1 mm. long, the middle one 2 mm. wide, the lateral ones 1.5 mm. wide, all rounded; stamens exserted about 1 cm. beyond the mouth of the corolla, glabrous, the anthers linear, about 6 mm. long and 0.75 mm. broad, rounded at both ends; pistils slightly exceeding the stamens, glabrous,
the stigma minute; capsules clavate, 12 mm. long, 5 mm. broad, 2.5 mm. thick, glabrous; retinacula 2.5 mm. long, narrowed to the truncate fimbriate tip; seed suborbicular, oblique at base, about 2.5 mm. in diameter, brownish, muricate at least near the margins.

Type in the U. S. National Herbarium, No. 2059078, collected in a clearing in temperate forests 3 km. southwest of Charquita and 25 km. west-southwest of Bogotá, Department of Cundinamarca, Colombia, 2,800 meters altitude, April 13, 1944, by Martin L. Grant (No. 9011).

Also of this species are Cuatrecasas' No. 209 (US), collected in a dense forest of La Hondonada, Salto de Tequendama, 2,250 to 2,300 meters altitude, October 2, 1938, and Pennel's No. 2667 (GH, NY), collected in a forest below El Peñón, southwest of Sibate, 2,600 to 2,800 meters altitude, October 29, 1917. Both collections are from the Department of Cundinamarca, Colombia.

The specific epithet is from the Greek καλλί-, beautiful, and ἄνθος, flower.

13. Habracanthus pilosus Leonard, sp. nov. Figure 166

Herbs; stems weak, 1 to 2 mm. in diameter, subterete, pilose, the hairs spreading, up to 1.5 mm. long, septate; leaf blades lanceolate to oblong-elliptic, up to 6 cm. long and 2 cm. wide, acute to short-acuminate (the tip itself subacute), cuneate at base, thin, entire, rather densely pilose on both surfaces and ciliate, the hairs ascending, up to 1 mm. long, the costa and lateral veins (about 6 pairs) barely prominent beneath, obscure above; petioles up to 2 cm. long, pilose; panicles lax, few-flowered, leafy, the branches simple or once-forked,
the rhachis and rachilla rather copiously pilose, the hairs spreading, conspicuously septate, occasionally a few of the hairs terminating in a minute brownish conical gland, the leaflike bracts subtending the branches of the inflorescence 1 to 3 cm. long, 5 to 15 mm. wide; bracts subtending the flowers subulate, up to 2 mm. long and 0.25 mm. wide at base, pilose, the tips usually recurved; calyx 12 mm. long at maturity, rather densely pilose with septate spreading hairs up to 1.5 mm. long, the segments subulate, 1 mm. wide at base, gradually narrowed into a slender bluntish tip; corollas pale to dark red, 2 to 2.5 cm. long, the lower half rather sparingly pilose with septate hairs, these spreading and up to 0.5 mm. long, the upper half glabrous, the tube 1.5 mm. broad at base, narrowed to 1 mm. at 3 mm. above base, thence abruptly expanded to 5 mm., the lips erect or suberect, the upper lip oblong, 7 mm. long, 2 mm. wide near base, the tip rounded
and entire, not contorted, the lower lip equaling the upper, ovate, 4.5 mm. wide, 3-lobed, the lobes ovate, about 3 mm. long, the middle one about 2 mm. wide at base, the lateral ones about 1 mm. wide, all rounded; stamens exserted about 1 cm. beyond the mouth of the corolla, glabrous; the anthers 4.5 mm. long and about 1 mm. broad, blunt and minutely apiculate; style slightly exceeding the stamens, the stigma minute; capsule clavate, 13 mm. long, about 5 mm. broad, 2 mm. thick, glabrous; retinacula 2 mm. long, slender, straight or slightly curved, the tips rounded, erose; seeds brown, 3 mm. long, 2 mm. wide, 0.75 mm. thick, smoothish or slightly roughened, oblique at base.

Type in the U. S. National Herbarium, No. 2045428, collected in temperate forest around San Isidro, 7 km. south of Gachalá, Cordillera Oriental, Department of Cundinamarca, Colombia, 2,200 meters altitude, May 27, 1944, by Martin L. Grant and F. R. Fosberg (No. 9343).

Earl L. Core's No. 591 (US), collected in dense forest in the vicinity of Los Andes, on the Río Blanco, southeast of Guasca, "9,300 ft." altitude, April 19, 1944, is also of this species. The corollas of the holotype were stated to be pale red, and those of Core's No. 591 dark red.

14. Habracanthus killipii Leonard, sp. nov. Figure 167

Herbs or shrubby plants up to 2 meters high; stems subquadrangular, upwardly strigose or glabrate, the hairs up to 0.25 mm. long; leaf blades ovate to oblong-ovate, up to 10 cm. long and 3 mm. wide, subacute to short-acuminate, narrowed at base, rather thin, entire or undulate, the upper surface nitid, glabrous to sparingly hirsute,
the hairs up to 0.75 mm. long, ascending, the cystoliths rather prominent under a lens, about 0.08 mm. long, the lower surface pilosulous, the hairs confined chiefly to costa and veins (8 to 10 pairs), up to 0.2 mm. long, curved and ascending, the cystoliths prominent under a lens; petioles up to 2 mm. long, puberulous, the hairs appressed or ascending, up to 0.16 mm. long; flowers borne in loose terminal pan-

![Figure 167.—Habracanthus killipii Leonard (Killip & Smith 19966): a, Tip of plant; b, calyx and bracts; c, portion of calyx segment enlarged to show pubescence; d, corolla; e, tip of lower lip of corolla. (a, Natural size; b, 2½ times natural size; c, 6 times natural size; d, e, 1½ times natural size.)](image-url)
inflorescence subtended by leaves similar but somewhat smaller than the main stem leaves, the upper branches of the inflorescence sub-
tended by subulate bracts 2 to 3 mm. long and about 3 mm. wide at base, sparingly hirtellous; pedicels about 3 mm. long, minutely strigose or hirtellous; calyx deeply segmented, the segments linear, 7 to 10 mm. long and 1 mm. wide at base, gradually narrowed to an acute tip, minutely hirtellous, the hairs rigid, ascending, up to 0.16 mm. long; corolla bright red, 2.5 mm. long, glabrous, the tube 1 cm. long, 2.5 mm. wide at base, narrowed at 2 mm. above base to 1.5 mm., thence expanded to 5 mm. at mouth, the upper lip about 1 cm. long, 4 mm. wide at base, gradually narrowed to a blunt tip, usually more or less contorted, the lower lip more or less spreading, 1.5 mm. long, ovate, 8 mm. wide slightly below the middle, thence narrowed to 3 mm. at tip and terminated by 3 narrowly triangular lobes about 2.5 mm. long, the middle one 1.5 mm. wide at base, the lateral ones 1 mm. wide, all obtuse; stamens slightly exserted beyond the lower lip, the filaments glabrous and bright red, the anthers 3 mm. long and 0.5 mm. broad; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 1355119, collected in dense woods on the road from Pamplona to Toledo, crossing the divide between Río Teja (Maracaibo drainage) and Río Mesme (Orinoco drainage), Department of Norte de Santander, Colombia, 2,800 to 3,000 meters altitude, February 27–28, 1927, by E. P. Killip and Albert C. Smith (No. 19966). Isotypes: GH, NY.

The species is also represented by Killip and Smith's No. 20451, collected along stream in woods in the vicinity of Loso, north of Toledo, Department of Norte de Santander, 2,200 to 2,400 meters altitude, March 6–7, 1927 (GH, NY, US).

Habracanthus killipii is characterized by its rather thin and relatively small leaf blades, bright red corollas, and slenderly branched large lax panicles.

15. Habracanthus charien Leonard, sp. nov.

Herba gracilis, caulibus erectis vel ascendentibus, subquadrangularibus, puberulis, pilis antrorse ascendentibus; lamina foliorum lance-olato-ovata, subobtusa vel breviter acuminata (apice ipso obtuso), basi angustata, aliquanto firma, integra, supra hirtella, pilis curvatis, ascendentibus, rigidis, subtus pilis rigidos subadpressis, rectis vel leviter curvatis praecipue in costa et venis acuminata, utrinque venis aliquanto conspicuis, cystolithis obscuris; petioli graciles, hirtelli; paniculae longae, graciles, ramis infinis ramosis, ramis ultimis race-mosis, racemis laxis floribus paucis; pedunculi graciles, quadrangulares, hirtelli; pedicelli brevissimi, hirtelli; rami infimi paniculae foliis ovatis suffulti; rami ultimi et flores bracteis linearibus, acutis,
parce hirtellis, pilis rigidis, rectis, ascendentibus suffulti; bracteolae nullae; calycis segmenta 5, lineari-lanceolata, apice subacuta, dorso hirtella, pilis ascendentibus, rigidis, fere rectis (pilis paucis glandulosis), intus glabra; corolla rosea, lobis extus pilosis, alibi glabra, tubo subcylindrico, lobis ellipticis, rotundatis; stamina vix exserta, glabra; styli glabri; stigma subcapitatum, obscure bilobatum; ovarium glabrum.

Figure 168.—Habracanthus charian Leonard (Grant 9439): a, Tip of plant to show upper portion of inflorescence; b, portion of undersurface of leaf blade to show pubescence and cystoliths; c, portion of rachis enlarged to show pubescence; d, node of inflorescence to show bracts; e, calyx; f, portion of calyx segment enlarged to show pubescence; g, anther; h, style. (a, Natural size; b, 10 times natural size; c, 25 times natural size; d, h, 5 times natural size; e, 3 times natural size; f, 37 times natural size; g, about 7 times natural size.)

Herb up to 60 cm. high; stems erect or ascending, slender, subquadrangular, puberulous, the hairs upwardly ascending, curved, septate (the septa black), up to 0.2 mm. long, the internodes of the stems up to 9.5 cm. long; leaf blades lance-ovate, up to 3 cm. long and 1 cm. wide, subobtuse to short-acuminate with a blunt tip,
narrowed at base, rather firm, entire, the upper surface hirtellous, the hairs mostly curved, ascending, rigid, up to 0.3 mm. long, the hairs of the lower surface confined chiefly to costa and lateral veins, rigid, subappressed, straight or slightly curved, up to 0.4 mm. long, the venation of both leaf surfaces moderately conspicuous, the cystoliths obscure; petioles slender, up to 5 mm. long, hirtellous; panicles slender, up to 30 cm. long and 5 cm. broad, the lowermost branches paniculate, the upper branches racemose, the flowers in each raceme few (usually 2 to 5 or 6), or the flowers in or near the tip of the panicle solitary; peduncles slender, up to 3 cm. long, quadrangular, 0.25 mm. in diameter, hirtellous, the hairs similar to those of the stems; pedicels short, not more than 1.5 mm. long and 0.3 mm. in diameter, hirtellous, the medial and lowermost branches of the panicle subtended by leaves, these progressively smaller toward tip of the inflorescence, the uppermost branches subtended by bracts, these linear, up to 4 mm. long and 0.5 mm. wide, acute, sparingly hirtellous, the hairs straight, rigid, ascending, up to 0.2 mm. long; bracts subtending the flowers similar but somewhat smaller; bractlets none; calyx deeply segmented, the segments 5, linear-lanceolate, 8.5 mm. long, 1 mm. wide near the base, subacute at the tip, moderately hirtellous dorsally, and ciliate, the hairs ascending, rigid, nearly straight, up to 0.16 mm. long, an occasional one gland-tipped, the inner surface of segments glabrous; corolla rose, 11–15 mm. long, glabrous except the lobes, these pilose dorsally, the hairs mostly spreading, up to 0.5 mm. long, white, the tube subcylindric, 1.5 mm. in diameter, the lobes elliptic, 7 mm. long, 3 mm. wide, rounded or obtuse, the posterior lobe subcucullate; stamens barely exserted, 7 mm. long, glabrous, the anthers 2.5 mm. long and 0.5 mm. broad; style 4 mm. long, glabrous, the stigma subcapitate, inconspicuously bilobed; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045429, collected in temperate forest, Cerro Negro, Hato Grande, on ridge east of Rio Muchindote, 15 km. east of Gachetá, Department of Cundinamarca, Colombia, 2,735 meters altitude, June 13, 1944, by Martin L. Grant (No. 9439). Isotype: US.

The specific epithet is from the Greek xapiē, meaning slender and graceful. Compared with other Colombian species, Habracanthus chariēn is unique in its small rose corollas with narrow tube, small throat, subequal lips (the upper lip relatively broad and not contorted) and in its short, barely exserted stamens. The species might possibly represent a new genus.
16. Habracanthus smithii Leonard, sp. nov.  

Herba, caulibus subteretibus, glabris, cystolithis pluribus, minutis, parallelis, conspicuis; lamina foliorum ovata vel oblongo-ovata, apice graciliter acuminata, plus minusve curvata, basi rotundata et in petiolum decurrens, aliquanto firma, integra vel leviter undulata, utrinque glabra vel in costa et venis lateralis parve hisruta, cystolithis pluribus et conspicuis; petioli glabri, cystolithis conspicuis; paniculae magnae, terminales, pyramidatae vel anguste ovoideae, ramis pluribus, floribus erectis, pedicellis gracilibus, rhachibus et pedicellis dense pilosis, pilis patulis, albidis, apice glandulis elongatis terminatis; bracteae parvae, anguste triangulares, acutae, glanduloso-pilosae; calycis segmenta lineari-lanceolata, acuta, graciliter 5-nervata, intus glabra, extus glanduloso-pilosa; corolla rubra, glanduloso-pilosa, valde ventricosa, apice curvata, labio superiore plus minusve erecto, oblongo-obovato, apice rotundato, labio inferiore leviter patulo, 3-lobato, lobis ovatis, rotundatis; stamina exserta basi tubi corollae inserta, glabra, antheris oblongis, leviter curvatis; capsulae clavatae, glabrae; semina 4, brunnea, ovoidea, basi obliqua, plana, muricata.

Herbs up to 3 meters high or more; stems subterete, glabrous, the cystoliths minute and parallel, 0.03 to 0.16 mm. long, conspicuous and numerous toward tips of stems; leaf blades ovate or oblong-ovate, up to 23 cm. long and 11 cm. wide, slenderly and somewhat abruptly acuminate, the tip more or less curved, decurrent on the petiole from a rounded base, moderately firm, entire or shallowly undulate, both surfaces glabrous or the costa and lateral veins (about 12 pairs) sparingly hisrurate, the cystoliths rather numerous and prominent, 0.48 to 0.96 mm. long; petioles (including winged portion) up to 12 cm. long, the wing up to 3 cm. broad at its widest part at base of leaf blade, glabrous, with numerous parallel cystoliths; panicle terminal, pyramidal or rather narrowly ovoid, 20 to 46 cm. long and 4 to 11 cm. broad, the flowers rather numerous, erect or suberect on slender pedicels 1 to 1.5 cm. long, the lowermost branches of the panicle subtended by narrow leaves, the inflorescence branches dichotomously or cincinnally branched, forming lax subhelicoid cymes, the entire inflorescence densely pilose with whitish spreading hairs up to 1 mm. long, terminated by elongated glands; bracts narrowly triangular, 2 to 2.5 mm. long, about 0.5 mm. wide at base, acute, glandular-pilose; calyx 10 to 15 mm. long, deeply segmented, the segments linear-lanceolate, 0.75 to 1.5 mm. wide, acute, densely glandular-pilose without, glabrous within, delicately 5-nerved; corollas red, 18 to 20 mm. long, pilose with long spreading glandular hairs, the tube 3 mm. broad at base, enlarged to 3 mm. at 3 mm. above base, thence abruptly
enlarged to 10 mm. at middle and again narrowed to 6 or 7 mm. at mouth, strongly ventricose, curved at tip, the upper lip oblong-obovate, more or less erect, 7 mm. long, 2 mm. wide at base, 3.5 mm. wide above middle, rounded and entire at tip, the lower lip slightly spreading, 5 mm. long, 10 mm. wide, 3-lobed, the lobes ovate, 2 mm. long, 3.75 mm. wide, rounded; stamens exserted 4 to 15 mm. beyond the mouth

Figure 169.—Hhabra canthus smithii Leonard (*Killip & Smith 19257*): a, Section (about middle) of inflorescence; b, basal portion of leaf blade; c, tip of leaf blade; d, portion of leaf blade (upper surface) enlarged to show cystoliths; e, bracts; f, corolla; g, portion of pedicel enlarged to show trichomes. (a–c, Half natural size; d, 4 times natural size; e, 7 times natural size; f, natural size; g, about 30 times natural size.)

of the corolla and inserted at its base, glabrous; anthers 5 mm. long, 1.5 mm. broad, oblong and slightly curved; style slightly exceeding the stamens, glabrous, the stigma minute, obtuse; capsules clavate, glabrous, 16 mm. long, the seed-bearing portion 4 mm. wide and about 3 mm. thick, the solid stipe 6 mm. long and 3 mm. wide; seed 4, brown,
ovoid, oblique at base, 3 mm. long, 2 mm. broad, 0.75 mm. thick, muricate.

Type in the U. S. National Herbarium, No. 1354534, collected in dense woods on the west side of Mount Peña Blanca, near Charta, Department of Santander, Colombia, 2,500 to 2,600 meters altitude, February 11, 1927, by E. P. Killip and A. C. Smith (No. 19257). Isotypes: GH, NY.

Araque-M, and Barkley's No. 18S.341, collected in dense humid forests east of Bucaramanga, Department of Santander, Colombia, about 2,000 meters altitude, December 18, 1948, is also of this species.

_Habracantkus smithii_ can be readily recognized by its large, densely glandular-pilose panicles of red flowers with conspicuously ventricose corollas.

17. *Habracanthus xanthothrix* Leonard, sp. nov. Figure 169a

Herba, caulibus subquadrangularibus, sursum bifariam pubescentibus, pilis flavidos, retrorse curvatis, conspicue articulatis; lamina foliorum oblongo-elliptica, acuminata (apice ipso subobtuso), basi angustata, aliquanto firma, integra, supra hirsuta, pilis flavidis curvatis, articulatis, subtus dense hirsuta, pilis flavidis, articulatis, utrinque pilis praecipue in costa et venis positis, costa et venis prominentibus, venulis crasse reticulatis; petioli in canalis hirsuti, subtus glabri; paniculae terminales, grandes, laxae, foliaceae, ramulis dense et bifariam pilosis, pilis patulis vel retrorsis, articulatis; bracteae ramulos subtendentes subulatae, parvae, parce ciliatae, minute hirsutae; pedicelli hirsuti, pilis retrorsis vel patulis articulatis; calycis segmenta oblonga, acuta, hirsuta, pilis flavis, articulatis, pilis acutis et pilis eglandulosis intermixtis; corolla flavo, parce pubescens, tubo infundibuliformi, leviter sacciformi, labio superiore anguste lineari, acuto, labio inferiore triangulare-ovato, apice 3-lobato, lobis brevibus; stamina exserta, antheris lineari-oblongs, minute apiculatis.

Herbs up to 1 m. high or more, 4 mm. in diameter at about the middle, subquadrangular, glabrous or bifariously pubescent at tip, the hairs yellowish, retrorsely curved, up to 0.5 mm. long, conspicuously jointed (under lens); leaf blades oblong-elliptic, up to 16 cm. long and 5.5 cm. wide, acuminate, the tip itself bluntish, narrowed at base, moderately firm, entire, the upper surface hirsute with yellowish jointed curved hairs up to 0.75 mm. long, the lower surface more densely hirsute with similar hairs, these on both surfaces confined mostly to the veins and veinlets, the costa and lateral veins (about 14 pairs) prominent, the veinlets conspicuously and rather coarsely reticulate; petioles 2.5 cm. long, the channels hirsute with hairs similar to those of the leaf blades, the lower rounded portion glabrous; flowers borne in large open leafy terminal panicles, the branches densely and bifariously pilose with yellowish jointed spreading retrorse
hairs up to 1 mm. long, the bracts subtending the ultimate branches subulate, 5 mm. or less long, acuminate, 1 mm. broad at base, ciliate, sparingly and minutely hirsute with hairs up to 0.5 mm. long; pedicels 5 mm. long, about 0.75 mm. thick, these and the calyx moderately hirsute with yellowish spreading or retrorsely jointed hairs up to 0.5 mm. long, some of these gland-tipped; calyx 8 mm. long, the segments oblong, about 7 mm. long, 1.5 mm. wide, acute; corolla 2 cm. long, yellow, sparingly pubescent the hairs more or less spreading, about 0.16 mm. long, the base of the corolla tube 2 mm. broad, 2.75 mm. broad at 2 mm. above base, then narrowed to 2.5 mm., thence en-

Figure 169a.—*Habracanthus xanthothrix* Leonard (*K*öszig 4671): a, Leaf and node of stem; b, tip of inflorescence; c, calyx; d, portion of calyx enlarged to show hairs. (a, Half natural size; b, natural size; c, 2½ times natural size; d, 50 times natural size.)

larged to 6 mm. at mouth, the throat moderately saccate, the upper lip narrowly linear, 8 mm. long and 2 mm. wide at base, acute, the lower lip triangular-ovate, 8 mm. long, 5 mm. wide, 3-lobed at tip, the lobes about 0.25 mm. long and 0.5 mm. broad; stamens exserted 5 mm. beyond the mouth of the corolla tube; anthers linear-oblong, 2.5 mm. long and 1 mm. broad, minutely apiculate at base; ovary glabrous; disk 1 mm. high; capsules not seen.

Type in the Herbarium of the Botanical Museum of the University of Copenhagen, collected at Nuñez, Department of Cundinamarca,
Colombia, 2400 meters altitude, June 11, 1952, by M. Koie (No. 4671).

The specific epithet is from the Greek ξανθός, yellow, and θρις, hair.

18. Habracanthus xantholeucus Leonard, sp. nov. 

Suffrutex, caulibus subteretibus, glabris vel sursum minute puberulis, pilis appressis; lamina foliorum oblongo-ovata vel oblongo-elliptica, apice breviter acuminata, aliquando curvata, basi cuneata, aliquando tenuis, integra vel leviter et obscure undulata, utrinque parce et minute puberula, pilis rigidis, ascendentibus vel appressis, in costa et venis praecipue positis; petioli subtus glabri, in canale puberuli, pilis subappressis; paniculæ foliiferae, laxae, ramis 1- vel 2-furcatis, rhache et rhachillis aliquanto dense hirtellis, pilis subbrunneis vel leviter curvatis, pedicellis erectis vel ascendentibus, dense hirtellis, pilis acutis et pilis glandulosum intermixtis; paniculæ inferiores axillares reductae, parvae, forsan steriles, apetalae, calycibus reductis, parvis; bracteae ultimae subulatae, acutae (apice ipso subobtuso), sparse et minute hirtellae; calycis segmenta lanceolata, acuta (apice ipso subobtuso), hirtella, pilis rigidis, patulis, ascendentibus, pilis longioribus glandulosum intermixtis; corolla citrina, tubo subcylindrico, glabra, labio superiore anguste lineari, apicem versus externe minute hirtellae, apice obtuso, labio inferiore patulo, conduplicato, ovato, apice 3-lobato, lobis brevibus, rotundatis; stamina exserta, glabra, antheris linearibus; ovarium glabrum.

Shrub up to 5 meters high; stems subterete, glabrous or the upper portions minutely puberulous the hairs appressed, up to 0.16 mm. long; leaf blades oblong-ovate or oblong-elliptic, up to 30 cm. long and 11 cm. wide, short-acuminate, the tip sometimes curved, cuneate at base, rather thin, entire or shallowly and obscurely undulate, both surfaces minutely and sparingly puberulous, the hairs rigid, up to 0.16 mm. long, ascending to appressed, confined chiefly to costa and lateral veins (14 to 16 pairs), these, including the coarsely reticulated veinlets, rather conspicuous beneath, less so above, the cystoliths few and inconspicuous; petioles up to 7 cm. long and 1.5 mm. thick, the lower surface glabrous, the channel puberulous with subappressed hairs about 0.2 mm. long; panicles leafy, lax, up to about 10 cm. long and 6 cm. wide, the branches once or twice forked usually with a flower in the fork, the lowermost axillary panicles small, reduced, perhaps sterile, the calyces small, the rachis and rachilla rather densely hirtellous with light brownish spreading or slightly recurved hairs up to 0.16 mm. long, the pedicels up to 5 mm. long, erect or ascending, densely hirtellous with rigid spreading hairs 0.24 to 0.32 mm. long, a few of the longer ones gland-tipped, the ultimate bracts subulate, about 3 mm. long and 0.5 mm. wide at base, gradually narrowed to a
slender bluntish tip, sparingly and minutely hirtellous; calyx 9 mm. long (the small ones of the sterile lowermost panicles only 2 or 3 mm. long), hirtellous with rigid acute spreading or ascending hairs about 0.16 mm. long intermixed with slightly longer gland-tipped ones, the calyx segments 1 to 1.5 mm. wide at base, thence gradually narrowed to a slender bluntish tip; corolla lemon-yellow, the lower portion glabrous, the upper parts sparingly and minutely hirtellous, the length

Figure 170.—Habracanthus xantholeucus Leonard (Grant & Fosberg 9326): a, Basal portion of leaf blade; b, upper half of same; c, panicle; d, node of stem showing small sterile axillary panicles; e, calyx; f, portion of pedicel enlarged to show pubescence; g, corolla. (a, b, Half natural size; c, d, g, natural size; e, 2½ times natural size; f, 24 times natural size.)

of the corolla from base to tip of the upper lip about 3 cm., the tube 10 to 12 mm. long, 2.5 mm. broad at base, 3 mm. at mouth, the upper lip narrowly linear, 23 mm. long, 1 mm. wide, obtuse at tip, the lower lip spreading-ovate, conduplicate, 12 mm. long, 10 mm. wide, 3-lobed at tip, the lobes about 1 mm. long and 1.5 mm. wide, rounded; stamens exserted 22 mm. beyond the mouth of the tube, glabrous, the anthers

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linear, 4 mm. long and barely 1 mm. broad; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045426, collected in temperate forest at San Isidro, 8 km. south of Gachalá, Cordillera Oriental, Department of Cundinamarca, Colombia, 2,450 meters altitude, May 26, 1954, by Martin L. Grant and F. R. Fosberg (No. 9326). Isotype: US.

_Habracanthus xantholeucus_ is well marked among other Colombian species of the genus by the remarkably long, straight upper lip of the lemon-yellow corollas. The specific epithet is from the Greek word _εκάστολευκός_, meaning pale yellow, in allusion to the color of the corolla.

19. **Habracanthus ampelinus** Leonard, sp. nov. **Figure 171**

Suffrutex, aliquando subscandentes, caulibus subquadrangularibus, glabris vel bifariam minute strigosis; lamina foliorum oblongo-elliptica, graciliter acuminata, basi cuneata, aliquando firma, integra vel undulata, utrinque hirtellis pilis rigidis, subappressis vel ascendentibus, praecipue in costa et venis positis; petioli plus minusve graciles, subtus glabri, in canalibus minute strigosis; paniculæ longæ et magnæ, terminales, bracteis infimis foliaceis, bracteis ultimis linearibus, parce hirtellis, rhache et rhachillis dense hirtellis, pilis rigidis, patulis; pedicelli dense hirtelli, pilis acutis et pilis longioribus glandulosis intermixtis; calycis segmenta lanceolata, parce vel aliquanto dense hirtella, pilis patulis, rigidis, acutis et pilis glandulosis intermixtis; corolla plus minusve pilosa, aurantiaco-coccinea, tubo angusti in-fundibuliformi, labio superiore erecto, anguste lineari, apice acuto, labio inferiore ovato, conduplicato, apice 3-lobato, lobis oblongo-ovatis, obtusis; staminæ exserta, glabra, antheris muticis; ovarium glabrum.

A shrub 2 meters high or sometimes becoming subscandent and reaching 3 meters or more in length; stems subquadrangular, glabrous or bifariously and minutely strigose, the hairs up to 0.28 mm. long; leaf blades oblong-elliptic, up to 15 cm. long and 6 cm. wide, slenderly acuminate, cuneate at base, moderately firm, entire or undulate, hirtellous, the hairs rigid, subappressed or ascending, up to 0.2 mm. long, confined mostly to costa and lateral veins (about 10 pairs), the venation rather prominent; cystoliths minute, up to 0.32 mm. long, some of them punctiform; petioles rather slender, up to 10 cm. long and 1.25 mm. thick, glabrous beneath, the channels minutely strigose; panicles terminal and axillary forming large complex inflorescences up to 30 cm. long and 23 cm. broad, leafy, the ultimate bracts linear, up to 0.5 mm. long and 0.5 mm. wide, sparingly hirtellous, the hairs more or less spreading, about 0.08 mm. long; rachis and rachilla hirtellous, the hairs spreading, about 0.08 mm. long; pedicels up to 1.5 cm. long, hirtellous; calyx 6 to 8
mm. long, sparingly to moderately hirtellous, the hairs spreading, the acute ones up to 0.16 mm. long, septate, the glandular trichomes scattered, up to 0.5 mm. long, the calyx segments up to 7 mm. long, lanceolate, acute, 1.25 mm. wide near base; corolla rather sparingly pilose (the hairs more or less spreading, ca. 3 mm. long, septate), orange-red, paler distally, the tube 2.5 mm. broad at base, gradually enlarged to 8 mm. at throat, the upper lip erect, narrowly linear,

16 mm. long, 1 mm. wide at base, acute at tip, the lower lip spreading, ovate, conduplicate, 11 mm. long, 12 mm. wide at base, 3-lobed, the lobes oblong-ovate, about 4 mm. long, 1.75 mm. wide, obtuse at tip; stamens exserted 2 cm. beyond the mouth of the corolla tube, glabrous, the anthers 4.5 mm., long, 1.5 mm. broad, muticous at both ends; style slightly longer than the stamens, the stigma lobes rounded, very minute; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045430, collected in temperate forest at Salitre, Taguaté Valley, 6 km. west of Gutiérrez
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and 45 km. south of Bogotá, Department of Cundinamarca, Colombia, 2,715 meters altitude, July 23, 1944, by Martin L. Grant (No. 9647). Isotype: US.

Also of this species is F. R. Fosberg's No. 20901 (US), collected on a steep, densely wooded slope, where it was occasional, at Río del Nevado, east end of the Cordillera Las Cruces, south of Río Arroz across from El Capitolis, in the Sumapaz region, Intendencia of Meta, 2,675 meters altitude, August 27, 1943.

The specific epithet alludes to the vinelike nature often attained by this species.

20. Habracanthus caucensis Leonard, sp. nov.     Figure 172

Suffrutex gracilis, fere procumbens, inflorescentiis erectis, caulibus subquadrangularibus, glabris vel sursum parce puberulis; lamina foliorum oblongo-elliptica, breviter acuminata (apice ipso obtuso), basi angustata et cuneata, aliquanto firma, integra vel undulata, remote strigosis, pilis supra praecipue in costa et venis lateralis conspicuis positis, venulis crasse reticulatis, cystolithis sub lente conspicuis; petioli parce puberuli; paniculae diffusae terminales et axillares, ramis furcatis, gracilibus, rhache et rhachillis parce hirtellis; bracteae ramos panicularum subtendentes ovatae, sessiles, apiculatae; pedicelli graciles, cystolithis minutis praediti; bracteae flores sub-tendentis 1 ineares, apice acutae, glabrae vel parce et minute hirtellae; calycis segmenta lineari-lanceolata, apice subacuta, trinervata, glabra vel pilis glanduliferis praedita; corolla rubescens, glabra, anguste infundibuliformis, labio superiore lineari, apice rotundato, graciliter trinervato, labio inferiore patulo, ovato, apice trilobato, lobis brevibus, rotundatis; stamina exserta, antheris linearibus; capsulae clavatae, glabrae; retinacula subacuta, apice erosae; semina plana, suborbicularia, muricata, basi obliqua.

Slender shrubby plants 1 to 2 meters long, usually procumbent with erect inflorescences; stems subquadrangular, glabrous or the upper portions very sparingly puberulous; leaf blades oblong-elliptic, up to 15.5 cm. long and 5 cm. wide, short-acuminate (the tip itself blunt), narrowed and cuneate at base, moderately firm, entire or undulate, remotely strigillose, the hairs up to 0.25 mm. long, those of the under surface confined chiefly to costa and lateral veins (about 10 pairs), these and the coarsely reticulated veinlets moderately conspicuous, the cystoliths numerous and rather conspicuous under a lens; petioles up to 3 cm. long and 1 mm. thick, sparingly puberulous; flowers borne in diffuse terminal and axillary panicles up to 14 cm. long and about 6 cm. broad, the terminal and axillary panicles often continuous, the branches of the panicle dichotomously forked, often with aflower in the fork, slender, sparingly hirtellous, the hairs more
or less spreading, up to 0.3 mm. long; bracts subtending the branches of the panicle ovate, sessile, 1 cm. long and about 8 mm. wide, apiculate or the lowermost pair much larger, up to 4 cm. long and 1.5 cm. wide, short-acuminate; bracts subtending the flowers linear, about 3 mm. long and 0.75 mm. wide, acute at tip, glabrous or minutely hirtellous; pedicels slender, up to 4 mm. long, 0.25 to 0.5 mm. thick,

glabrous with scattered minute cystoliths; calyx segments linear-lanceolate, 6 to 7 mm. long and 1 mm. wide (the tip acute and bluntnish), 3-nerved, glabrous or bearing a few more or less spreading glandular trichomes up to 0.5 mm. long; corolla wine-red, glabrous, the tube about 1 cm. long, 3 mm. broad near base, narrowed at 4 mm. above base to 2 mm., thence enlarged to 3 mm. at mouth, the upper
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lip erect, linear, 7 mm. long, 2 mm. wide near base, somewhat narrowed toward the rounded tip, delicately 3-nerved, the lower lip spreading, ovate, about 8 mm. long and 7 mm. wide, terminated by 3 rounded lobes about 0.5 mm. long; stamens glabrous, exserted about 2 cm. beyond the mouth of the corolla tube, the anthers linear, 2.5 mm. long, 0.75 mm. thick; pistil not seen; capsules clavate, 13 mm. long, 4 mm. wide, 2 mm. thick, glabrous; retinacula 2.5 mm. long, subacute and erose; seed flattened, suborbicular, about 2 mm. long and broad, muricate or pebbled, oblique at base.

Type in the U. S. National Herbarium, No. 1950035, collected in woods at Aguabonita, valley of the Río San José, Moscopán Region, Cordillera Central, Department of Cauca, Colombia, 2,280 meters altitude, January 30, 1947, by J. Cuatrecasas (No. 23468).

Also of this species is Fosberg's No. 19941 (US), collected in thick brushy ground-cover under trees in mossy, ridge-type, wet forests with deep humus, at the head of Río Villalobos, southwest of Pitalito, on the boundary between the Departments of Huila and Cauca, Colombia, 2,300 meters altitude, February 6, 1943.

21. Habracanthus antipharmacus Leonard, sp. nov. Figure 173

Suffrutex, caulibus subquadrangularibus, glabris vel parce pilosis, pilis appressis, inconspicuis, cystolithis parallelis; lamina foliorum oblongo-ovata vel oblonga-elliptica, subacuta vel breviter acuminata (apice ipso obtuso), basi sensim angustata in petiolum decurrens, membranacea, integra vel undulata, supra parce hirsuta, pilis curvatis, ascendentibus, albidus, septatis, subtus glabra, costa et venis lateralis prominentibus, cystolithis raris, magnis; petioli glabri vel in canalicibus hirtelli, pilis subappressis vel ascendentibus, cystolithis parallelis, magnis, conspicuis; paniculae terminales, anguste ovoideae, aliquanto laxae, ramis gracilibus, furcatis, leviter recurvatis, rhachibus dense pilosis, pilis rectis, patulis, acutis, vitreis, pilis longioribus glandulosis intermixtis; pedicelli erecti; calycis segmenta lanceolata, acuta, puberula et pilosa, pilis brevioribus rigidis, vitreis, acutis vel obtusis, pilis longioribus aliquanto raris, glandulosis, elongatis intermixtis; corolla glabra, coccinea, apice aurea, tubo basi angusto, abrupte dilatato, valde ventricoso, in fauce leviter angustato, labio superiore anguste obovato, erecto, plus minusve recurvato, obtuso, labio inferiore brevi, trilobato, lobis suborbicularibus; stamina exserta, glabra, antheris linearibus, curvatis; capsulae clavatae, subtiliter pubescentes, pilis gracilibus, ascendentibus, curvatis; retinacula angusta, basi dilatata, apice subobtusa; semina subnigra, plana, suborbicularia apice tuberculata.

Subshrubs up to 130 cm. high; stems subquadrangular, glabrous or inconspicuously and sparingly appressed-pilose, the hairs up to
0.48 mm. long, the cystoliths parallel, up to 0.35 mm. long; leaf blades oblong-ovate or oblong-elliptic, up to 10 cm. long and 7 cm. wide, subacute or short-acuminate (the tip itself blunt), gradually narrowed to an acute base and decurrent on the petiole, thin, entire or undulate, the upper surface sparingly hirsute, the hairs curved, ascending, up to 0.32 mm. long, whitish, septate, the lower surface glabrous, the costa and lateral veins (10 to 12 pairs), prominent beneath, less so above, the cystoliths scattered but large and nearly straight, up to 0.27 mm. long; petioles (unwinged portion) up to 6 cm. long, 1 to 1.5 mm. thick, glabrous or the channels hirtellous, the hairs ascending or subappressed, the cystoliths large, conspicuous and parallel; panicles narrowly ovoid, rather lax, up to 30 cm. long.
and 11 cm. broad, broadest below middle and gradually narrowed
to tip, the peduncle about 6 cm. long, hirtellous, the lowermost
internode of the inflorescence 2 cm. long, the others successively
smaller towards tip, the branches slightly curved, usually (except
the uppermost) forked, these and the main rachis densely pilose
with straight spreading acute glassy hairs 0.16 mm. long, these inter-
mixed with longer glandular ones up to 0.64 mm. long, the pubescence
that of the branches; calyx 4 to 7 mm. long, becoming
10 to 12 mm. long at maturity, deeply segmented, the segments
lanceolate, in flower 4 to 6 mm. long, in fruit 11 mm. long, 1 mm.
wide near base, thence gradually narrowed to a slender tip, puberulous
and pilose, the hairs spreading, the small ones ca. 0.07 mm. long,
numerous, rigid, glassy and blunt tipped or acute, the large ones
up to 0.73 mm. long, rather scattered, blackish, gland-tipped; corolla
1.5 to 2 cm. long, glabrous, scarlet with yellow tip, 2 to 2.5 mm.
broad at base, abruptly enlarged at 3 mm. above base to 7 mm.,
thence narrowed to 4 mm. at throat, the upper lip narrowly obovate,
erect, more or less recurved, 3 to 4 mm. long, about 1.25 mm. wide,
obtuse and entire at tip, the lower lip broadly ovate, about 3 mm.
long and 5 mm. wide, the lobes suborbicular, about 2 mm. long and
2.5 mm. wide; stamens exserted 10 to 15 mm. beyond the lips of the
corolla, glabrous, the anthers linear, 4 mm. long, 0.75 mm. broad,
slightly curved; capsule clavate, 12 to 13 mm. long, 4 mm. broad,
3 mm. thick, the solid basal stipe about 3 mm. long, finely pubescent,
the hairs slender, curved and ascending; retinacula 3 mm. long, slender
from an enlarged base, the tip subobtuse; seeds 4, flat, blackish,
suborbicular, 3 mm. long, 2.5 mm. broad, the tip tuberculate.

Type in the U. S. National Herbarium No. 2045439, collected in
subtropical forest on the Sierra Perijá, 6 km. east-northeast of
Manaure, 42 km. east of Valledupar and 7 km. from the Venezuelan
border, Department of Magdalena, Colombia, 1,735 meters altitude,
February 1, 1945, by Martin L. Grant (No. 10731). Isotype: US.

Oscar Haught's No. 4510 (US), collected in "Africa," Sierra Perijá,
Department of Magdalena, Colombia, about 1,500 meters altitude,
December 16, 1944, is also of this species. Haught states in his label
data that his plant was an erect herb up to 1.5 meters high, the flowers
very showy, either all red, or red tipped more or less with bright
yellow (in some plants more than half the corolla yellow), and that
the species was very abundant locally, growing along streams and on
moist slopes.

Habracanthus antipharmacus with its bicolored corollas suggests
at once Lindau's H. diversicolor. The two species are closely related
but if carefully compared show certain differences. In H. diversicolor
the leaf blades are rounded above the winged petiole instead of being gradually narrowed into the petiole wing, and the inflorescence is denser with the shorter ascending rigid branches, the branches of the forks widely spreading. In *H. antiphasmacus* the branches are slender, spreading, recurved, and the branches of the forks are only slightly spreading and longer and more slender.

Grant tells us that the root is used as a remedy for snake bite, thus suggesting the specific epithet, ἀντί-, against, and φάρμακον, venom.

22. *Habracanthus macrochilus* Lindau

*Habracanthus macrochilus* Lindau, Bull. Herb. Boiss. 5: 669. 1897. Type collected in the Province of Ocana, Department of Norte de Santander, Colombia, in woods at 2,700 meters altitude by Schlim (No. 429). Photograph of type material of the Berlin Herbarium (Field Mus. No. 8890) in the U. S. National Herbarium.

Shrubby plants with terete pubescent branches; leaf blades oblong, pubescent, 4 to 7 cm. long, 2 to 3 cm. wide or smaller, the tip prominently acuminate, attenuate at base, the cystoliths striiform; petioles slender, 5 to 7 mm. long; panicles subdichotomous, terminal, longer than the leaves or axillary and shorter than the leaves and terminating the lateral branches; the lateral panicles lax and few-flowered, the terminal dense; calyx segments 12 mm. long, 1 mm. wide, unequal, becoming 18 to 19 mm. long and 1.5 mm. wide at maturity, glandular-pubescent; corolla purple, the tube 14 mm. long, 2 mm. wide at base, and 3 mm. wide at tip, the upper lip 28 mm. long and 4 mm. wide at base, narrowed to a subobtuse tip, the lower lip 28 mm. long, 10 mm. wide at middle, 4 mm. wide at tip and 3-toothed, the teeth 1.5 mm. long, obtuse; filaments 35 mm. long, inserted at tip of corolla tube and long-exserted; anthers 3.5 mm. long; style 50 mm. long, exserted; capsule 14 mm. long, 3 mm. wide, glabrous, the solid stipe 5 mm. long; seeds 4.

No specimens seen. Description compiled from the original. The specific epithet is from the Greek words μακρός, long, and χείλος, lip.

Lindau states in his discussion that his new species differs from the others known in the large lips of the corolla, and the long calyx segments, which, like the inflorescence, are coarsely pubescent.

23. *Habracanthus oresbius* Leonard, sp. nov.

Frutex, caulis subquadrangularibus, apice aliquanto dense puberulis, pilis subbrunneis, appressis, septatis, deorsum glabratris; hirtellis, pilis subbrunneis, appressis, septatis, deorsum glabratris; lamina foliorum oblongo-elliptica, acuminata (apice ipso subacuto), basi cuneata, aliquanto firma, integra vel undulata, utrinque puberula,
pilis rigidis, subappressis, septatis, subbrunneis, subtus praecipue in
costa et venis lateralis prominentibus positis, cystolithis pluribus,
sub lente conspicuus; petiolis dense hirsuti, pilis brunneis; paniculæ
terminales ovoidae-pyramidatae, densae, ramis paniculārum bracteis
foliaceis ovatis acutis vel acuminati sessilibus suffultiis, rhachet
rhachillis dense brunneo-hirtellis, pilis patulis vel ascendentibus,
pedicellis hirtellis, pilis patulis, conspicue septatis; bracteae flores
subtendentis lanceolatae, acutae, parce ciliolatae et hirtellae, cysto-
lithis conspicuis; calycis segmenta lanceolata, acuta, aliquanto parce
hirtella et ciliolata, pilis ascendentibus; corolla rubra, glabra, tubo
anguste infundibuliformi, labio superiore erecto, lineari, apice obtuso
vel rotundato, labio inferiore patulo, ovato, apice rotundato, trilobato.
lobis brevibus, rotundatis; stamina exserta, glabra; stylus exsertus,
glaber; stigma minutum; capsulae clavatae, glabrae, retinaculis rectis
vel leviter curvatis, apice anguste cucullatis, rotundatis, erosis;
semina plana, brunnea, levia vel basi leviter muricata, aliquanto
obliqua.

Shrubs; stems subquadrangular, the tips rather densely puberulous,
the hairs appressed, brownish, septate, up to 0.25 mm. long, the lower
portions of the stem glabrate; leaf blades oblong-elliptic, up to 19
cm. long and 7 cm. wide, acuminate (the tip itself subacute), narrowed
to a cuneate base, rather firm, entire or undulate, puberulous, the hairs
up to 0.32 mm. long, rigid, subappressed, septate, brownish, those
of the lower surface confined chiefly to costa and veins, these as well as
the coarsely reticulated veinlets prominent on the lower surface, the
cystoliths numerous and conspicuous under a lens, up to 0.2 mm. long;
petioles up to 3 cm. long, 1.5 mm. thick, densely hirsute with brownish
hairs; flowers borne in rather dense pyramidal-ovoid terminal panicles,
up to 15 cm. long and 6 cm. broad near the base, the branches of the
inflorescence subtended by leaflike cordate sessile ovate acute or
acminate bracts, the lowermost about 2 cm. long and 1.5 cm. wide,
the rachis and rachilla densely brown-hirtellous, the hairs spreading
or ascending, sepitate; pedicels up to 3 mm. long, densely hirtellous
with conspicuously sepitate spreading hairs up to 0.65 mm. long;
bracts subtending the flowers lanceolate, up to 9 mm. long and 1 mm.
wide, acute at tip, sparingly ciliolate and hirtellous, the cystoliths
conspicuous; calyx segments lanceolate, up to 13 mm. long, 1.25 mm.
wide near base, gradually narrowed to an acute tip, rather sparingly
hirtellous and ciliolate, the hairs about 0.3 mm. long, some of them
glandular; corolla red, glabrous, the tube 13 mm. long, 2.5 mm.
wide just above base, narrowed at 4 mm. above base to 1.5 mm.,
therefore gradually enlarged to 3.5 mm. at mouth, the upper lip erect,
linear, 15 mm. long, 1.5 mm. wide, obtuse or rounded at tip, in dry
material coiled and contorted, lower lip spreading, ovate, 6.5 mm.
wide, rounded at tip, terminated by 3 low lobes, these 0.5 mm.
long, the middle one 1.5 mm. wide, the lateral ones about 1 mm.
wide; stamens exserted 18 mm. beyond mouth of the corolla tube,
glabrous, linear, the anthers 4 mm. long and 0.5 mm. thick; style
exserted about 2.5 cm. beyond the mouth of the corolla tube, glabrous,
the stigma minute; capsule clavate, 15 mm. long, 4 mm. wide, 2 mm.
thick, glabrous; retinacula 2.25 mm. long, straight or slightly curved,
narrowly cucullate, the tip rounded and erose; seeds flattish, brown,
orbicular, 3 mm. wide and broad, 1.25 mm. thick, smooth or slightly
muricate, somewhat oblique at base.

Type in the Gray Herbarium, collected in forest at San José, San
Antonio, Department of Cauca, Colombia, 2,400 to 2,700 meters
altitude, June 30, 1922, by Francis W. Pennell (No. 7556). Isotypes:
NY, US.
Also of this species is Pennell and Killip’s No. 7436 (GH), collected in a bushy forest in the same locality as the type on June 28, 1922.

The specific epithet is from the Greek word ὅπεσβος, living on mountains.

24. Habracanthus corei Leonard, sp. nov.

Suffrutex, caulibus subquadrangularibus, glabris, cystolithis numerosis minutis brunneis praeditis; lamina foliorum late elliptica vel ovata, apice graciliter sed breviter acuminata, basi rotundata in petiolum decurrens, tenuis, integra, in pagina superiore aliquanto pilosa, subitus pilis patulis vel ascendentibus praecipue in costa et venis aliquanto prominentibus positis, venulis crasse reticulatis, cystolithis obscurs, brunneis; petioli glabri, cystolithis minutis obscuris praeditis; paniculae longae, aliquanto angustae, sursum densae et confluentes, inferiores distantes, ramis infinis foliis parvis suffultis, rhache et rhachillis dense hirtellis, pilis plus minusve patulis; pedicelli hirtellis; bracteae flores subtendentes lanceolatae, subacutae, ciliolatae, aliquanto hirtellae; calycis segmenta lanceolata, subacuta, ciliolata, parce et minute hirtella, pilis ascendentibus, apice pilis paucis glandulosis praedita; corolla glabra, anguste infundibuliformis, labio superiore linearis, obscure trinervato, apice rotundata, pilis ascendentata, torto, labio inferiore patulo, ovato, apice 3-lobato, lobis brevibus, rotundatis; stamina exserta, erecta, antheris linearibus, glabris; pistillum glabrum; stigma minutum.

Shrubs; stems subquadrangular, glabrous, the cystoliths minute, brownish, parallel; leaf blades broadly elliptical or ovate, up to 14 cm. long and 8.5 cm. wide, slenderly short-acuminate, short-cuneate (5 mm. long) from a rounded base, thin, entire, sparingly pilose above, sparingly pilosulous beneath, the hairs confined chiefly to costa and lateral veins (about 10 pairs), spreading or ascending, up to 0.48 mm. long, the veinlets coarsely reticulate, these and the costa and lateral veins rather prominent especially beneath, the cystoliths obscure, brownish; petioles up to 4 cm. long and 1.75 mm. thick, glabrous, the cystoliths minute and obscure; flowers ascending, borne in a narrow rather dense panicle up to 26 cm. long or more and 4 cm. broad, the lower branches distant, subtended by small ovate short-petioled (5 mm. long) leaves up to 5 cm. long and 2.5 cm. wide, but in other respects similar to the main stem leaves; bracts subtending the flowers 8 mm. long and 1.25 mm. wide, the tips subacute, ciliolate and moderately hirtellous, the hairs up to 0.2 mm. long, the rachis and rachilla rather densely hirtellous, the hairs more or less spreading, up to 0.46 mm. long; pedicels up to 1 mm. long, hirtellous; calyx segments lanceolate, 5.5 mm. long, 1.25 mm. wide near base, subacutae, ciliolatae and rather sparingly and minutely hirtellae, the hairs up to 0.16 mm. long, ascending, bearing near tip a few gland-tipped spreading trichomes up
to 0.46 mm. long; corolla glabrous, the tube 18 mm. long, 3 mm. broad just above base, narrowed at 8 mm. above base to 2 mm., 5 mm. broad at throat, the upper lip erect, linear, 15 mm. long, 2.25 mm. wide, rounded and entire at tip, obscurely 3-nerved, curled or contorted when dry, the lower lip spreading, ovate, 11 mm. wide, 3-lobed at tip, the lobes 1 mm. long, the middle one 1.5 mm. wide, the lateral

FIGURE 175.—Habracanthus corei Leonard (Cord 1200): a, Leaf; b, the lowermost node of inflorescence; c, tip of inflorescence; d, node of inflorescence to show uppermost bracts; e, node of rachis to show bracts; f, calyx segment; g, trichome from tip of calyx segment; h, corolla; i, anther. (a, Half natural size; b, c, natural size; d, twice natural size; e, 2½ times natural size; f, i, 5 times natural size; g, 40 times natural size; h, about 1½ times natural size.)

ones about 1 mm. wide, all rounded; stamens exserted 2 cm. beyond mouth of the corolla tube, erect, glabrous; anthers linear, 3.5–4.5 mm. long, about 1 mm. broad; pistil about as long as the stamens, glabrous, the stigma minute; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045391, collected in dense shade along stream on the south slope of Cerro San Pedro,
Department of Cauca, Colombia, 2,500 meters altitude, September 10, 1944, by Earl L. Core (No. 1200).

*Habracanthus corei* differs from the majority of the Colombian species in its broadly elliptic leaf blades and the very sharply acuminate, short-petioled, cordate inflorescence leaves. The color of the corolla is not apparent in the dried material. It was probably some shade of red.

25. *Habracanthus lamprus* Leonard, sp. no v. Figure 176

Suffrutex gracilis, caulibus subquadrangularibus, deorsum glabris, sursum hirtellis; lamina foliorum ovata, breviter acuminate, basi late cuneata et in petiolum decurrens, aliquanto membranacea, integra vel undulata, pilosa et ciliata, pilis septatis, ascendentes vel sub-appressis, costa et venis lateralibus subtus prominentibus, supra obscuris; petioli aliquanto crassi, pilosi; paniculae terminales et axillares (iae in axillis foliorum parvorum) aliquanto densae, rachis dense pilosa, pilis patulis, rhachis et pedicellis gracilibus pubescentibus, pilis ascendentes; bracteae ramos inflorescentiae subtendinge conspicuae, foliaceae, cordatae, sessiles vel subsessiles; bracteolae anguste lanceolatae, apice obtusae, pilosae; calycis segmenta anguste triangulaires, acuta, deorsum glabra, apice parce hirtella, pilis minutis acutis et pilis glandulosis intermixtis; corolla atrorubens, glabra, anguste infundibuliformis, labio superiore lineari, apice cincinnato vel contorto, labio inferiore patulo, ovato, conduplicato, apice rotundo, 3-lobato, lobis brevibus, rotundatis; stamina exserta, glabra, antheris linearibus; ovarium glabrum.

Slender erect shrub up to 1 m. high, the stems subquadrangular, glabrous or sparingly hirtellous near the inflorescence; leaf blades ovate, up to 11 cm. long and 5.8 cm. wide, short-acuminate, rather broadly cuneate at base and decurrent on the petiole, moderately thin, entire or undulate, rather densely pilose, the hairs up to 1 mm. long, septate, ascending or subappressed, the margins ciliate, the costa and lateral veins (about 10 pairs) moderately prominent beneath, less so above, the cystoliths minute, up to 0.128 mm. long, obscure; petioles up to 1.5 cm. long and 1.25 mm. thick, pilose; panicles ovoid, up to 16 cm. long and 5 cm. wide, moderately dense, the several short, axillary panicles only 1 to 2 cm. long; bracts subtending the branches of the panicle conspicuous, leaf-like, cordate, sessile or subsessile, the lowermost pair up to 4 cm. long and 3 cm. wide, becoming gradually smaller toward tip of panicle, all short-acuminate, the pubescence that of the stem leaves, the rachis densely pilose, the hairs spreading, up to 0.5 mm. long, the rachilla and pedicels (up to 5 mm. long and 0.28 mm. thick) pubescent with ascending hairs up to 0.16 mm. long or occasionally a few of them longer; bracts
subtending the flowers, narrowly lanceolate, 2 to 3 mm. long and 0.25 mm. wide, blunt at tip, pilose; calyx 5 mm. long, glabrous below, sparingly hirtellous toward tip, the small acute hairs intermixed with gland-tipped trichomes about 0.5 mm. long, the segments narrowly triangular, 1.25 mm. wide at base, acute; corolla dark red, glabrous, 1.5 cm. long, the tube 3 mm. broad near base, narrowed at 4 mm. above base to 2 mm., the throat 2.5 to 4 mm. broad, the upper lip

linear, 12 mm. long, 1.5 mm. wide, the upper part curled and contorted, the tip itself rounded, the lower lip spreading, oval, 10 mm. long, 8 mm. wide, conduplicate, the tip rounded, 3-lobed, the lobes low, 0.75 mm. long, 1 mm. wide, rounded; stamens exserted about 12 mm. beyond the mouth of the corolla, glabrous, the anthers linear, 4.5 mm. long, 1.25 mm. thick; style exserted about 2 cm. beyond the mouth of the corolla, the stigma minute; ovary glabrous; capsules not seen.
Type in the U. S. National Herbarium, No. 1995096, collected along the highway between San Cayetano and Pacho, Department of Cundinamarcia, Colombia, 2,800 meters altitude, August 2, 1947, by Oscar Haught (No. 6031).

Haught states that the flowers were a very dark red and very showy. The specific name is from the Greek λαυρέδος, bright, radiant, in allusion to its attractive flowers.

26. Habracanthus congestus Leonard, sp. nov.

Herbs or suffrutescent plants up to 2.5 meters high, stems subterete, glabrous, the cystoliths subpunctiform; leaf blades ovate or obovate, up to 20 cm. long and 11 cm. wide, short-acuminate at tip (?), cuneate at base, entire or undulate, moderately firm, rather densely and conspicuously pilose, the hairs ascending, about 1 mm. long, the costa and lateral veins (about 12 pairs) moderately conspicuous, the cystoliths inconspicuous or absent; terminal panicle narrow, dense, 17 cm. long, 2 to 3 cm. broad, subacute at tip, the axillary panicles 1 or more pairs, 8 cm. long and 2 cm. broad, the rachises sparingly hirtellous, the hairs ascending or spreading, about 0.28 mm. long, the rachilla rather densely hirtellous with light brownish septate ascending hairs about 0.08 mm. long, the bracts subtending the branches of the inflorescence suborbicular and apiculate, sessile, the lowermost pair about 10 mm. long and 16 mm. wide, the others successively smaller toward the tip of the inflorescence, the ultimate bracts linear-lanceolate, 4 mm. long, 0.75 mm. wide, subacute, sparingly hirtellous; calyx segments lanceolate, 5 mm. long, 1 mm. wide at base, subacute, delicately 3- to 5-nerved, sparingly hirtellous with rigid acute ascending hairs ca. 0.1 mm. long and intermixed with these a few gland-tipped trichomes up to about 0.5 mm. long; corolla red, about
14 mm. long, glabrous, the upper lip erect, about 8 mm. long, and 1 mm. wide, subobtuse, curled at tip, the lower lip spreading, about 10 mm. long, ovate, 3-lobed at tip, the lobes ovate, about 2 mm. long, rounded; stamens exerted 10 mm. beyond the mouth of the corolla tube, glabrous, the anthers 4 mm. long, 1 mm. thick; style slightly longer than the stamens, the stigma minute; ovary glabrous; capsules not seen.

Type in the Stockholm Herbarium, collected in virgin forests of La Plata, Department of Huila, Colombia, 2,600 meters altitude, March 25, 1939, by Kjell von Sneidern (No. 2646).

Characters making Habracanthus congestus easy to separate from other Colombian species are its narrow congested panicle, small red flowers, and large ovate or obovate hairy leaf blades. The specific name congestus alludes to the narrow dense panicles.
27. Habracanthus diversicolor Lindau

Habracanthus diversicolor Lindau, Bull. Herb. Boiss. 5: 669. 1897. Syntypes: Agua Obispo, Province of Truxillo, Venezuela, altitude 2,300 meters, Funck & Schlim (No. 791) (photograph in the U. S. National Herbarium, Field Mus. No. 8888). Province of Ocaña, Department of Norte de Santander, Colombia, altitude 2,300 meters, Schlim 458; La Baja, Province of Pamplona, Department of Norte de Santander, Colombia, 3,000 meters altitude, Funck & Schlim 1309.

Herbaceous or suffrutescent plants up to 3 meters high; stems subquadrangular, glabrous or bifariously puberulent, the hairs retrorsely recurved, 0.16 mm. long; leaf blades ovate, up to 20 cm. long and 8.5 cm. wide, slenderly acuminate, the rounded base decurrent on the petiole, moderately firm, entire or undulate, the upper surface nitid, sparingly hirsute, the hairs septate, ascending, up to 0.4 mm. long, those of the lower surface smaller and confined mostly to costa and lateral veins (about 10 pairs), the cystoliths prominent under a lens; petioles (unwinged portion) up to 4.5 cm. long, glabrous or the channels sparingly hirsute; panicle terminal, slenderly pyramidal, up to 40 cm. long or more and 9 cm. broad, the branches rigid, numerous, dichotomously or cincinnally branched, the flowers few and often erect, the rachises densely pubescent with spreading hairs, eglandular ones up to 0.3 mm. long and others up to 0.4 mm. long and tipped with elongated glands intermixed, the lower branches of the panicle subtended by large cordate-ovate subsessile leaflike bracts (2 to 8 cm. long and 1 to 6 cm. wide), the other branches subtended by small subulate bracts about 1 mm. long and 0.5 mm. wide at base, carinate and rather densely pubescent; pedicels 1 to 4 mm. long, densely pubescent with spreading hairs; calyx segments linear, 6 to 12 mm. long, 1 to 1.25 mm. wide, acute or subacute, densely pubescent with spreading glandular and eglandular hairs intermixed, the glandular ones longer than the eglandular ones (up to 0.25 mm. long); corolla red with yellow tinge (Killip & Smith), glabrous, the tube 10 to 15 mm. long, slightly subventricose, 2.5 mm. broad near base, narrowed to 2 mm. at 2.5 mm. above the base, 5.5 to 6 mm. broad at middle, and 3 to 4 mm. broad at mouth, the upper lip linear, 3.5 mm. long, about 1.5 mm. wide, entire, the lower lip of 3 lobes, the middle lobe 1.5 mm. long and broad, the lateral ones 1.5 mm. long and 2 mm. wide; stamens exserted, the filaments up to 28 mm. long, glabrous above, sparingly and finely pubescent toward base, the anthers 2 to 4 mm. long, curved; style up to 30 mm. long; capsules clavate, 13 to 14 mm. long, 3 to 4 mm. broad, 2 mm. thick, glabrous, the solid stipe 5 mm. long; retinacula 2.5 mm. long, rounded at tip and slightly erose; seeds 4, lenticular, suborbicular, about 2.5 mm. long and broad, 0.75 mm. thick, black, minutely and obscurely tuberculate.

Norte de Santander: Woods along stream near Tapatá, Culagá Valley, 1,500 to 2,100 meters, March 3–8, 1927, Killip & Smith 20157 (US).
28. Habracanthus pennellii Leonard, sp. nov.

Herba, caulibus sursum subquadrangularibus, aliquanto parce bifariam hirtellis, pilis plus minusve patulis, deorsum subteretibus et glabratis, cystolithis paucis, minutis; lamina foliorum ovata, apice subobtusa vel breviter apiculata (apice ipso obtuso et plus minusve apiculato) basi angustata, aliquanto firma, integra vel undulata, utrinque plus minusve dense hirsuta, pilis ascendentibus, septatis, subtus praecipue in costa et venis lateralis conspicuis positis; petioli graciles, hirtelli; paniculae terminales et axillares inferiores subtiles, interruptae, ramis 1- vel 2-furcatis, foliis parvis cordatis, acutis, sessilibus suffultis, rhache et rhachillis dense brunneo-hirtellis, pilis plus minusve patulis, septatis, pedicellis gracilibus, puberulis; bracteae flores subtendentes lineares, subobtusae, parce hirtellae; calycis segmenta lineari-lanceolata subito acuta, parce puberula, pilis parvis

Figure 178.—Habracanthus pennellii Leonard (Pennell 10414): a, Section of the middle portion of a terminal panicle; b, tip of inflorescence; c, leaf; d, node of inflorescence to show bracts; e, portion of rachis enlarged to show pubescence; f, tip of a calyx segment enlarged to show trichomes; g, tip of a trichome; h, corolla. (a-c, Natural size; d, 5 times natural size; e, about 16 times natural size; f, 3 times natural size; g, about 150 times natural size; h, 2½ times natural size.)
acutis paucis pilis glandulosis intermixtis; corolla rubra, glabra, tubo angusto, labio superiore lineari, erecto, apice obtuso, labio inferiore plus minusve patulo, apice 3-lobato; stamina exserta, glabra, antheris linearibus; capsulae clavatae, glabrae; semina brunnea (matura), suborbicul aria, plana, basi obliqua.

Herbs up to 1 meter high or more; stems subterete and glabrate below, subquadrangular and rather sparingly hirtellous in two lines toward tip, the hairs mostly spreading, septate, ca. 0.4 mm. long, the cystoliths few, minute; leaf blades ovate, up to 5 cm. long and 2.8 cm. wide, subobtuse or short- apiculate, narrowed at base, moderately firm, entire or undulate, both surfaces more or less hirsute, the hairs ascending, mostly up to 0.6 mm. long, septate, those of the lower surface confined mostly to the costa and lateral veins (7 or 8 pairs), the venation not noticeably conspicuous but more so beneath than above; petioles rather slender, up to 1 cm. long and 0.75 mm. thick, hirtellous, the hairs similar to those of the leaf blades; branches of the panicle 1 to 4 at each node, terminal and axillary, scattered for some distance along the stems forming long interrupted panicles, the terminal portion ovoid, up to 15 cm. long and 7 cm. broad, the upper branches of the panicles subtended by ovate-cordate leaflike bracts up to 12 mm. long and 9 mm. wide, these sessile, acuminate and acute at tip, the margins undulate, the surfaces sparingly hirtellous, the rachis and rachilla densely brown-hirtellous, the hairs more or less ascending, septate, up to 0.4 mm. long, the pedicels 3 to 5 mm. long and 0.25 to 0.5 mm. wide; the ultimate internodes of the branches of the inflorescence puberulous, the hairs up to 0.1 mm. long, the bracts subtending the flowers and ultimate forks linear, 1 to 2 mm. long, 0.25 mm. wide, subobtuse, sparingly hirtellous; calyx segments linear-lanceolate, up to 7 mm. long, and 1 mm. wide, abruptly acute, sparingly puberulous, some of them bearing in addition to the minute acute hairs several conspicuously longer glandular ones (up to 0.5 mm. long); corolla "lake-red," glabrous, 12 mm. long, the tube 2 mm. broad at base, narrowed at 3 mm. above base to 1.5 mm., thence cylindrical or nearly so to tip, the upper lip erect, linear, about 4 mm. long and 1 mm. wide, obtuse at tip, the lower lip ovate, more or less spreading, 3-lobed at tip; stamens exserted 4 mm. beyond mouth of corolla tube, glabrous, the anthers linear, 2.5 mm. long and 0.5 mm. wide; capsules clavate, about 12 mm. long, 3 mm. broad and 1.5 mm. thick, glabrous; retinacula 2.5 mm. long, obtuse and erose at the rather narrow obtuse tip; seed whitish and strongly muricate, becoming brown and more or less smooth at maturity, then suborbicular, flattened, slightly oblique at base, 2.5 mm. long and broad, 0.5 mm. thick.

Type in the Gray Herbarium, collected along stream in forest, Río
San Raphael, below Cerro Tatamá, Department of Caldas, Colombia, 2,500 to 2,800 meters altitude, September 7-11, 1922, by Francis W. Pennell (No. 10414).

Habracanthus pennellii is closely related to and resembles in many respects H. scolnikae from the Department of Antioquia. In H. pennellii the calyx lobes, although they bear scattered glandular trichomes like H. scolnikae, are linear and abruptly acute instead of being gradually narrowed from the base to a slender tip. The leaf blades of H. scolnikae, although small and ovate like those of H. pennellii, are acutely acuminate instead of subobtuse or bluntly short-acuminate. The corollas also are different in the two species: H. scolnikae has sulphur-yellow corollas reaching 15 mm. in length, whereas those of H. pennellii are lake-red and not over 12 mm. long. Both species are rank herbs with relatively thick tumid stems.

Only the uppermost leaves are represented by the type material of H. pennellii. The lower stem leaves might possibly be much larger than the dimensions given in the description.

29. Habracanthus microcalyx Leonard, sp. nov.  
Figure 179

Herbs; stems subquadrangular, glabrous or the upper portions sparingly and bifariously puberulous, the hairs up to 0.1 mm. long, recurved and subpressed; stem leaves not seen, those of the panicles narrowly ovate, up to 6 cm. long and 1.5 cm. wide, short-acuminate, cuneate at base, moderately firm, entire, glabrous or sparingly hirtellous, the hairs rigid, up to 0.1 mm. long; petioles slender, about 0.5 mm. long, sparingly and minutely hirtellous, the cystoliths minute and rather inconspicuous; panicles dense, much branched, terminal and axillary, occurring for some distance along the stems, the internodes 5 to 12 cm. long, the branches of the panicles dicho-
tomous, 3 to 8 cm. long, slender, 1 to 0.25 mm. thick, glabrous or sparingly puberulous, the hairs up to 0.13 mm. long, recurved, the cystoliths rather conspicuous under a lens; pedicels up to 2 mm. long, 0.25 mm. thick, rather densely puberulous with spreading or recurved sepalate hairs up to 0.16 mm. long; calyx up to 8 mm. long, glabrous or bearing on the margins and tips of the segments a few gland-tipped trichomes up to 0.32 mm. long intermixed with minute rigid acute hairs about 0.08 mm. long, the segments subulate, 1 mm. wide at base, gradually narrowed into a slender recurving tip; corolla 17 mm. long, red (?), glabrous, the tube 2 mm. broad at base, narrowed to 1 mm. at 2 mm. above base, thence gradually enlarged to 3 mm. at mouth, the upper lip oblong-elliptic, erect, 8 mm. long, 1.5 mm. wide, subobtuse and entire at tip, the lower lip spreading, ovate, 9 mm. long, 7 mm. wide, truncate and 3-lobed at tip, the lobes 1 mm. long, about 2 mm. wide, rounded; stamens not seen; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 888432, collected at Bogotá, Department of Cundinamarca, Colombia, 1911, by Bro. Ariste-Joseph (No. A224).
30. **Habracanthus hylobius** Leonard, sp. nov.

Herbs up to 1 meter high, the branches elongate; stems subquadrangular, glabrous below, more or less puberulous toward tip, the hairs curved, up to 0.11 mm. long; leaf blades oblong-ovate or oblong-elliptic, up to 18 cm. long and 7 cm. wide, short-acuminate, acute at base, rather firm, entire or obscurely undulate, both surfaces rather sparsely puberulous, the hairs confined chiefly to the costa and lateral veins (usually about 12 pairs), the hairs up to 0.2 mm. long, subappressed, the venation rather prominent especially on the lower surface of the blades, the veinlets coarsely reticulate, the cystoliths minute but conspicuous under a lens; petioles 1 to 5 cm. long, sparingly puberulous; panicles terminal and axillary, the axillary ones borne for a considerable distance down the stems, the dense terminal part of the inflorescence ovoid-pyramidal, up to 22 cm. long and 12 cm. broad, the flowers more or less secund on the forked branches of the inflorescence, often with a flower in the fork, the rachis and rachilla rather densely hirtellous, the hairs spreading or recurved, up to 0.11 mm. long, sepsitate, the pedicels erect or ascending, usually 1 to 3 mm. long, hirtellous, the hairs similar to those of the rachilla, the main nodes of the inflorescence bearing small leaves, the ultimate nodes producing subulate bracts up to about 6 mm. long and 0.5 mm. wide, gradually narrowed from base into a slender tip, sparsely hirtellous; fully
developed calyces 10 to 12 mm. long, minutely and sparingly hirtel-
ous, the acute hairs up to 0.16 mm. long, spreading or ascending, septate, these intermixed with spreading gland-tipped trichomes up to 0.25 mm. long, the segments of the calyx 9 to 10 mm. long, 1 mm. wide at base, gradually narrowed into a rather bluntish tip; corollas

bright red, glabrous, 20 to 25 mm. long, 3 mm. broad at base, en-
larged to 3.5 mm. at just above base, then again slightly narrowed and then gradually enlarged to 5 mm. at the mouth of corolla tube, the upper lip erect, linear, 12 mm. long, 1.5 mm. wide at base, subcarinate, the tip more or less recurved and curled, subacute, the lower lip spreading, ovate, 12 mm. long, 7.5 mm. wide, rounded and 3-lobed

Figure 180.—Habracanthus hylobius Leonard (von Sniegern 647): a, Leaf; b, branch of inflorescence from near the base of the terminal panicle; c, tip of same; d, one of the ultimate nodes of the panicle showing bracts; e, portion of a rachilla enlarged to show pubescence; f, calyx; g, portion of calyx segment from near its tip, enlarged to show pubescence; h, corolla; i, tip of the upper lip of corolla; j, lower lip of same; k, anther. (a, Half natural size; b, c, natural size; d, f, i, j, 3 times natural size; e, 32 times natural size; g, 40 times natural size; h, twice natural size; k, 6 times natural size.)
at tip, the lobes 1 mm. long and broad, obtuse; stamens exserted about 15 mm. beyond the mouth of the corolla, glabrous, the anthers oblong, 4 mm. long, 1.5 mm. broad, rounded at both ends; style slightly exceeding the stamens, glabrous, the stigma minute; capsules clavate, 12 mm. long, 4.5 mm. wide, 2.5 mm. thick; retinacula 2 mm. long, minutely and delicately striate, nearly straight, the upper portion oblong, the tip subacute, obscurely lacerate; seed suborbicular, flattish, about 2 mm. in diameter and 0.5 mm. thick, whitish, becoming brown at maturity, more or less muricate, becoming smooth at maturity except at margins.

Type in the herbarium of the Riksmuseet, Stockholm, collected in virgin forest at Munchique, near the village of El Tambo, Department of Cauca, Colombia, 2,500 meters altitude, April 26, 1936, by Kjell von Sneidern (No. 647).

The following are paratypes:

**CAUCA:** Virgin forests at La Costa, near the village of El Tambo, 1,800 meters altitude, March 7, 1935, von Sneidern 491 (S); 900 meters altitude, March 19, 1936, von Sneidern 621 (S); 1,600 meters altitude, May 28, 1936, von Sneidern 703 (S). Western bank of the Río Munchique, Cordillera Occidental, 2,400 meters altitude, July 23, 1948, H. García-Barriga, J. G. Hawkes & M. Villarreal, 12945 (US). Cerro de Munchique, Cordillera Occidental, above the Río Tambito, 2,000 to 2,500 meters altitude, July 16, 1939, E. Pérez-Arbeláez & J. Cuatrecasas 6260 (Col).

**CUNDINAMARCA:** Wet forested hillside, along the road from Bogotá to Fusagasugá, near San Miguel, eastern Cordillera, April 30, 1944, E. P. Kükíp 38086 (US). Salto de Tequendama, 2,800 meters altitude, July 1855, Triana s.n. (Col).

**HUILA:** Virgin forest at La Plata, 2,600 meters altitude, March 14, 1939, Kjell von Sneidern 2645 (S).

**TOLIMA:** Aguadita, January 27, 1938, Bro. Laureano Javier 17 (US). Quindío, 2,300 meters altitude, February 1852, Triana s.n. (Col).

**Without DEFINITE LOCALITY:** J. Triana s.n. (NY). Mutis 1508 (US).

The specific epithet is from the Greek δάβδος, living in the woods.

31. Habracanthus scolnikae Leonard, sp. nov.  

**FIGURE 181**

Suffrutex, caulibus quadrangularibus, parce hirtellis, pilis retrorse appressis vel interdum paulo patentibus, deorsum glabris, nolis tumidis; lamina foliorum ovata vel oblongo-ovata, breviter acuminata, basi rotundata vel obtusa vel acuta in petiolum decurrent, utrinque inconspicue puberula, pilis subappressis vel subpatentibus, costa et venis lateralis aliquanto conspicuis, cystolithis minutis, paucis, inconspicuis; petioli graciles, strigosi; paniculæ terminales et axillares, tenues, ramis 1- vel 2-furcatis, foliis parvis sessilibus, cordatis suffultis, rhachibus et pedicelis gracillimis, parce vel aliquanto hirtellis, pilis ascendentibus, septatis; bracteæ parvae, subulatae, minute ciliatae; calycis segmenta anguste triangulæ, acuminata (apice ipso subobtusa), parce et minute hirtella, apice aliquando pilis minutis paucis glandulosis praedita, glandulis brunneis, elongatis; corolla sulphurea,
glabra, tubo subcylindrico, labio superiore lineari, apice rotundata, labio inferiore suborbiculari, 3-lobato, lobis brevibus, rotundatis; stamina exserta, glabra, antheris linearibus, utrinque muticia; stigma minutum; capsulae clavatae, glabrae; semina subbrunnea, muricata.

Suffrutescent plants up to 2 meters high; stems subquadrangular (the angles rounded), sparingly puberulous, the hairs closely and re-

Figure 181.—Ilabracanthus scolnikae Leonard (Scolnik, Barra-López & Barkley 19 An. 199):
a, Tip of plant to show inflorescence; b, a lower node to show tumescence and small lateral panicles; c, cross-section of stem near node to show pith area; d, calyx; e, portion of pedicel enlarged to show pubescence; f, a trichome from near tip of calyx segment; g, portion of marginal region of calyx segment enlarged to show ciliation; h, corolla; i, anther; j, retinaculum; k, capsule valve. (a, Natural size; b, c, h, twice natural size; d, 3 times natural size; e, 50 times natural size; f, g, 30 times natural size; i, 3½ times natural size; j, 5½ times natural size; k, 1½ times natural size.)

torsely appressed, or a few somewhat spreading, up to 0.13 mm. long, the lower portion of the stems 9 mm. in diameter or more, glabrate, the nodes swollen, the internodes 10 cm. long, the pith white and about 7 mm. in diameter; leaf blades ovate to oblong-ovate, up to 7 cm. long and 3.8 cm. wide, short-acuminate, rounded, obtuse or acute at base and decurrent on the petiole, thin, entire, both surfaces inconspicuously puberulous, the hairs subappressed or spreading,
up to 0.5 mm. long, the costa, lateral veins (7 or 8 pairs) and the coarsely reticulate veinlets moderately conspicuous, the cystoliths minute, sparse, inconspicuous, up to 0.16 mm. long; petioles slender, the unwinged portion up to 2 cm. long, strigose; flowers borne in small delicate terminal and axillary racemes 3 to 8 cm. long and 2 to 4.5 cm. broad, the peduncles 0.5 to 5 cm. long, sparingly and inconspicuously hirtellous, the branches of the panicle once or twice forked (sometimes with a flower in the first fork) and subtended by subsessile cordate acuminate recurved leaves 0.5 to 4 cm. long and 0.3 to 2 cm. wide, the pedicels and secondary branches of the panicle subtended by subulate bracts 2 to 5 mm. long and about 0.5 mm. wide, acute, minutely ciliate and sparingly hirtellous or glabrate, the lowermost internodes about 12 mm. long, the others successively shorter, the pedicels 1 to 4 mm. long, both the pedicels (0.24 mm. thick) and branches very slender, sparingly to moderately hirtellous, the hairs ascending, up to 0.16 mm. long, sepalate; calyx segments narrowly triangular, 5 to 8 mm. long, 1.25 mm. wide at base, gradually narrowed to a slender bluntish tip, sparingly and minutely hirtellous, the hairs ascending, the segments sometimes bearing at or near the tips a few long (0.4 mm.) hairs tipped by conical elongated brownish glands; corolla sulphur yellow, glabrous, reaching 15 mm. in length, the tube 3 mm. broad at base, enlarged at 2 mm. above base to 3.5 mm., thence narrowed at 4 mm. above base to 2.5 mm., from there gradually enlarged to 3.5 mm. at mouth, the upper lip linear, 7 mm. long, 1 mm. wide (flower young), rounded at tip, the lower lip suborbicular, 5 mm. long and 4 mm. wide, 3-lobed at tip, the lobes 0.5 mm. long, and 0.75 mm. wide, rounded; stamens exerted about 7 mm. beyond the mouth of the corolla, glabrous, the anthers 3.5 mm. long, 1.25 mm. broad, rounded at both ends; style slightly exceeding the stamens, glabrous, the stigma minute; capsules clavate, glabrous, 15 mm. long, 4 mm. wide, 3 mm. thick; retinacula 2 mm. long, linear-cucullate at tip, inconspicuously erose; seed light brownish (immature), 2 mm. long and broad, strongly muricate.

Type in the U. S. National Herbarium, No. 1995126, collected in a damp woods on a páramo 10 km. east of Sonsón, Department of Antioquia, Colombia, 2,700 meters altitude, March 18, 1949, by Rosa Scolnik, Nemesio Barva López, and Fred A. Barkley (No. 19An.199).

García-Barriga's No. 4857, collected at Yanaca, Maripi, Department of Antioquia, July 22, 1936, may also be of this species.

The relatively small thin leaf blades, numerous small delicate panicles of sulphur yellow flowers, and all the main branches of the panicles being subtended by small, sessile, cordate, pointed leaves are characters marking Habracanthus scolnikae.
34. HANSTEINIA Oerst.


Herbaceous or shrubby plants; flowers borne usually in terminal and axillary loose thyrsiform panicles; bracts small and subulate, calyx segments 5, narrow, equal; corollas red or yellow, tubular, narrow, usually constricted just above the ovary, thence abruptly and somewhat obliquely enlarged and oblong, often slightly constricted again at mouth, the upper lip erect, entire, the lower scarcely distinct from the corolla tube, 3-lobed; stamens 2, attached at tip of corolla tube, exserted, the anthers 1-celled, obtuse; capsules glabrous, clavate 4-seeded, the lower half stipiform and solid; seed compressed, lenticular, roughened.

Four species have been described in this genus, one from Bolivia and three from México and Central America.

1. *Hansteinia charitopes* Leonard, sp. nov.  

Erect herbs up to 1.5 meters high; stems subquadrangular, glabrous, the cystoliths inconspicuous, up to 0.112 mm. long; leaf blades oblong-lanceolate, up to 16 cm. long and 4 cm. wide, rather slenderly acuminate at tip, cuneate at base, rather thin, entire or undulate, both surfaces glabrous or the costa of the upper surface inconspicuously stribose, the costa and lateral veins and veinlets conspicuous beneath,
obscure above, the cystoliths up to 0.08 mm. long, conspicuous under a lens; flowers borne in a long narrow lax panicle, the small triangular-subulate bracts (3 mm. long, 0.75 mm. wide at base) gradually intergrading into the stem leaves; rachis and rachilla glabrous, bearing minute cystoliths, these conspicuous under a lens; ultimate bracts subulate or linear-subulate, 1.5 to 2.5 mm. long, 0.25 mm. wide, the cystoliths minute but conspicuous; pedicels slender, up to 15 mm. long and 0.25 mm. thick, glabrous and bearing minute cystoliths; calyx 4 mm. long, glabrous except a few minute acute hairs at tips

of the segments, these linear-lanceolate, 3.5 mm. long and 0.75 mm. wide at base, acute, bearing numerous minute cystoliths (0.032 to 0.08 mm. long) conspicuous under a lens; corolla 2 cm. long, red, purplish toward tip (Fosberg), glabrous, the tube 1.5 mm. broad at base, at 3 mm. above base abruptly enlarged to 8 mm., 6 mm. broad at throat, the lips erect, subequal, 3.5 mm. long, the upper lip ovate, 2.5 mm. wide, rounded, the lower lip 3-lobed, the lobes 2 mm. long and broad, obtuse; stamens reaching the tips of the corolla lips, glabrous, the anthers 4 mm. long, 1.5 mm. thick, muticous; style
slightly exserted, the stigma minute; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045407, collected on a steep slope in a wet forest at the headwaters of the Río Fortalecillas, just below Paso de Las Cruces, 39 km. east of Neiva, Department of Huila, Colombia, 2,300 meters altitude, January 19, 1943, by F. R. Fosberg (No. 19791). Isotype: US.

The specific epithet is from the Greek χαριτώτης, meaning graceful.

35. STENOSTEPHANUS Nees

Stenostephanus Nees in Mart. Fl. Bras. 9: 91. 1847. 2re^s, narrow, and στυφάνος, crown or wreath, alluding possibly to the narrow thyrsoid panicle. Type species: Stenostephanus lobeliaeformis Nees. Type collected in damp woods of Serra dos Orgãos, Brazil, by Khotzky.

Herbs or shrubs; leaves usually thin, ovate, oblong or oblong-obovate; flowers red, yellow or pink, borne in a narrow terminal thyrsoid panicle; bracts subtending the flowers small; calyx 5-parted, the segments linear, equal; corolla contracted at base into a short narrow portion, upwardly abruptly enlarged and ventricose, narrowed slightly in throat, the limb bilabiate, the lips short, the upper narrow, entire, the lower lip shortly 3-lobed, the lobes ovate, obtuse or rounded; stamens 2; staminodes sometimes present; anthers 1-celled; style filiform, about as long as the stamens, the stigma minute; capsules clavate, the lower half stipiform, solid and sterile, the upper half more or less compressed, 4-seeded, the seed orbicular, flattened, usually verrucose.

Six species have been described, all from South America. A close relationship exists between Stenostephanus, Hansteinia, and Habracanthus. All have tubular corollas, with a narrow basal portion, the tube expanding abruptly and becoming subventricose, usually slightly narrowed in the throat, and the limb bilabiate, with the posterior lip erect and the lower more or less spreading and ending in 3 rounded lobes. In Habracanthus the lips are long, the upper narrowly linear and often curled or contorted in dried specimens, the lower cuneiform and flat. The panicles in this genus vary from loose and few-flowered to dense and many-flowered. In Hansteinia and Stenostephanus the corollas are of the same general plan but the tubes are relatively shorter and broader and more ventricose and the lips are very short, scarcely more than lobes extending from the rim of the corolla tube. The two last genera are most easily distinguished by the inflorescences, which are lax in Hansteinia and dense and narrow in Stenostephanus.

1. Stenostephanus puberulus Lindau

*Stenostephanus puberulus* Lindau, Bull. Herb. Boiss. 5: 670. 1897. Syntypes:

Collected near La Baja, vicinity of Pamplona, Department of Norte de Santander, 2,800 meters altitude, by Funck & Schlim (No. 1309), photograph
(US) of specimen in Berlin Herbarium (Field Mus. No. 8885), and in woods, Province of Ocaca, Norte de Santander, 1,700 to 1,900 meters altitude, by Schlim (No. 1094).

Branching shrubs, the stems subtetragonal, glabrous; leaf blades ovate, 10 to 20 cm. long and 3 to 10 cm. wide, long-acuminate, gradually narrowed and decurrent on the petiole, glabrous, the cystoliths conspicuous; petioles 1 to 5 cm. long, glabrous; panicles terminal, thyrsiform, puberulous; bracts and bractlets filiform, 2 to 4 mm. long; flowers borne on pedicels; calyx segments lanceolate, 12 mm. long, 1.5 mm. wide, the outer surface cano-pubescent; corolla yellow or rosy, the tube pilose, 13 mm. long, the base 3 mm. broad, at 3 mm. above base abruptly enlarged to 7.5 mm. and ventricose, narrowed at throat to 5 mm.; upper lip liguliform, entire, the lower lip 3-lobed, the lobes 5 mm. long and 3.5 mm. wide; filaments exserted, 12 mm. long, affixed to the base of the corolla tube; anthers 4 mm. long; ovary 2.5 mm. long; style 25 mm. long; capsule unknown.

No specimens seen. Description compiled from the original.

Tribe 13. Justicieae


This tribe is characterized by "Knötchenpollen" (the usual ribs replaced by 1 or 3 rows of small tubercles) and 2-stamened flowers. Shrubs or herbs; flowers variously disposed; bracts imbricate or distant; bractlets often small; calyx 4- or 5-parted, rarely 2-lipped; stamens 2; anthers 2- or 1-lobed, the lobes superposed, the connective often more or less broad and oblique, spurred, apiculate or muticous; capsules 4-seeded. The Colombian genera represented are:

36. Justicia
37. Pelecostemon
38. Jacobinia
39. Chaetochlamys
40. Chaetothylax

36. JUSTICIA Houst. ex L.

Justicia Houst. ex L. Sp. Pl. 15. 1753; Gen. Pl. 10. 1754. The genus is named for James Justice, a Scotch horticulturist and botanist of the 18th century. Type species: J. adhatoda L.

Dianthera Gronov. ex L. Sp. Pl. 27. 1753; Gen Pl. 15. 1754. The generic epithet was introduced by Gronovius (Fl. Virgin. 5. 1742). The anther lobes in this genus are similar, or nearly so, in shape, with the lower lobe stalked instead of sessile as in typical Justicia. Type species: D. americana L.

Adhatoda Tourn. ex Medic. in Act. Acad. Theod. Palat. 6. Phys.: 393. 1790; Nees in Wall. Pl. As. Rar. 3: 76, 102. 1832. The generic epithet is a native name. Two species, A. zeylanica and A. hyssopifolia, are discussed; the first, a synonym of Justicia adhatoda L., may be chosen as type.
Leptostachya Nees in Wall. PI. As. Rar. 3: 76, 105. 1832. Derivation: κεκτός, thin, fine or delicate, and στάχυς, spike. Two species are described, L. virgata Nees and L. wallichii Nees.

Beloperone Nees in Wall. PI. As. Rar. 3: 76, 102. 1832. Derivation: βέλος, arrow, and περίστη, buckle. The name alludes to the arrow-shaped connective of the anther. In Justicia, according to Nees (DC. Prodr. I: 426. 1847), the anther lobes are parallel, more or less superposed, and their bases blunt. In contrast, the anther lobes of Beloperone are usually superposed, one or both lobes spurred, and the connective arrow-shaped. When a large number of species of both genera are examined, so much variation in these characters are found that it does not seem feasible to maintain Beloperone as a separate genus. The type is B. amherstiae Nees.

Rhytiglossa Nees in Lindl. Introd. Nat. Syst. Ed. 2, 444. 1836. Derivation: ρυτίς, wrinkle or crease, and γλῶσσα, tongue, alluding apparently to the ridged or roughened palate of the corolla. Three syntypes are cited: R. origanoides, R. eckloniana, and R. ciliata. All three are from southern Africa.

Orthotactus Nees in Mart. Fl. Bras. 9: 131. pi. 21. 1847. Derivation: ὁρθός, straight or upright, and τάκτος, arranged; alludes, apparently, to the tetra-stichous spikes of the genus. Of the 9 species described here by Nees, his No. 5, O. venosus illustrated by Pl. 21, can be chosen as the type species. It was collected on the Rio Maranhão in the Province of Goyaz, Brazil, by Pohl.


Herbs or shrubs; leaves opposite, petiolate, usually ovate to oblong and entire, flowers spicate, paniculate or solitary; bracts various, small, linear or subulate, distant, to large, conspicuous and imbricate; calyx segments usually narrow and nearly equal, 5 or, in some species, 4 in number; corollas usually white, pink or purple, sometimes with purple or white markings in throat, the tube usually rather narrow, short to long, the limb 2-lipped, the upper lip 2-lobed, the lower 3-lobed; stamens 2, often slightly exserted but usually not exceeding the corolla lips; anther cells 2, more or less superposed, one or both cells apiculate or tipped, the connective narrow to broad, the lobes parallel or obliquely affixed; capsules clavate, 4-seeded.

KEY TO THE SPECIES

A. Calyx segments 4.

Leaf blades large, at least some of them as much as 5 to 8 cm. wide.

1. J. cystolithosa

Leaf blades smaller, 4 cm. wide or less.

Bracts conspicuous, oblong to elliptic, 4 to 5 mm. wide, acute to obtuse and apiculate

2. J. chlorostachya

Bracts inconspicuous, subulate to lance-ovate, acute to acuminate, 2 mm. wide or less.

Corollas large, about 3 cm. long.
Leaf blades usually rounded or obtuse at base. 3. J. ischnorhachis
Leaf blades cuneate at base.

Corollas a clear purple; marginal hairs of the calyx segments up to
0.5 mm. long. 4. J. charadrophila
Corollas magenta; marginal hairs of the calyx segments up to 0.15
mm. long. 5. J. oreopola

Corollas smaller, 8–14 mm. long.
Pubescence of the inflorescence a mixture of glandular and acute hairs;
flowers usually borne in terminal small lax panicles. 6. J. archeri
Pubescence of the inflorescence without glandular hairs; flowers borne in
solitary or paired spikes.
Calyx segments 2.75 mm. long. 7. J. blackii
Calyx segments 5.5 to 7.5 mm. long.
Leaf blades ovate to oblong-ovate. 8. J. infelix
Leaf blades lanceolate to oblong- or ovate-lanceolate.
Spikes dense. 9. J. pleurotarnyx
Spikes lax. 10. J. polygononoides

A. Calyx segments 5.
B. Calyx irregular.

Posterior segments of the calyx connate except at tips. 11. J. fuchsiifolia
Posterior segments not connate, the anterior segment much smaller than the
others.
Bracts conspicuous and imbricate, ovate. 12. J. neurochlamys
Bracts small and inconspicuous, triangular or subulate.
Spikes very small, 1 cm. long or less, axillary. 13. J. rhodoides
Spikes larger, 3 to 18 cm. long, usually terminal.
Leaf blades elliptic or ovate, rounded or broadly obtuse at tip.

14. J. daidalea
Leaf blades ovate, short-acuminate or acute. 15. J. aethes

B. Calyx regularly 5-parted.

Golden yellow hairs present, at least at tip of stems.
Leaf blades up to 12 cm. wide, the lower surface densely and softly sub-
tomentose. 16. J. chrysocoma
Leaf blades up to 4 cm. wide, the lower surface hirsute. 17. J. chrysea
Golden yellow hairs not present.
C. Bracts 3 to 4 cm. long, their tips long and filiform.
Leaf blades up to 5 cm. wide; bracts 0.5 to 0.75 mm. wide.

18. J. chaetocephala
Leaf blades up to 12 cm. wide; bracts up to 6 mm. wide.
Flowers white; bracts slenderly lanceolate to filiform.

19. J. croceochlamys
Flowers yellow; bracts lanceolate to ovate-lanceolate.

20. J. bracteosae
C. Bracts less than 3 cm. long, or if more than 3 cm. long their tips not
long-filiform.
Stems or at least the upper portions conspicuously pilose with more or
less spreading hairs, these from 2 to 5 mm. long.
Bracts acuminate. 21. J. chaponoensis
Bracts rounded and apiculate
Bracts conspicuously long-clawed, up to 6 mm. wide.

22. J. unguiculata
Bracts cuneate or rounded at base, up to 13 mm. wide.
Leaf blades ovate.................................23. J. pampolystachys
Leaf blades oblong-ovate.
Herbs..................................................24. J. hyperdasya
Shrubs..................................................25. J. schultesii

Stems not conspicuously pilose.

D. Bracts 3 mm. wide or more, conspicuous and more or less imbricate.
E. Leaf blades relatively small, up to 5 cm. wide and 14 cm. long.
Bracts spatulate, rounded at tip.................26. J. carthaginensis
Bracts ovate to lanceolate, acute to acuminate.
Corolla red; bracts acuminate..................27. J. erytkrantha
Corolla white; bracts acute to subacuminate.
Leaf blades lanceolate, up to 1.5 cm. wide.
..................28. J. leptochlamys
Leaf blades oblong-elliptic, up to 5 mm. wide.
...............29. J. gutierrezii

E. Leaf blades relatively large, 6 to 11 cm. wide and 20 to 26 cm. long.
Bracts obtuse.
Lobes of the lower lip of the corolla narrow, 0.75 to 1.5 mm.
wide..................................................30. J. macarenensis
Lobes of the lower lip of the corolla broad, 3 to 6 mm. wide.
Bracts broadly obtuse or rounded at apex, unguiculate at base; corolla white with purple lines.31. J. pharmacodes
Bracts moderately obtuse, narrowed at base but not unguiculate; corolla blue with white lines...32. J. phytolaccoides

Bracts acute.
Corollas white or yellow.
Bracts up to 28 mm. long; corollas yellow.
...............33. J. xanthostachya
Bracts up to 12 mm. long; corollas white.
Leaves large, up to 30 cm. long and 16 cm. wide; panicle large, terminal, up to 22 cm. long and 8 cm. broad.
...............34. J. rohrii
Leaves medium, up to 9 cm. long and 14 cm. wide; spikes solitary or in pairs, terminal or subterminal.
...............35. J. cabrerae

Corollas red or rose.
Bracts glabrous or sparingly strigose, veiny.
Corollas pale red, up to 3.3 cm. long...36. J. leucerythra
Corollas scarlet up to 6 cm. long...........37. J. enarthrocoma
Bracts rather densely puberulous or moderately hirsute.
Corollas up to 6.5 cm. long; bracts lanceolate, up to 18 mm. long..............................38. J. sanchezioides
Corollas up to 2.3 cm. long; bracts subovate, up to 11 mm. long..................................39. J. homoea

D. Bracts less than 3 mm. wide, inconspicuous.
Spikes forming a dense terminal panicle...... 40. J. filibracteolata
Spikes solitary or several, not forming a dense terminal panicle.

F. Corollas 3 to 6.5 cm. long.
Upper surface of the leaf blades pilose, the hairs purplish, ascending and conspicuously septate.41. J. porphyrocoma
Upper surface of the leaf blades not pilose with purplish septate hairs, the pubescence various.

G. Flowers borne in dense spikes.
   Leaf blades narrowly lanceolate, up to 16 cm. long and 2.5 cm. wide; corollas up to 4.5 cm. long.
   \textit{42. J. periplacifolia}
   Leaf blades oblong-ovate to elliptic or oblong-elliptic, up to 20 cm. long and 10.5 cm. wide; corollas 3 to 3.8 cm. long.
   Stems glabrous \textit{43. J. sciota}
   Stems minutely antorsely strigose with yellowish hairs \textit{44. J. phlebophylla}

G. Flowers disposed in loose spikes or panicles.
Rachises and peduncles densely hirsute or strigose.
Pubescence of the panicle of grayish hairs, those more or less spreading, up to 1 mm. long.
\textit{45. P. malacophylla}
Pubescence of the panicle of yellowish hairs, these minute and appressed, up to 0.2 mm. long.
\textit{46. J. pelianthia}
Rachises and peduncles glabrous to moderately puberulous, strigose or hirsute.
Flowers borne in axillary racemes \textit{47. J. anabasa}
Flowers disposed at least in part in terminal panicles.
Panicles composed of subhelicoid cymes.
Corolla glabrous; leaf blades thin, glabrous.
\textit{48. J. aurantiaca}
Corolla puberulous, firm, sparingly hirtellous
\textit{49. J. jacobinioideis}
Panicles composed of spikes.
Rachises rather thick, up to 1.5 mm. in diameter.
\textit{50. J. novogranatensis}
Rachises slender, up to 0.5 mm. in diameter.
Corollas crimson \textit{51. J. secunda}
Corollas white \textit{51a. J. secunda var. leucantha}

F. Corollas less than 3 cm. long.
Leaf blades pandurate.
Flowers borne in a narrow slender naked panicle; leaves large, up to 30 cm. long and 13 cm. wide. \textit{52. J. atacta}
Flowers borne in leafy spreading conspicuous panicles; leaf blades medium, up to 16 cm. long and 6.5 cm. wide.
\textit{53. J. ephemera}
Leaf blades not pandurate but narrowed to rounded or subcordate at the base.

H. Spikes arranged in panicles.
Leaf blades large, up to 23 cm. long and 10 cm. wide.
Panicles dense \textit{40. J. fibibracteolata}
Panicles open.
Flowers greenish white, crowded at the tips of the panicle branches.
\textit{54. J. chloanantha}
Flowers purplish, disposed in spikes up to 5 cm. long \textit{55. J. helonoma}
Leaf blades small to medium, up to 15 cm. long and 2.5 cm. wide.
Pubescence of the inflorescence a mixture of glandular and eglandular hairs.
Leaf blades up to 11 cm. long and 2.5 cm. wide. 56. *J. pectoralis*
Leaf blades up to 5 cm. long and 5 mm. wide.

56a. *J. pectoralis* var. *stenophylla*

Pubescence of the inflorescence eglandular.
Calyx 2.5 mm. long; lowermost spikes borne in peduncled umbels.

57. *J. comata*

Calyx 4 to 6 mm. long.
Flowers borne in slender axillary dichotomously or trichotomously branched panicles. 58. *J. namatophila*
Flowers borne in dense terminal panicles comprised of verticillasters of numerous slender ascending spikes. 59. *J. martiana*

H. Spikes not arranged in panicles.

Spikes axillary.
Peduncles up to 7 cm. long. 60. *J. laevilinguis*
Peduncles up to 2 mm. long or lacking.
Bracts spathulate; spikes up to 6 cm. long, dense, the flowers conspicuously secund. 61. *J. idiogenes*
Bracts linear-subulate; spikes up to 1.5 cm. long or lacking and the flowers disposed in close axillary clusters, these not conspicuously secund.

62. *J. fusagasugana*

Spikes terminal, solitary, paired, or in 3's.
Leaf blades narrowly lanceolate, up to 12 mm. wide. 63. *J. scytophylla*
Leaf blades oblong-elliptic, ovate or oblong, 2 cm. wide or more.
Flowers white.
Bracts subtending the corollas narrowly ovate, subacute, conspicuously 3-nerved. 64. *J. killipii*
Bracts subtending the corollas subulate to narrowly triangular, acute to acuminate.

Leaf blades up to 17 cm. long and 8 cm. wide; calyx segments 8 mm. long. 65. *J. graphophylla*
Leaf blades up to 14 cm. long and 5.5 cm. wide; calyx segments 5 mm. long.
Connective of the anthers spurred. 66. *J. petroea*
Connective of the anthers not spurred. 67. *J. sterea*

Flowers lavender or lilac.
Leaf blades rounded at base. 68. *J. sciera*
Leaf blades narrowed at base.
Corolla bearing glandular hairs. 69. *J. stereostachya*
Corolla with acute hairs.
Capsules bearing minute gland-tipped hairs mixed with acute ones. 70. *J. hodgei*
Capsule bearing acute hairs only. 71. *J. hygrobia*

1. *Justicia cystolithosa* Leonard, sp. nov.
venis prominentibus, cystolithis pluriibus et conspicuis; paniculae
magnae, terminales, internodiis superioribus paniculorum parce
glanduloso-puberulis, infinis glabris; spicæ apice ramorum panic-
ularum breves, laxæ, floribus secundis praeditæ; bracteæ subulatae
glabrae, cystolithis conspicuis, parallelis; bracteolæ bracteis similes
sed leviter longiores; calyxis segmenta 4, anguste lanceolata, apice
graciliter acuta, parce et glanduloso-puberula, marginibus minute
ciliolatis; corolla purpurea, parce et minute pubescens, aliquanto
magna, tubo subcylindrico, labio superiore suberecto, triangulo-ovato,
apice acuto, labio inferiori plus minusve patulo, aliquanto anguste
obovato, apice 3-lobato, lobis brevibus, rotundatis; stamina exserta,
filamentis glabris, lobis antherarum superpositis, obliquis, lobo superiore
dorso puberulo, pilis rigidis, erectis, anguste triangularibus, acutis,
lobo inferiori breviter calcarato; ovarium glabrum.

Herbaceous or suffrutescent plants up to 1.5 meters high; stems
quadrangular (the angles rounded), sulcate, glabrous; leaf blades
oblong-ovate, up to 22 cm. long and 8 cm. wide, acute to short but
slenderly and more or less abruptly acuminate, rounded or obtuse at
base, sessile or short petioled (petiole glabrous, up to 4 mm. long),
firm and somewhat chartaceous, entire or undulate, glabrous, the
venation (lateral veins 10 to 12 pairs) very prominent beneath, less so
above, the cystoliths of both surfaces very numerous and conspicuous,
0.2-0.3 mm. long, straight or slightly curved; flowers rather numer-
ous, borne in lax terminal panicles up to 20 cm. long and 8 cm. broad,
the peduncles and lowermost internodes of the inflorescence up to 4
cm. long, the other internodes successively shorter towards the tip
of the inflorescence, the ultimate ones slender, the flowers more or
less secund, few to several (6 or more), borne at the tips of the branches
of the inflorescence, the internodes of the flower-bearing spicate tips
5 mm. long, becoming shorter upward, the peduncle and lower in-
florescence internodes glabrous, the upper ones sparingly puberulous
with spreading glandular hairs about 0.1 mm. long; bracts subulate,
up to 4 mm. long and 1 mm. wide at base, glabrous; bractlets similar
to the bracts but slightly longer, the bracts and the internodes of
the inflorescence bearing numerous conspicuous parallel cystoliths;
calyx segments 4, 1 cm. long, narrowly lanceolate, 1 mm. wide near
base, gradually narrowed into a slender tip, sparingly glandular-
puberulous, the hairs similar to those of the inflorescence branches, the
margins minutely ciliolate with spreading hairs; corollas up to 36 mm.
long, purple, very sparingly and minutely pubescent without, the
basal portion within densely and retrorsely strigose with white hairs
up to 0.5 mm. long, the tube 2 mm. broad at base, narrowed at 3 mm.
avove base to 1.5 mm., thence gradually enlarged to 7 mm. at mouth,
the upper lip suberect, triangularly ovate, about 8 mm. wide at base,
acute at tip, the lower lip more or less spreading, rather narrowly obovate, 5 mm. wide at 4 mm. below tip, 4 mm. wide at tip, 3-lobed, the lobes low and rounded, 1 mm. long, the middle lobe 1.5 mm. wide, the lateral ones 1 mm. wide; stamens exserted about 9 mm. beyond

Figure 183.—Justicia cystolithosa Leonard (Idrobo & Schultes 825): a, Leaf showing cystoliths; b, small area of leaf blade (lower surface) enlarged to show cystoliths; c, portion of inflorescence; d, portion of an internode of the inflorescence enlarged to show pubescence; e, one of the lower nodes of the inflorescence enlarged to show bracts; f, bracts and one of a pair of bractlets subtending a flower; g, a segment of a calyx; h, anther. (a, Half natural size; b, 11½ times natural size; c, natural size; d, 35 times natural size; e, f, 4 times natural size; g, 3 times natural size; h, 7 times natural size.)

the mouth of the corolla tube, the filaments glabrous, the anther cells superposed and obliquely attached to the connective, about 2 mm. long and 0.5 mm. thick, the upper lobe puberulous dorsally, the hairs stiff, erect, straight, narrowly triangular, 0.8 mm. long, white, the lower lobe terminated in a blunt tail 0.13 mm. long; style as long as
the stamens, glabrous or bearing a few minute hairs near base; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2025698, collected on trail between Río Güejar and the “caño” Guapayita, Cordillera La Macarena, Intendencia of Meta, Colombia, 500 to 600 meters altitude, December 20-28, 1950, by Jesús M. Idrobo & Richard Evans Schultes (No. 825).

The following specimens, all from the Macarena region, are also of this species: Philipson & Idrobo’s No. 1794 (BM), collected in dense forest on the central mountain approach ridge, 600 meters altitude, December 19, 1949; Idrobo and Schultes’ No. 1283 (US), collected on the mesa of Río Sansa, 1,000 to 1,300 meters, January 23, 1951; and Philipson, Idrobo and Jaramillo’s No. 2146 (US), collected in dense humid forests of the central mountains of the north ridge, 1,500 meters altitude, January 23, 1950.

Justicia cystolithosa is an attractive species easily recognized by its stiff, papery, almost sessile leaf blades conspicuously veined and covered with cystoliths and by its graceful panicles of rather large purple flowers.

2. Justicia chlorostachya Leonard sp. nov.

Herba, caulibus erectis vel ascendentibus (nodis infinis saepe radicantibus), subquadranularibus, 4-sulcatibus, deorsum glabris, sur- sum puberulis, pilis retrorse curvatis; lamina foliorum ovato-lanceolata, acuta vel acuminata (apice ipso obtuso), basi angustata, in petiolum decurrens, integra vel undulata, aliquanto firma, supra glabra vel plus minusve hirsuta, pilis ascendentibus, costa plus minusve appresso- pilosula, subtus glabra, costa et venis lateralibus prominentibus pilosu- lis, pilis appressis vel patentibus, curvatis; petioli aliquanto graciles, puberuli; spicae terminales, dense bracteosae, parvae, pedunculis gracilibus, puberulis; bracteae oblongo-ellipticae vel ovatae, acutae vel obtusae et apiculatae, subchartaceae, nitidae, virides, glabrae, marginibus ciliatis, cystolithis et venis prominentibus; bracteae lanceolatae, acutae, basi angustae; calycis segmenta 4, anguste lanceolata, ciliata; corolla parva, aliquanto hirsuta (basi glabra), alba, rosea vel pallide violacea, labio superiore erecto, ovato, acuto, labio inferiore patulo, 3-lobato, lobis aequalibus, lobo medio orbiculato, lobis lateralibus ovatis, apice rotundatis; stamina leviter exserta, filamentis glabris, antherarum lobis obliquis, inaequalibus; stigma sursum glabrum, deorsum hirtellum; capsulae clavatae, parvae, glabrae vel parce pubescentes; retinacula ligulata, apice tenuis, rotundata; semina ovoidea, plana, brunnea, papillosa.

Herbs up to 1 meter high, erect or ascending, often rooting at the lower nodes; stems usually more or less branched, subquadranular, 4-sulcate, puberulous, or the lower portions glabrous, the hairs evenly
disposed or more or less in 2 rows, retrorsely curved, up to 0.25 mm. long, white, the internodes up to 10 cm. long; leaf blades ovate to ovate-lanceolate, 1 to 10 cm. long and 0.5 to 4 cm. wide, acute to acuminate (the tip itself blunt) or occasionally obtuse, narrowed at base and decurrent on the petiole, ashy green (Cuatrecasas) or dark sea-green (Lehmann), entire or undulate, moderately firm, the upper surface glabrous or more or less hirsute, the hairs ascending, up to 1 mm. long, the costa often more or less appressed-pilosulous, the hairs 0.25 mm. long, the cystoliths usually conspicuous under a lens, the lower surface glabrous or nearly so except the costa and lateral veins (6 or 7 pairs), these prominent, pilosulous, the hairs subappressed or spreading, curved, up to 0.25 mm. long, the cystoliths few and obscure to numerous and conspicuous; petioles rather slender, up to 1.5 cm. long, more or less puberulous, the hairs curved, ascending or subappressed, up to 0.5 mm. long; spikes terminal, solitary or occasionally, in pairs, up to 8 cm. long and 8 to 15 mm. broad, densely bracted or the lower portions lax, the peduncles rather slender, up to 5 cm. long, puberulous, the hairs similar to those of the stems; bracts oblong-elliptic to ovate, up to 8 mm. long and 5 (usually 4) mm. wide, acute to obtuse and apiculate, narrowed at base, rather thin and subchartaceous, a bright nitid slate green (“empizarradas verde claras,” Cuatrecasas), glabrous except the margins, these ciliate, the hairs spreading or ascending, up to 1.5 mm. long, the cystoliths usually prominent.

**Figure 184.** — *Justicia chlorostachya* Leonard (a–e, h, Killip & García 33671; f, g, García-Barriga, Hawkes & Villaereal 12960): a, Tip of branch to show spike; b, bract; c, enlarged hairs from margin of bracts; d, bractlet; e, calyx; f, corolla; g, anther; h, capsule, (a, Natural size; b, 3 times natural size; c, 10 times natural size; d-f, h, twice natural size; g, 4 times natural size.)
under a lens, the costa and lateral veins rather prominent; bractlets lanceolate, 5 to 6 mm. long, 1.5 mm. wide, acute and narrowed at base, in other respects similar to the bracts; calyx 4 to 5 mm. long, deeply segmented, the segments 4, narrowly lanceolate, 0.5 mm. wide near base, gradually narrowed, the costa and margins ciliate, the hairs ascending, up to 1 mm. long; corolla about 1 cm. long, white, pink or pale violet (the lobes sometimes a deeper pink or violet or the upper lip pink or violet and the lower whitish), moderately hirsute except the glabrous basal portion, the hairs about 0.25 mm. long, the tube 7 mm. long, 1.75 mm. broad near base, narrowed gradually to 1 mm. at 5.5 mm. above base, 1.75 mm. broad at mouth, the posterior lip erect, ovate, 4 mm. long, 2.5 mm. wide, acute, the lower lip spreading, 4 mm. long, 3-lobed, the middle lobe orbicular, about 3 mm. in diameter, the lateral lobes oblong-ovate, 3 mm. long and 1.5 mm. wide, rounded; stamens adnate to the throat of the corolla tube, the free filaments slender and glabrous, 3 mm. long, the adnate parts hirtellous, the anther lobes attached obliquely on the connec-tive, the larger of the lobes 0.75 mm. long, the smaller 0.5 mm. long; stigma 7.5 mm. long, the upper half glabrous, the lower hirtellous, the stigma narrowly lanceolate; capsule glabrous or sparsely pubescent, 7.5 mm. long, 3 mm. thick, 2 mm. broad, clavate, 4-seeded, the sterile solid basal stipitate portion 3 mm. long; retinacula ligulate, the basal portion about 0.5 mm. wide, the tip 0.25 mm. wide, flat and rounded; seeds ovoid, light brown, 1.5 mm. long and broad, about 0.5 mm. thick, papillose.

Type in the U. S. National Herbarium, No. 1770577, collected in dense forest at San Antonio, west of Cali, near summit of Cordillera Occidental, Department of El Valle, Colombia 1,900 to 2,350 meters altitude, February 26 to March 2, 1939, by E. P. Killip and Hernando García (No. 33671).

Other collections are:

**Antioquia:** Damp open woods along the Camino Real Antiguo to Boquerón de Medellín, 2,500 meters altitude, Barkley, Correa & Pérez 102 (US). Woods at Las Palmas, between Medellín and El Retiro, Sarmiento 6 (GH, Med). Damp woods near Santa Elena, between Medellín and Rionegro, Barkley, Araque & Gómez 498 (US); Barkley, Scolnik & Ramírez 522 (US). Dryish area 3 km. west of Santa Fé de Antioquia, Scolnik, Barkley & Saiz 428 (US).

**Caldas:** Forests west of Río Boquita, Salento, Killip & Hazen 8795 (GH, NY, US). Thicket along stream, Río San Raphael, below Cerro Tatamá, Pennell 10347 (GH).

**Cauca:** Woods at Carpinterías, between Cerro Munchique and Cerro Altamira, Pérez-Arbelaíz & Cuatrecasas 6183 (Col). Virgin forests near El Tambo, La Costa, von Sneidern 624 (S); 700 (S); 958 (S). La Gallera, Micas Valley, Killip 7684 (GH), 7786 (GH). Virgin forest near El Tambo, Munchique, von Sneidern 711 (S). Shady place on the plateau of Popayán, Lehmann 5601 (K). Río Munchique, García-Barriga, Hawkes & Villarreal 12960 (US). Río Tambito,

CUNDINAMARCA: Mesa, 700 meters altitude, September 1855, Triana s.n. (Col).


Endemic. The species is usually found in more or less damp forests from 1,000 to 2,500 meters altitude. It has, however, been found as low as 5 to 50 meters (Cuatrecasas 16444). The color of the corolla varies considerably, from white through pink or purplish. Pennell gives a detailed description of the corolla of his No. 10347 while still fresh: "Corolla: 2 posterior lobes arched and united (apex acute, erect, distally purple); 3 anterior lobes of equal length, proximally white, distally phlox-pink; throat anteriorly 2-ridged and with horizontal processes white, with horizontal radiating areas on the ridges of phlox-purple." The specific epithet comes from χλωρός, green, and στάχυς, spike.

3. Justicia ischnorhachis Leonard, sp. nov. 

Sufrutex aliquando subscandens, caulibus subquadrangularibus, glabris vel sursum bifariam puberulis, pilis parvis, retrorse recurvatis; lamina foliorum lanceolata vel oblongo-ovata vel elliptica, breviter vel graciliter acuminata (apice saepe curvato), basi obtusa vel rotundata, aliquanto firma, integra vel undulata, supra glabra vel in costa et venis lateralis parce puberula, pilis subappressis, subitus glabra vel in costa et venis aliquanto prominentibus parce puberula, cystolithis (sub lente) conspicuis; petioli breves, glabri vel parce puberuli; spicae terminales et axillares, pedunculosis gracilibus, quadrangularibus (angulis leviter alatis), glabris vel bifariam hirtellis; bracteae lanceolato-ovatae, acuta vel acuminatae, aliquanto firmae, striato-venosae, hirtellae, pilis patulis, rectis vel leviter curvatis; bracteolae subulatae, ciliatae, glabrae, costa prominente hirtellae; calycis segmenta subulata, apice filiformis, hirtellae, pilis patulis, apice acutis vel cyathiformibus; corolla rubra vel rubro-straminea vel fusco-coccinea vel violacea, parce pubescens, pilis septatis, apice acutis vel interdum cyathiformibus, tubo longo, anguste infundibuliformi, labio superiore ovato, erecto, apice acuto, inferiori oblongo,
plus minusve patulo, 3-lobato, lobis ovatis, obtusis; stamina exserta, glabra, lobis antherarum plus minusve obliquis; capsulae clavatae, glabrae vel parce puberulae, apice acutae; semina ovata, plana, longitudinaliter rugosa, dilute brunnea, levia vel minute papillosa.

Suffrutescent plants sometimes becoming subscandent, up to 60 cm. high or more; stems subquadrangular, glabrous or the upper portions more or less bifariously puberulous, the hairs up to 0.5 mm. long, retrorsely curved; leaf blades lanceolate to oblong-ovate or
elliptic, up to 20 cm. long and 5 cm. wide, shortly to slenderly acuminate, the tip often curved, obtuse or rounded at base or sometimes acute, moderately firm, entire or undulate, the upper surface glabrous or the costa and lateral veins (6 or 7 pairs) sparingly puberulous, the hairs subapressed, the lower surface likewise glabrous or sparingly puberulous on costa and veins, these more prominent than those of the upper surface, the cystoliths moderately conspicuous under a lens, up to 0.28 mm. long; petioles 3 to 8 mm. long, glabrous or sparingly puberulous; spikes terminal and axillary, the uppermost spike sometimes forked or sparingly branched forming a loose panicle, slender, 3 to 12 cm. long, the peduncles slender, up to 7 cm. long, quadrangular, the angles faintly winged, glabrous or hirtellous, the hairs arranged more or less in two lines, up to 0.5 mm. long, the rachis slender, subquadrangular, more or less flattened near the nodes, moderately hirtellous; bracts lance-ovate, average size 4.5 mm. long, 2 mm. wide, acute or acuminate, rather firm, striate-veined (the costa and lateral veins prominent), moderately hirtellous, the hairs rigid, spreading, straight or slightly curved, up to 0.16 mm. long; bractlets subulate, 5.5 mm. long, 0.5 mm. wide, ciliate, otherwise glabrous except the costa, this prominent and sparingly hirtellous; calyx about 8 mm. long, hirtellous, the hairs up to 0.16 mm. long, more or less spreading, some of them cyathiform, the segments 4, subulate, 0.5 mm. wide at base, gradually narrowed to a slender filiform tip up to 3 mm. long; corollas red, reddish straw-color, dull crimson, violet or reddish orange, sparingly pubescent, the hairs up to 0.2 mm. long, more or less conspicuously sepalate, a few cyathiform hairs sometimes present, the corolla tube 1.5 mm. broad at base, gradually enlarged to 5 mm. at mouth, the upper lip erect, 8 mm. long, 3 mm. wide, acute at tip, the lower lip somewhat spreading, oblong, 3 mm. wide, 3-lobed, the lobes ovate, 1.5 mm. long, the middle lobe 1.5 mm. wide, the lateral ones 1 mm. wide, all obtuse; stamens exserted 5 mm. beyond the mouth of the corolla tube, glabrous, the anthers 1.5 mm. long, 1.25 mm. broad, equally and somewhat obliquely attached to the connective (0.5 mm. wide at base), one lobe 1.5 mm. long, the other 1.25 mm. long; capsules clavate, 1 cm. long, 2 mm. broad, 1.5 mm. thick, glabrous or sparingly puberulous, acute at tip; retinacula 1.5 mm. long, the tip rounded, flattened, erose; seeds flattened, 2 mm. long, 1.5 mm. wide, 0.5 mm. thick, light brown, longitudinally ridged, smooth or minutely papillose.

Type in the U. S. National Herbarium, No. 1830660, collected at Villavicencio, Intendencia of Meta, Colombia, December 1928, by Brother Apollinaire "D."

Other collections are:

**Norte de Santander:** Valley of Río Margua, between Junín and Córdoba, 920 to 1,240 meters altitude, November 22, 1941, *Cuatrecasas* 13382 (US).

*Justicia ischnorhachis* can easily be recognized by its strongly nerved green bracts and slender spikes of flowers. The specific epithet is from the Greek *ischnos*, slender, and *rachis*, rachis.

4. *Justicia charadrophila* Leonard, sp. nov. **Figure 186**

**Suffrutex,** caulibus subquadrangularibus, sursum antrorse strigosis, pilis subbrunneis, rectis vel leviter curvatis, rigidis; lamina foliorum lanceolata, apice acuminata (apice ipso obtuso), basi angustata, aliquanto integra vel undulata, supra glabra vel parce strigosa, cystolithis saepe obscuris, subtus parce strigosa, pilis minutis, costa et venis aliquanto prominentibus, cystolithis obscuris; petioli strigosi; spicae terminales, aliquanto laxae, pedunculo et rhache hirsutis et puberulis, pilis magnis ascendentiis, rigidis, rectis vel leviter curvatis, pilis minutis, patulis vel retrorose curvatis; bracteae lanceolatae, acuta, conduplicateae, hirsutae, pilis praecipue in costa et venis et marginibus positis, rigidis, fere rectis, ascendentibus; bracteae lanceolatae, acuta, glabra, plana, costa et marginibus hirtellis exceptis, costa prominente; calycis segmenta 4, lanceolata, segmenta anterioria et posterioria quam segmenta lateralia latiora, graciliter acuta, 3-nervata, extus hirtella, intus glabra; corolla purpurea, parce hirtella, tubo anguste campanulato, labio superiore subrecto, triangulo-ovato, apice acuto, curvato, labio inferiore plus minusve patulo, oblongo, apice 3-lobato, lobis suborbicularlys; stamina exserta, filamentis glabris, lobis antherarum leviter superpositis, lobo superiore fere horizontali, pilis dorsalis rectis subalbidis praedito, lobo inferiore glabro, recto, basi apiculato; ovarium glabrum.

*Suffrutescent plants; stems subquadrangular, upwardly strigose, the hairs brownish, straight or slightly curved, stiff, ascending to appressed, up to 0.75 mm. long; leaf blades lanceolate, up to 14 cm. long and 4 cm. wide, gradually narrowed from below middle to tip (the tip itself blunt), narrowed at base, rather firm, entire or undulate, the upper surface glabrous or sparingly strigose, the hairs stiff, ca. 0.75 mm. long, the cystoliths about 0.2 mm. long, often obscure, the lower surface sparingly strigose but the hairs much smaller, about 0.38 mm.*
long, the costa and lateral veins (7 or 8 pairs) moderately prominent beneath, obscure above, the cystoliths of the lower surface obscure; petioles 0.5 to 1 cm. long, strigose like the stems; spikes terminal, up to 6 cm. long and 8 mm. broad, rather lax, the peduncle 8 mm. long, the lower internode of the spike 5 mm. long, the other internodes successively shorter toward tip of spike, both peduncle and rachis hirsute and puberulous, the large hairs ascending, stiff, straight or slightly curved, up to 0.8 mm. long, the small ones spreading or retrorsely recurved, up to 0.13 mm. long; bracts lanceolate, 3.25 mm. long, 1 mm. wide, acute, conduplicate, hirsute, the hairs mostly costal

**Figure 186.** *Justicia charadrophila* Leonard (Idrobo & Schultes 1079): *a,* Tip of plant showing leaves and inflorescence; *b,* portion of peduncle enlarged to show pubescence; *c,* bract and bractlet; *d,* posterior calyx segment; *e,* one of the lateral calyx segments; *f,* anther. (*a,* Natural size; *b,* about 20 times natural size; *c,* 6¼ times natural size; *d, e,* 4 times natural size; *f,* 8 times natural size.)
and marginal, up to 0.57 mm. long, stiff, nearly straight, ascending; bractlets lanceolate, 3.5 mm. long, acute, flat, glabrous except costa and margins, these bearing ascending slightly curved hairs up to 0.48 mm. long, the costa prominent; calyx 7 mm. long, deeply segmented, the segments 4, lanceolate, the anterior and posterior segments 0.75 mm. wide below middle, the lateral segments about 0.5 mm. wide, all narrowed to a slender tip, delicately 3-nerved, the outer surface hirtellous, the hairs up to 0.5 mm. long, ascending, the inner surface glabrous; corolla a clear bright purple, 2.8 cm. long, sparingly hirtellous, the hairs mostly spreading, straight, up to 0.28 mm. long, the tube narrowly campionate, 1.5 mm. broad at base, narrowed at 2 mm. above base to 0.5 mm., thence enlarged to 6 mm. at mouth, the upper lip suberect, 1 cm. long, 8 mm. wide at base, narrowed to a rather slender acute slightly recurved tip, the lower lip more or less spreading, oblong, about 3 mm. wide, 3-lobed at tip, the lobes suborbicular, about 1.5 mm. in diameter, rounded or subtruncate; stamens exserted 7 mm. beyond mouth of the corolla tube, the filaments glabrous, the anther lobes slightly superposed, the upper lobe attached almost horizontally to the connective, bearing dorsally a row of stiff straight whitish hairs up to 0.11 mm. long, the lower lobe glabrous, vertically attached to the connective, the upper tip touching the upper lobe, the lower tip apiculate, the apiculus whitish, blunt, about 0.38 mm. long; style slightly longer than the stamens, the stigma 2-lobed, the lobes minute, rounded, one slightly longer than the other; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2025704, collected on the bank of a quebrada on the Renjifo Massive, Cordillera La Macarena (extreme northeast tip), Intendencia of Meta, Colombia, 1,300 to 1,900 meters altitude, January 6–20, 1951, by Jesús M. Idrobo and Richard Evans Schultes (No. 1079).

The corollas of Justicia charadrophila are strikingly similar to those of Justicia cystolithosa Leonard. In other respects however the two species are highly dissimilar. The leaves of J. cystolithosa are much larger (up to 22 cm. long and 7.5 cm. wide), glabrous, strongly veined, and bear numerous cystoliths, and the flowers are in largish panicles.

The specific epithet is from the Greek, χαράδρα, ravine, and φίλος, fond of, in allusion to its habitat.

5. Justicia oreopola Leonard, sp. nov.  

Herba, caulibus quadrangularibus vel deorsum subquadrangularibus, dense hirsutis vel glabris, pilis plus minusve patulis; lamina foliorum ovata vel oblongo-ovata, breviter acuminata, basi acuta vel subacuta, aliquanto firma, integra, utrinque hirsuta, cystolithis raris, gracilibus, obscuris; petioli breves, dense hirsuti; spicae terminales,
sublaxae, pedunculo hirsuto, rhache hirtello et hirsuto, pilis brevibus et longis intermixtis; bracteae lanceolatae, ciliatae, bracteolae anguste lanceolatae, parce hirsutae et ciliatae, costa prominente; calycis segmenta 4, anguste lanceolata, hirsuta et hirtella; corolla rubro-lilacina, aliquanto pubescens, tubo anguste hypocrateriformi, labiis subaequalibus, labio superiore erecto, subacuto (apice ipso obtuso), labio inferiore cuneiformi, 3-lobato, lobis ovatis, obtusis vel rotun-

datis; stamina exserta, filamentis glabris, lobis antherarum leviter superpositis obliquis, lobo superiore dorso hirtello; ovarium glabrum.

Herbs up to 1 meter high; stems quadrangular or the lower portions subquadrangular, densely hirsute or glabrate with age, the hairs more or less spreading, up to 0.76 mm. long; leaf blades ovate to oblong-ovate, short-acuminate, acute to subacute at base, moderately firm, entire, both surfaces hirsute, the hairs 0.5 to 1.5 mm. long, the cystoliths slender, scattered and obscure; petioles 5 to 8 mm. long, densely

Figure 187.—Justicia oreopola Leonard (Philipson, Idrobo & Jaramillo 2183): a, Tip of plant showing inflorescence and leaves; b, portion of leaf blade to show hairs of upper surface; c, bract; d, bractlet, side view; e, bractlet, dorsal view; f, calyx segment; g, corolla; h, anther. (a, Natural size; b, 3 times natural size; c-f, 4 times natural size; g, 1½ times natural size; h, 5 times natural size.)
hirsute; spikes terminal, 2 to 4 cm. long, the lowermost internodes about 5 mm. long, the others successively shorter towards tip of spike, the peduncles 3 to 7 mm. long, hirsute, the rachis both hirtellous and hirsute, the smaller hairs up to 0.8 mm. long, the longer ones up to 1 mm. long, all more or less spreading, straight or slightly curved; bracts lanceolate, boat-shaped but not keeled, 3.5 mm. long, 0.75 mm. wide, acute, the margins ciliate, otherwise glabrous, the hairs up to 0.38 mm. long, the costa prominent but not conspicuous; bractlets lanceolate, 3.5 mm. long, 0.5 mm. wide, acute, sparingly hirsute and ciliate, the costa prominent; calyx 8 mm. long, the segments 4, narrowly lanceolate, 0.75 mm. wide near base, gradually narrowed to a slender tip, moderately both hirsute and hirtellous, the marginal hairs up to 0.15 mm. long; corollas 3 cm. long, magenta, moderately pubescent without, the hairs spreading, 0.28 mm. long, densely and retrorsely hirtellous toward base, the hairs about 0.3 mm. long, the tube 1.5 mm. broad near base, thence gradually enlarged to 6 mm. at mouth, the lips subequal, about 6 mm. long, the upper lip ovate, erect, 9 mm. long, 5 mm. wide, subacute (the tip itself blunt), the lower lip 3-lobed, cuneiform, 11 to 12 mm. long, 7.5 mm. wide near base of lobes, the lobes ovate, 2.5 mm. long, the middle one 3 mm. wide, the lateral ones 2.5 mm. wide, all obtuse or rounded; stamens exserted 8 mm. beyond mouth of corolla, the filaments glabrous, the anther cells slightly superposed, attached obliquely to a flat connective 0.75 mm. wide, the upper cell 2 mm. long, nearly horizontal, hirtellous dorsally, the lower cell 1.5 mm. long, nearly vertical, minutely apiculate at base, both cells glabrous; pistil about as long as the stamens, sparingly and minutely hirtellous near base, the stigma minutely 2-lobed; ovary glabrous; capsule not seen.

Type in the U. S. National Herbarium, No. 2025719, collected by stream in dense damp forest on a connecting ridge in the central mountains of the Sierra de la Macarena, Intendencia of Meta, Colombia, 1,450 meters altitude, January 21, 1950, by W. R. Philipson, J. M. Idrobo, and R. Jaramillo (No. 2183). Isotype in the Herbarium of the British Museum.

*Justicia oreopola* is allied in a general way to *J. ischnorhachis*. There is a noticeable similarity in the leaves and flowers of the two species. *J. oreopola* can, however, easily be recognized by its much denser spike and by its hirsute pubescence. The specific epithet is from the Greek ὀρέωπολος, haunting mountains.


*Herba, caulibus erectis vel ascendentibus, sursum plus minusve bifariam hirtellis, pilis curvatis, deorsum glabratris, purpureis; lamina foliorum ovata vel oblongo-ovata, acuta vel breviter acuminata*
Herbs up to 50 cm. long or more, erect or ascending, the stems subquadrangular, the upper portions hirtellous, the hairs curved, about 0.15 mm. long, arranged more or less in 2 lines, the lower portions of the stem glabrate, purplish, the lower internodes 2.5 mm. in diameter; leaf blades ovate to oblong-ovate, up to 7.5 cm. long and 3.1 cm. wide, acute or short-acuminate (the tip itself blunt), narrowed at base and decurrent on the petiole, moderately firm to membranous, entire, both surfaces glabrous or the costa and lateral nerves (7 or 8 pairs) rather conspicuous and sparingly hirtellous, the hairs curved, subappressed, up to 0.2 mm. long; petioles up to 1.5 cm. long, glabrous or sparingly hirtellous; flowers borne in terminal lax spikes or terminal panicles of lax spikes up to 10 cm. long and 3 cm. broad, the spikes up to 4 cm. long with rarely more than 4 flowers to each spike, the peduncles up to 5 cm. long, quadrangular (the angles sharp), bifariously hirtellous, the hairs upwardly curved, up to 0.2 mm. long, the lowermost internodes of the inflorescence up to 2 cm. long, the others successively shorter toward the tip of the inflorescence, all slender, sharply quadrangular, hirtellous with a mixture of small curved hairs about 0.1 mm. long and spreading stouter straight glandular ones up to 0.2 mm. long, the flowers sessile or borne on short pedicels up to 1 mm. long; bracts subulate, firm, up to 3 mm. long and 0.5 mm. wide at base, subcarinate, glabrous or sparingly ciliate near tip, the hairs rigid and toothlike, about 0.4 mm. long, the cystoliths prominent; bractlets similar to the bracts but often slightly
longer; calyx 7 to 8 mm. long, segmented nearly to base, the segments 4, narrowly lanceolate, 0.75 mm. wide near base, gradually narrowed to a slender tip, moderately hirtellous, the hairs slender, ascending, nearly straight, intermixed with a few spreading slightly longer and more rigid glandular ones, the cystoliths prominent; corollas pale lavender, sparingly and minutely pubescent, 11 mm. long, the tube 1.5 mm. broad near base, narrowed at 4 mm. above base to 1.25 mm., about 3 mm. broad at mouth, the lips subequal, the upper lip sub-

Figure 188.—*Justicia archeri* Leonard (*Archer* 1640): a, Inflorescence; b, leaf; c, node of inflorescence to show bract and bractlets; d, portion of rachis to show pubescence; e, tip of bract enlarged to show marginal hairs and cystoliths; f, calyx; g, corolla; h, anther. (a, b, Natural size; c, 3 times natural size; d, 6½ times natural size; e, twice natural size; f, g, 3 times natural size; h, 16 times natural size.)

erect, narrowly ovate, 2.5 mm. wide near base, gradually narrowed to a rounded bilobed tip 1 mm. wide, the lobes about 0.25 mm. long, the lower lip spreading, deeply 3-lobed, the lobes ovate, 4 mm. long, the middle lobe 3.5 mm. wide, the lateral ones 2.25 mm. wide, all rounded at tip; stamens barely reaching the mouth of the corolla tube, glabrous, the filaments slender, the anther lobes slightly superposed, about 0.75 mm. long and 0.25 mm. thick, the upper lobe obliquely attached, the lower nearly vertical, minutely apiculate
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at base; capsules 4-seeded, clavate, 7 mm. long, 2 mm. broad, 1.5 mm. thick, rather sparingly and retrorsely puberulous, the retinacula 1 mm. long, slightly curved, thin and fimbriate at tip; seeds oval, slightly flattened, reddish brown, 1.5 mm. long, 1.25 mm. broad, about 0.25 mm. thick, oblique at base, minutely papillose.

Type in the U. S. National Herbarium, No. 1517478, collected at La Sierra, 18 km. north of Medellín, Department of Antioquia, Colombia, 2,000 meters altitude, March 8, 1931, by W. A. Archer (No. 1640).

*Justicia archeri* resembles *J. leptophylla* Leonard in many respects and is probably rather closely related to it. However, the paniculate inflorescence of *J. archeri*, with its mixed pubescence of straight glandular hairs and shorter eglandular curved ones, differs from the usually spicate inflorescence of *J. leptophylla*, which has no glandular hairs.

7. *Justicia blackii* Leonard, sp. nov.

Herba, caulibus erectis vel ascendentibus, subquadrangularibus, glabris vel sursum bifariam puberulis, pilis curvatis et subappressis, nodis tumescentibus; lamina foliorum ovata vel late lanceolata, breviter acuminata (apice ipso obtuso), basi acuta vel obtusa, tenuis, integra vel undulata, glabra, costa parce hirtella, costa et venis laterali- bus obscuris, cystolithis pluribus et sub lente conspicuis; petioli graciles, glabri vel parce puberuli, cystolithis pluribus, minutis et parallelis; spicae graciles, terminales et axillares, pedunculis gracilibus, subquadrangularibus, sursum planis, bifariam hirtellis, rhachibus planis, glabris, parce hirtellis; bracteae lanceolato-subulatae, carinatae, glabres, costa prominentie; bracteolae lanceolato-subulatae, glabres; calycis segmenta 4, lanceolata, glabra vel parce ciliolatae, costa obscura; corolla exust alba, intus purpurea, glabra vel labiis intus puberulis, tubo subcylindrico, labiis subaequalibus, labio superiore erecto, ovato, apice rotundato, labio inferiore plus minusve patulo, 3-lobato, lobis suborbicularibus, apice rotundatis; stamina vix exserta, filamentis gracilibus, glabris, antheris glabris, connectivo lato, plano, lobo superiore obliquo, inferiore plus minusve recto; capsulae clavatae, glabres.

Erect or ascending herbs up to 40 cm. high; stems subquadrangular, glabrous or the upper portions puberulous in two lines, the hairs curved and subappressed, up to 0.15 mm. long, the nodes of the stems swollen; leaf blades up to 9 cm. long and 2.7 cm. wide, ovate to broadly lanceolate, short-acuminate (the tip itself blunt), acute to obtuse at base, thin, entire or undulate, glabrous or the costa sparingly hirtel- lous, this and the lateral veins (about 5 pairs) faint, the cystoliths numerous and conspicuous under a lens, up to 0.2 mm. long; petioles
slender, 5 to 10 mm. long, glabrous or sparingly puberulous, the cystoliths numerous, minute and parallel; spikes slender, terminal and axillary, 2 to 4 cm. long, 2 to 4 mm. wide, the peduncles slender, 5 to 10 mm. long, subquadrangular, flattened toward tip, hirtellous in 2 lines, the hairs up to 0.5 mm. long, the rachis flattened, glabrous or sparingly hirtellous, lowermost internodes 5 mm. long, successively shorter toward the tip of the spike; bracts lance-subulate, 3 mm. long, 0.75 mm. wide at base, carinate, glabrous, the costa prominent;

bractlets lance-subulate, 2 mm. long, 0.25 mm. wide near base, glabrous; calyx 2.75 mm. long, the segments 4, lanceolate, 0.5 mm. wide near base, narrowed to a slender tip, glabrous, or sparingly ciliolate, the costa obscure; corolla white externally, purple within, glabrous or the inner surface of the lips puberulous, 12–14 mm. long, the tube 1.5 mm. broad at base, subcylindrical, 2 mm. broad at throat, the lips subequal, 3.5 mm. long, the upper lip erect, ovate, 2 mm. wide at base, rounded at tip, the lower lip more or less spreading, 3-lobed,
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the lobes suborbicular, about 1.5 mm. wide, rounded; stamens barely exserted, the filaments slender, flattened, glabrous, the anther lobes attached to a flattened connective 0.75 mm. wide, the upper cell oblique, 0.75 mm. long, the lower cell 0.5 mm. long, attached more or less vertically, both glabrous; capsules clavate, 12 mm. long, 2.5 mm. broad, 1.25 mm. thick, glabrous.

Type in the U. S. National Herbarium, No. 1989433, collected alone the Loretoyacu River, in the “trapecio amazónico,” Intendencia of Amazonas, Colombia, about 100 meters altitude, September 1946, by Richard Evans Schultes and George A. Black (No. 8317). Schultes & Black No. 8697, collected in the same general region, is also of this species.

8. Justicia infelix Leonard, sp. nov. Figure 190

Herba vel suffrutex, caulibus breviter striatis, deorsum teretibus, sursum subtetragonis, glabris vel aliquanto hirsutis; lamina foliorum oblongo-ovata, acuta vel breviter acuminata (apice ipso obtuso), basi acuta vel rotundata, in petiolum breviter decurrens, aliquanto firma, integra, glabra vel costa et venis lateralis obscuris, plus minusve hirsuta, pilis curvatis, cystolithis parvis et obscuris; petioli glabri vel aliquanto hirsuti; spicae terminales et axillares, plus minusve laxae, pedunculo subquadangulari, glabro vel aliquanto hirsuto, pilis curvatis, rhachis hirsuta; bracteae ovatae graciliter acuminatae, glabrae vel pilos paucos ad apicem ferentes, costa non prominente; bracteolae anguste lanceolatae ad apicem graciliter angustatae, carinatae, parce hirsutae, pilis curvatis; calycis segmenta 4, lanceolata, parce hirsuta, costa prominenti; corolla parva, aliquanto hirtella, pilis patulis, tubo brevi, labiis subequalibus, labio superiore ovato, apice truncato et leviter emarginato, labio inferiore puniceo, cuneiformi, trilobato, lobis ovatis, rotundatis et leviter marginatis; stamina vix exserta, filamentis planis, sursum glabris, deorsum parce hirtellis, lobis antherarum leviter superpositis, lobo superiore horizontali, margine dorsali parce hirtello, inferiori verticali; capsulae clavatae, glabratae; semina 4, apice truncata vel obtusa, basi oblique cordata, subnigra, leviter verrucosa.

Herbaceous or suffrutescent plants up to 1 meter high; stems shallowly grooved, the lower portions terete, the upper subtetragonal, glabrous to moderately hirsute, the hairs more or less bifarious, curved, up to 0.57 mm. long; leaf blades ovate to oblong-ovate, up to 10 cm. long and 5 cm. wide, acute or short-acuminate (the tip itself blunt), acute to rounded at base and briefly decurrent on the petiole, moderately firm, entire, glabrous or the costa and lateral veins (4 or 5 pairs) rather obscure, more or less hirsute, the hairs curved, 0.28 to 0.38 mm. long, the cystoliths small and obscure; petioles 5 to 10 mm.
long, glabrous to moderately hirsute; spikes terminal and axillary, 2 to 6 cm. long, 1 cm. broad, rather loose, the internodes up to 5 mm. long, the peduncles 1 to 1.5 cm. long, subquadrangular, glabrous to moderately hirsute with curved hairs 0.28 mm. to 0.38 mm. long, the rachis hirsute with curved hairs 0.28 mm. long; bracts ovate, 3.5 mm. long, 1.5 mm. wide at base, slenderly acuminate, glabrous or bearing toward the tip a few hairs 0.2 mm. long, the costa barely prominent; bractlets narrowly lanceolate, 3.5 mm. long, 0.5 mm. wide at base, gradually narrowed to a slender tip, carinate, sparingly hirsute dorsally with curved hairs about 0.2 mm. long, the costa not prominent; calyx 7.5 mm. long, the segments 4, lanceolate, about 7 mm. long, 0.75 mm. wide, sparingly hirsute dorsally, the costa prominent; corolla 10 mm. long with a pink lower lip, moderately hirtellous, the hairs spreading, about 0.2 mm. long, the tube 1.25 mm. broad at base, enlarged to 2 mm. at 2.5 mm. above base and narrowed to 1.25 mm. at middle, the throat 2.5 mm. broad, the upper lip ovate, 6 mm. long,
3 mm. wide at base, gradually narrowed to 1.25 mm. at tip, the tip itself truncate and shallowly emarginate, the lower lip cuneiform, 6 mm. long, 7 mm. wide at base of lobes, the lobes 3, ovate, 3 mm. long, the middle lobe 3.5 mm. wide, rounded and shallowly emarginate at tip, the lateral lobes 2 mm. wide, rounded, the lip swollen and plaited in throat of corolla; stamens exerted 2.5 mm. beyond mouth of corolla, the filaments flattened, glabrous toward tip, bearing a few hairs about 0.1 mm. long, the anther cells attached to a flat connective 0.5 mm. wide, slightly superposed, the upper cell 1 mm. long, horizontally attached, the lower one slightly shorter, vertically attached, sparingly hirtellous dorsally, the hairs about 0.11 mm. long; capsules 4-seeded, slenderly clavate, 1 cm. long, 4 mm. broad, 1.75 mm. thick, glabrate; retinacula 2 mm. long, slightly curved, the tip thin, obtuse; seed ovoid, 2.5 mm. long, 2 mm. broad, 1 mm. thick, truncate or obtuse at tip, obliquely cordate at base, dark blackish brown, verrucose.

Type in the U. S. National Herbarium, No. 1772277, collected at Cisneros, in a thicket along the Rio Dagua, Department El Valle, Colombia, 300 to 500 meters altitude, May 5, 1939, by E. P. Killip (No. 35574). Also of this species are Haught’s No. 6383 (US), collected at an irrigation canal take-off along the Río Saldaña, Department of Tolima, altitude 400 meters, March 23, 1949, and Pérez-Arbeláez & Cuatrrecasas’ No. 6372 (US), collected in woods at the Hacienda Valparaiso, Zarzal, near Buga, Department El Valle, 1,020 meters altitude, July 20, 1939.

Justicia infelix is related to J. polygonoides H. B. K., but can be separated by its relatively broader leaf blades, broader bracts, larger calyces and corollas, and hirsute rachises. The specific epithet refers to the nondescript, weedy appearance of the plant.

Haught’s plant was a very slender undershrub, 40 cm. high, found growing on igneous rocks where water often overflowed; the flowers were purple with lighter lines. The color of the corolla of Killip’s collection is not stated.

9. Justicia pleurolarynx (Blake) Leonard


Branching herbs; stems subquadrangular, bifariously hirtellous, the hairs retrorsely curved, up to 0.2 mm. long; leaf blades lanceolate or ovate-lanceolate, usually up to 4 cm. long (occasionally as much as 7 cm.) and 1.5 mm. wide, acute to acuminate (the tip itself obtuse to subacute), narrowed to rounded at base, moderately firm, entire, glabrous or sparingly hirtellous, the hairs confined chiefly to costa
and lateral veins (4 or 5 pairs), curved, up to 0.32 mm. long, the cystoliths usually obscure; petioles 3 to 4 mm. long, hirtellous; spikes solitary or in pairs, terminating the branches, rigid, straight or slightly curved, up to 7 cm. long and 1 cm. wide, moderately dense, the peduncles usually 0.5 to 2 cm. long, and rachis bifariously hirtellous; bracts and bractlets subulate-acuminate, 1.5 to 3.5 mm. long, 0.5 mm. wide at base, sparingly hirtellous; calyx 4-parted, the segments linear-subulate, 6 mm. long, 1.25 mm. wide near base, sparingly to rather densely hirtellous, the costa and a pair of lateral veins rather prominent; corolla 9 mm. long, hirtellous, the tube 3.5 mm. long, the hairs more or less spreading, up to 0.2 mm. long, the upper lip narrowly ovate, entire, rounded, 2-lamellate within and pilose, the lower lip deltidoid, cuneate at base, the tip 3-lobed, the lobes short, rounded, the palate plicate-lamellate, papillose; stamens about 3 mm. long, the anther lobes rounded, obliquely attached to a relatively broad flattened connective 2 mm. broad and about 0.5 mm. thick; capsule clavate, 10 mm. long, glabrous, 4-seeded; seeds ca. 1.7 mm. long, densely papillose.

The specific epithet is from the Greek words πλευρά, rib, and λάγρυξ, throat, alluding to the plicate-lamellate lower lip of the corolla.

Cundinamarca: Jerusalén, Pérez-Arbeláez 587 (US).

10. Justicia polygonoides H. B. K.

Justicia polygonoides H. B. K. Nov. Gen. & Sp. 2:232. 1817. Type collected along the Cauca River between Popayán and Cartago, Colombia, by Humboldt and Bonpland. Photograph US (Field Mus. No. 39429.)

Rhytiglossa polygonoides Nees in DC. Prodr. 11: 353. 1847. Based on Justicia polygonoides H. B. K.

Herbs or suffrutescent plants up to 1 meter high; stems ascending, usually much branched, subquadrangular, hirtellous, the hairs more or less curved, up to 0.75 mm. long, usually arranged in two rows; leaf blades lanceolate to oblong-lanceolate, up to 12 cm. long and 4 cm. wide, acute or short-acuminate (the tip itself obtuse), acute to obtuse at base, bright green, moderately firm, entire, both surfaces glabrous or the costa and lateral veins (4 to 6 pairs) hirtellous, the hairs curved, about 0.5 mm. long, the venation rather prominent beneath, less so above, the cystoliths more or less conspicuous under a lens, up to 0.28 mm. long; petioles up to 10 mm. long, glabrous to moderately hirtellous; spikes terminal and axillary, slender, rather lax (the internodes about 5 mm. long), up to 14 cm. long and 5 mm. broad, the peduncles slender, up to 15 mm. long, these and the rachises puberulous in two lines; bracts subulate or narrowly lanceolate, 3.5 mm. long, 1 mm. wide at base, narrowed into a slender tip, ciliate, the costa prominent; bractlets subulate, 3 mm. long, 0.5 mm. wide at base, sparingly ciliate; calyx 4-parted, deeply segmented, rather
sparingly hirtellous, the segments narrowly lanceolate, 5.5 to 7 mm. long, 0.75 mm. wide, acuminate, ciliate; corolla violet-pink or rose, minutely hirtellous (the hairs about 0.1 mm. long, straight or slightly curved), 11 mm. long, 1.5 mm. broad at base, enlarged to 1.75 mm. at 2 mm. above base and again narrowed to 1.25 mm. at 5 mm. above base, the throat 2.25 mm. broad, the upper lip erect, ovate, 5 mm. long, 2 mm. wide, rounded at tip, the lower lip cuneate, more or less spreading, 5 mm. long, 4 mm. wide near tip, 3-lobed, the lobes ovate, about 1.25 mm. long and wide, rounded; stamens exserted about 2 mm. beyond the mouth of the corolla, the filaments glabrous, the anther cells slightly superposed, the uppermost and larger cell 1.25 mm. long, attached somewhat obliquely, the lower (0.75 mm. long) attached vertically, both cells glabrous; capsules clavate, 1 cm. long, 3 mm. broad, 1.5 mm. thick, the retinacula unguiform, 1.25 mm. long, rounded and thin at tip; seeds (immature) suborbicular, flattened, tuberculate.

Justicia polygonoides occurs at elevations between 75 and 1,400 meters. The leaf blades of Holton’s 594 are much wider than those of typical specimens. Haught states that the leaves of his No. 4953 were red beneath.

Humboldt’s type had white flowers lined with violet and calyces with 5 segments. In other respects both the description and photograph of his type agree reasonably well with the material cited here. Nees, in his description of Rhytidlossa polygonoides, states definitely that the calyces are 4-parted, as they are in all of the specimens I have seen. Since the bracts and calyx segments are quite similar it would be easy to mistake the number of segments. The corollas of the species are typically violet or pink.

J. polygonoides may be closely related to the Mexican J. breviflora, a species usually with much larger flowers, broader leaf blades, and larger heavier spikes.

Antioquia: Sandstone rocks along the Río Mulatos where submerged rather frequently, vicinity of Turbo, Haught 4953 (US).
Bolívar: Forests of Boca Verde on the Río Sínú, Pennell 4206, in part (NY).
Cundinamarca: La Palma, along the road to Pacho by the Río Murca, García-Barriga 12351 (US).
Tolima: In pastures, Arrácato, Cuatrecasas 10524 (US).
Without definite locality: Mutis 725 (US).

11. Justicia fuchsiifolia Leonard, sp. nov. 

Suffrutex, caulibus subquadrangularibus (angulis rotundis), plus minusve bifariam hirtellis, pilis retrorsae curvatis; lamina foliorum oblongo-ovata vel oblongo-elliptica, acuta vel breviter acuminata,
basi angustata, aliquanto firma, integra, marginibus recurvatis, utrinque plus minusve bullata, supra glabra, costa et venis lateralis hirtellis exceptis, pilis curvatis, ascendentibus, subtus glabra vel in costa et venis pubescens, cystolithis obscurs vel deficientibus; petioli breves, hirtellii; paniculæ terminales, laxæ, floribus secundus, pedunculis et pedicellis (brevisbus) quadrangularibus, pilosis vel hirtellis; bracteæe et bracteolæ parvae, triangulares, acutae, ciliolatæ; calyces glabri vel apice parce puberuli, segmenta 3 posteriora adnata vel apice plus minusve disjuncta, segmentum elliptico-ovatum acutum formantia, segmenta 2 anteriola lanceolata, acuta; corolla aliquanto magna, flavæ, puberula, tubo subcylindrico, labiis subequalibus, labio superiore erecto, bilobato, lobis triangularibus acutis, labio inferiore 3-lobato, lobis ellipticis, obtusis, apiculatis; stamina vix exserta, lobis antherarum leviter superpositis, lobo inferiore calcarato, filamentis glabris; ovarium glabrum.

Suffrutescent, up to 2 meters high; stems subquadrangular with rounded angles, hirtellous, the hairs retrorsely curved, up to 0.5 mm. long, more or less bifariously arranged; leaf blades oblong-ovate or oblong-elliptic, up to 6 cm. long and 2.5 cm. wide, acute to short-acuminate, narrowed at base to an obtusish lobulate base, rather firm, entire, the margins recurved, the upper surface glabrous or nearly so except the costa and lateral veins (about 6 pairs), these moderately hirtellous with mostly curved ascending hairs up to 0.5 mm. long, the lower surface glabrous or the venation sparingly and finely pubescent, both surfaces more or less bullate, the cystoliths obscure or lacking; petioles up to 2 mm. long, hirtellous; flowers secund, borne in terminal panicles of short loose racemes (up to 2 cm. long and broad), the peduncles up to 2 cm. long, subquadrangular, pilose, the hairs spreading or retrors, up to 0.5 mm. long, whitish, the lowermost internodes of the panicle about as long as the peduncles, the others successively shorter toward the tip of the panicle, the pedicels 1 to 1.5 mm. long, more or less hirtellous; bracts triangular, 2 mm. long and 1 mm. wide at base, acute, ciliolate, the hairs about 0.5 mm. long; bractlets similar to the bracts but slightly narrower and longer; calyx campanulate, about 13 mm. long, glabrous or bearing a few hairs at tips of the segments, usually 3-parted, the 3 posterior segments adnate (except sometimes at tip) forming an ovate-elliptic segment 6 mm. wide, this acute, the 2 anterior segments separate nearly to base of calyx, lanceolate, 3 mm. wide near base, acute; corolla 3.5 to 4 cm. long, yellow, puberulous, the tube 4 mm. broad at base, narrowed to 2 mm. at 5 mm. above base, thence gradually enlarged to 7 mm. at mouth, the lips subequal, ciliolate, 17 mm. long, the upper lip elliptic, 6 mm. wide, bilobed at tip, the lobes triangular, acute, about 1 mm. long and broad, incurved, the lower
lip 3-lobed, about 8 mm. wide near base of lobes, these elliptic, 4.5 mm. long, 2.5 mm. wide, obtuse, apiculate; stamens exserted slightly beyond the mouth of the corolla tube, the anther lobes slightly superposed, 3 mm. long, 1 mm. broad, glabrous, the lower lobe calcarate at base, the filaments glabrous; pistil reaching the tips of the corolla lips; ovary glabrous; capsules not seen.

Figure 191.—Justicia fuchsiifolia Leonard (Cuatrecasas, Schultes & Smith 12511): a, Tip of branch showing inflorescence and upper leaf blades; b, one of the lower stem leaves (under surface); c, calyx; d, anther. (a, b, Natural size; c, slightly less than twice natural size; d, 3 times natural size.)

Type in the U. S. National Herbarium, No. 1850755, collected in woods between Alto del Loro and Alto de Santa Inés, Sarare Region, Department of Norte de Santander, Colombia, 1,800 to 2,200 meters altitude, October 18-21, 1941, by J. Cuatrecasas, R. E. Schultes & E. Smith (No. 12511).

Kalbryer's No. 1171 (K), collected in forest between Ocaña and Pamplona, Department of Norte de Santander, is also of this species.
The loose paniculate inflorescence of pedicelled yellow flowers, the relatively large campanulate irregular calyces and the firm subbullate leaf blades of *Justicia fuchsiifolia* mark it as an easily recognized species. It apparently has no close relatives.

On his label Kalbreyer described the plant as a "soft-wooded shrub 3 to 6'; leaf stiff dark green; fl. yellow."

12. *Justicia neurochlamys* Leonard, sp. nov.

Herbs up to 60 cm. high, erect or ascending, stems subquadrangular, hirsute in two lines, the hairs retrorsely curved, up to 0.48 mm. long; leaf blades ovate to lanceolate, up to 9 cm. long and 2.5 cm. wide, acute to short-acuminate (the tip itself obtuse), rounded or acute at base, moderately firm, entire or undulate, the upper surface glabrous, the lower moderately hirtellous with curved hairs up to 0.16 mm. long, the cystoliths usually scattered and obscure, the venation scarcely prominent (lateral veins 4 or 5 pairs) but more so beneath than above; petioles 3 to 10 cm. long, hirtellous with curved hairs; spikes terminal and lateral, 2 to 5 cm. long, 8 to 10 mm. broad, the bracts imbricate and quadrijarious, the peduncles about 5 mm. long, rather densely hirtellous with curved hairs, the rachis hirtellous with hairs 0.2 mm. long; bracts imbricate, green, and ovate, about 10 mm. long, 5 mm. wide, subacute, obtuse at base, the upper surface glabrous, the lower moderately puberulous with curved hairs about 0.1 mm. long, the margins ciliate with straight or curved hairs up to 0.76 mm. long, the costa, lateral veins (5 pairs), and coarsely reticulated veinlets promi-
nent, especially on the upper surface where not obscured by the pubes-
cence; bractlets green, oblong-lanceolate, 8 mm. long, 1.5 mm. wide, 
acute at both ends, the pubescence and venation that of the bracts; 
calyx 5 mm. long, the posterior segment subulate, about half as long as 
the other 4, the calyx tube glabrous, triangular in cross section, the 
angles narrowly winged, the segments narrowly lanceolate, subhyaline, 
moderately hirtellous and ciliolate, the hairs up to 0.25 mm. long, the 

costa prominent; corolla delicate, white, 12 mm. long, glabrous below, 
the upper portion sparingly hirtellous with hairs about 0.8 mm. long, 
the tube 1.5 mm. broad at base, 1.75 mm. broad at 2 mm. above base, 
narrowed 1 mm. at middle, the throat 2 mm. broad, the lips subequal, 
4 mm. long, the upper lip erect, oblong, 0.75 mm. wide, acute, the lower 
lip more or less spreading, cuneiform, 3 mm. wide near base of lobes, 
the lobes about 3 mm. long, the middle one about 2 mm. wide, the

Figure 192.—Justicia neurochlamys Leonard (Garcta-Barriga 14096): a, Tip of plant to show 
inflorescence and leaves; b, a hair from stem; c, bract; d, bractlet; e, calyx; f, calyx 
segment; g, anther. (a, Natural size; b, about 40 times natural size; c, d, 2½ times 
natural size; e, twice natural size; f, 5 times natural size; g, 13 times natural size.)
lateral ones 1 mm. wide, all rounded; stamens exerted 2.5 mm. beyond the mouth of the corolla tube, the filaments slender, subhyaline, the anther cells obliquely attached to a flattened connective about 0.25 mm. wide, the upper cell 0.75 mm. long, the lower slightly shorter, both glabrous, the pistil equalling the stamens, slender and glabrous; ovary glabrous.

Type in the U. S. National Herbarium, No. 2057245, collected at Soratama, on the Río Apaporis between the Ríos Kananarí and Pacoa, Intendencia of Amazonas, Colombia, 250 meters altitude, December 15–19, 1951, by H. García-Barriga (No. 14096).

García-Barriga’s 13653 (Col), collected at Lagunas del Churuco, on the Río Apaporis, Amazonas—Vaupés, Colombia, 280 meters altitude, November 22, 1951, is also of this species.

*Justicia neurochlamys* resembles and is probably very closely related to *J. chlorostachya* Leonard. However, the former can be readily recognized by the delicate white corollas and by the puberulous upper surface of the bracts. The corollas of *J. chlorostachya* are pink or pale violet and the bracts are essentially glabrous on both surfaces. The specific epithet is from the Greek, νευρός, nerve, and χαλμός, bract.

13. *Justicia rhodoides* Leonard, sp. nov. **Figure 193**

Herbs up to 50 cm. high, branched and more or less spreading; stems subquadrangular, faintly sulcate (sulci green), rather densely puberulous, the hairs variously curved, up to 0.35 mm. long, white, the cystoliths parallel and, if not concealed by the hairs, conspicuous; leaf blades ovate, up to 4 cm. long and 2.3 cm. wide, gradually narrowed from near base to an acute or subobtuse tip, obtuse or rounded at base and briefly decurrent on the petiole, moderately firm, undulate,
drying green, the upper surface glabrous or sparingly hirsute (the hairs ascending, up to 0.5 mm. long) except the costa and lateral veins (4 or 5 pairs), these moderately hirsute, the lower surface similar to the upper except slightly more hirsute, the venation of both surfaces moderately conspicuous, the cystoliths prominent, up to 0.2 mm. long; petioles slender, up to 4 mm. long, hirsute; flowers sessile in the axils of the leaves or borne in small axillary spikes up to 1 cm. long,

Figure 193.—*Justicia rhodoides* Leonard (a–e, h, Smith 1358, collected Nov. 29; f, g, Smith 1358, collected June 6): a, Tip of plant; b, portion of stem enlarged to show pubescence and cystoliths; c, portion of the under side of a leaf blade enlarged to show pubescence and cystoliths; d, bract; e, calyx; f, corolla; g, anther; h, capsule valve. (a, Natural size; b, 6 times natural size; c, 5 times natural size; d, 8 times natural size; e, 7 times natural size; f, h, 3 times natural size; g, 9 times natural size.)

the peduncles up to 2 mm. long, slender and like the rachis puberulous; bracts subulate, up to 2.5 mm. long and 0.5 mm. wide at base, the outer surface puberulous, the inner glabrous; bractlets similar but smaller; calyx deeply segmented, the segments 5, subulate, 4 large and one small, the larger ones 3.5 to 4 mm. long and 0.5 mm. wide at base, the small one 1 mm. long and 0.2 mm. wide at base, all gradually narrowed to a slender tip and puberulous; corolla 12 mm. long, rosy,
puberulous, the hairs mostly spreading, up to 0.2 mm. long, the corolla tube slender, tubular, 0.75 mm. in diameter, abruptly expanded at base to 2.5 mm., the lips ovate, about 4 mm. long, probably about 1.25 mm. wide, rounded at tip; stamens barely exserted, about 3 mm. long, glabrous, the anther lobes slightly superposed, one 1.25 mm. long, the other, 0.75 mm. long, both blunt at base; capsules clavate, up to 9 mm. long, 2.5 mm. broad and about 0.75 mm. thick, rather densely puberulous, the hairs spreading or, towards base of the capsule, retrorsely ascending, up to 0.17 mm. long; retinacula about 1 mm. long, broadly cucullate, rounded at tip; seeds suborbicular, flattened, muricate.

Type in the U. S. National Herbarium, No. 703897, collected in dry forest 3 to 5 miles north of Bonda, Santa Marta Mountains, Department of Magdalena, Colombia, 100 to 300 feet altitude, November 29, 1898, by Herbert H. Smith (No. 1358). Isotypes: PH, NY, S.

One specimen of the type number was collected June 6 (NY), presumably in the vicinity of Bonda.

*Justicia rhodoides* resembles and is probably very closely related to the West Indian *J. sessilis* Jacq. That species has, however, sparingly glandular puberulous or essentially glabrous capsules and the calyx segments, usually 4 in number, are much less puberulous, becoming, in fact, glabrate at maturity.

Smith states that this plant was common in the locality where he collected it, but not in good flowering condition at the time. His specimen collected in June bears several corollas, but unfortunately these were ruined in the process of gluing, rendering dissection impossible; consequently, the corolla lobes and lips could not be described. The specific epithet is from the Greek word *ροδοειδής*, meaning rosy, in allusion to the color of the flowers.


Herba ascendens, caulibus quadrangularibus, aliquanto dense puberulis, pilis retrorse curvatis; lamina foliorum oblongo-elliptica vel elliptica vel ovata, apice rotundata vel late obtusa, basi acuta, vel obtusa vel subcordata, aliquanto firma, integra, supra glabra, viridimaculosa, subtus hirsuta, pilis curvatis, ascendentibus, praeipue in costa et venis lateralibus prominentibus positis, cystolithis prominentibus; petioli aliquanto breves et crassi, hirsuti; spicae terminales, simplices vel basi furcatae, pedunculis et rhachibus retrorse hirsutis; bracteae parvae, triangulares, acute, glabrae vel in costa prominente hirsutae; bracteae parvae, acutae, glabrae vel in costa prominente hirsutae; bracteae parvae, lanceolatae, acutae, calyceis segmenta anguste lanceolata, plus minusve glabra, costa et marginibus ciliata; corolla parva, parce pubescens, punicea, tubo subcylindrico, labis subequalibus, labio superiore erecto, anguste ovato, labio inferiore
patulo, trilobato, lobis oblongis, apice rotundatis; stamina vix exserta, glabra, lobis antherarum valde superpositis, lobo inferiore calcarato; capsulae clavatae, hirtellae, pilis patulis vel retorsis; retinacula leviter curvata, apice plana et truncata; semina (immatura) subbrunnea, plana, subcordata, leviter tuberculata.

Trailing or ascendent herbs up to 30 cm. high, rather densely puberulous with retrorsely recurved hairs up to 0.28 mm. long, these septate, the internodes up to 5 cm. long and 2 mm. thick, quadrangular; leaf blades oblong-elliptic to elliptic or obovate, up to 9 cm. long and 5.5 cm. wide, rounded or broadly obtuse at tip, acute to
obtuse or slightly cordate at base, moderately firm, entire, the upper surface glabrous, mottled green, the cystoliths prominent, up to 0.28 mm. long, the lower surface hirsute, the hairs curved, ascending, up to 0.5 mm. long, confined chiefly to costa and lateral veins (6 or 7 pairs), these prominent on both surfaces but more so beneath than above, the cystoliths prominent; petioles rather stout, up to 1.5 mm. long, hirsute; flowers borne in simple terminal lax spikes up to 18 cm. long, these sometimes branched, bearing a pair of lateral spikes near the base, the peduncles up to 5 cm. long, retrorsely hirsute, the pubescence that of the stems, the lowermost internodes of the spikes up to 3.5 cm. long, the others successively shorter toward the tip of the spikes, hirsute like the stems and peduncles; bracts triangular, 3 mm. long, 1.5 mm. wide at base, acute, mostly glabrous except the costa, this stout and more or less hirsute; bractlets lanceolate, about 3 mm. long and 0.5 mm. wide, acute; calyx 5 to 6 mm. long, deeply segmented, the segments 5, narrowly lanceolate, four of these 5 mm. long and 0.75 mm. wide at base, the other 3.5 mm. long and 0.5 mm. wide at base, all glabrous except the costa and margins, these hirtellous and ciliate with hairs about 0.2 mm. long; corolla pink, rather sparingly hirtellous, 10 to 12 mm. long, the tube subcylindric, 1.5 mm. broad at base, 2 mm. broad at mouth, the lips subequal, 6 mm. long, the upper lip erect, narrowly ovate, about 2 mm. wide, the lower lip spreading, 3-lobed, the lobes oblong, about 2 mm. wide, rounded; stamens reaching the tip of the upper corolla lip, glabrous, the lobes superposed, the upper lobe separated about 0.5 mm. from the lower by the connective, rounded at base, the lower lobe strongly calcarate, both lobes about 0.75 mm. long; capsules clavate, about 1 cm. long, 3 mm. broad and 1.5 mm. thick, hirtellous, the hairs spreading or retrorse, separtate, about 0.1 mm. long; retinacula 1.5 mm. long, slightly curved, the tip thin and truncate; seed (immature) brownish, about 2 mm. long and broad, faintly tuberculate.

Type in the U. S. National Herbarium, No. 1661602, collected at Camp Puente, in the vicinity of Barranca Bermeja, in the Magdalena Valley between the Ríos Sogomoso and Colorado, Department of Santander, Colombia, 100 to 500 meters altitude, February 27, 1935, by Oscar Haught (No. 1581).

Haught's No. 1603, collected in the Carare Valley in the vicinity of Puerto Berrio, between the Ríos Carare and Magdalena, Santander, 100 to 700 meters altitude, March 25, 1935, is also of this species.

Justicia daidalea is very closely related to Justicia steyermarkii Leonard, comb. nov. (Beloperone steyermarkii Leonard, Fieldiana 28: 555. 1953) from Venezuela (type collected in Yaracuy). Justicia steyermarkii is a smaller plant, not exceeding 18 cm. in height; its leaves are thinner, with no indication of the white mottling so promi-
nent in *J. daidalea*; the inflorescence is much smaller in all parts, the spikes rarely exceeding 4 cm. in length; and the corollas are purple instead of pink.

No dissection could be made of the few corollas present on the specimens cited to show whether the upper lip was lobed or entire. The specific epithet is from the Greek δαίδαλος, curiously wrought or variegated, in allusion to the handsome mottled leaves.

15. *Justicia aethes* Leonard, sp. nov.  

Suffrutex humilis, dense ramosus, caulibus subquadrangularibus vel deorum teretibus, puberulis, pilis valde recurvatis; lamina foliorum ovata, acuta vel breviter acuminata, basi angustata, in petiolum decurrent, integra, aliquanto tenuis, supra viridis (sicca), glabra vel subglabra, costa parce hirtella, subtus cano-viridis (sicca), puberula, cystolithis pluribus et sub lente conspicuis; petioli graciles, parce puberuli; spicae solitariae ramos terminantes, aliquanto laxae, pedunculis quadrangularibus, puberulis, pilis curvatis; bracteae et bracteolae similares et subaequales, subulatae, puberulae, ciliolatae; calycis segmenta 5, subulata, segmentum anterius reductum, puberula, ciliolata, costa prominente; corolla (immatura) pallido-purpurea, basi glabra, sursum puberula, labiis subaequalibus, labio superiore ovato, rotundato, labio inferiore 3-lobato, lobis rotundatis; stamina vix exserta, lobis antherarum superpositis, lobo superiore obliquo, inferiore recto, filamentis glabris; capsulae clavatae, parce puberulae; semina plana, suborbicularia, nigra, muricata. 

Low, densely branched shrubs up to 60 cm. high; stems subquadrangular, or the lower portions terete, puberulous, the hairs strongly recurved, about 0.1 mm. long; leaf blades ovate, 3 to 8 cm. long, 1.3 to 3 cm. wide, short-acuminate or acute, narrowed at base and decurrent on the petiole, entire, rather thin, the upper surface drying green, glabrous or nearly so or the costa sparingly hirtellous, the lower surface gray green, puberulous, the hairs up to 0.11 mm. long, ascending or those of the costa somewhat longer, the venation faint but more prominent beneath than above, the cystoliths numerous and conspicuous under a lens, up to 0.28 mm. long; petioles slender, 5 to 13 mm. long; spikes solitary, terminating the branches, 3 to 6 cm. long, about 5 mm. thick, the internodes 2 to 4 mm. thick, the peduncle 5 or 6 mm. long, quadrangular, puberulous with curved hairs; bracts and bractlets similar and subequal, subulate, 4 mm. long, about 1 mm. wide at base, puberulous, ciliolate, the costa prominent; calyx segments 5, subulate, 4 of them 5 mm. long, 0.5 mm. wide at base, the anterior segment rudimentary, 1.5 mm. long, all puberulous and ciliolate, the costa prominent; corolla (immature) 8 mm. long, light purple, puberulous except the lower glabrous portion, the lips sub-
equal, 4 mm. long, the upper lip ovate, rounded, the lower 3-lobed, the lobes rounded; stamens barely exserted, the anthers superposed, 0.75 mm. long, the upper one obliquely attached to a flattened connective 0.25 mm. wide, the lower vertically attached, the filaments glabrous; capsules clavate, sparingly puberulous, 7 mm. long, 2 mm. broad, 1 mm. thick; retinacula 1.5 mm. long, thin and rounded at tip; seed flattened, suborbicular, black, muricate.

Type in the U. S. National Herbarium, No. 1709421, collected along stream in dense forest along the Caño Blanco, 7 km. southeast of Río La Jagua, Department of Magdalena, Colombia, 200 to 300 meters altitude, August 21, 1943, by Oscar Haught (No. 3632).

*Justicia aethes*, though closely related to *J. polygonoides*, can be easily recognized by its puberulous stems, leaves, and spikes and by the peculiar rudimentary anterior calyx lobe. The specific epithet is from the Greek ἄθηθες, peculiar.


Frutex erectus, ramosus, caulibus crassis, subquadrangularibus, late 4-sulcatis, dense hirtellis vel subtomentosis, pilis aureis, curvatis; lamina foliorum ovata vel oblongo-ovata, acuta vel breviter acuminata

Figure 195—*Justicia aethes* Leonard (Haught 3632): a, Tip of branch showing leaves and inflorescence; b, section of stem to show pubescence; c, calyx; d, bract; e, bractlet; f, tip of calyx segment to show hairs; g, anther; h, valve of capsule. (a, Natural size; b, 3½ times natural size; c–e, 3 times natural size; f, 8 times natural size; g, 6 times natural size; h, 2½ times natural size.)
(apice ipso obtuso), basi acuta vel obtusa, aliquando firma, integra vel undulata, supra dense hirtella, pilis curvatis, septatis, fulvis, cystolithis utrinque parvis, obscuris, subtus dense et molliter subtomentosa, pilis aureis, curvatis, costa et venis prominentibus; petioli dense tomentosi, pilis aureis; paniculæ terminales, pedunculis crassis et internodiis panicularum dense hirtellis vel subtomentosis, pilis aureis, curvatis, ramis panicularum ascendentibus, floribus et bracteis secundis, densis; bracteae oblongo-ovatae, acutae vel subacutae, subhyalinae, saepe roseae, extus puberulae, intus glabrae; bracteolae lanceolatae, subacutae; calycis segmenta lanceolata, acuta, intus glabra, extus puberula, costa et venis obscuris; corolla rosea, pubescens, basi glabra, labiis subaequalibus, labio superiore erecto, ovato, integro, obtuso, labio inferiore trilobato, lobis ovatis, rotundatis; staminala exserta, filamentis planis, glabris vel deorsum parce hirtellis, lobis antherarum leviter superpositis, subparallelis, lobo inferiore calcarato; capsule clavatae, tenuiter hirtellae; retinacula apice truncata; semina plana, papillosa.

Slender erect, much-branched shrubs up to 6 meters high; stems stout, obtusely quadrangular, broadly 4-sulcate, densely hirtellous or subtomentose, the hairs golden yellow, variously curved, up to 0.75 mm. long; leaf blades ovate or oblong-ovate, up to 25 cm. long and 12 cm. wide, acute to subacuminate (the tip itself obtuse), acute to obtuse at base, moderately firm, entire or undulate; the upper surface moderately to rather densely hirtellous, the hairs yellowish, septate, curved, up to 0.75 mm. long, the costa and lateral veins (14 or 15 pairs) prominent but less so than those of the lower surface, the cystoliths minute (about 0.2 mm. long) and obscure on both surfaces, the lower surface densely and softly subtomentose with golden yellow curved hairs up to 0.75 mm. long; petioles up to 8 cm. long, densely golden yellow tomentose or at least the channels so; panicles terminal sometimes with branches in the axils of the upper leaf blades, usually 10 to 20 cm. long and 6 to 8 cm. broad, more or less narrowed to tip; peduncles stout, these and the internodes of the inflorescence golden brown hirtellous or subtomentose, the lowermost nodes of the inflorescence producing small leaf blades, the branches of the inflorescence ascending, bearing crowded more or less secund flowers and bracts; bracts subtending the flowers oblong-ovate, up to 12 mm. long and 5 mm. wide, acute or subacute, narrowed to 2 mm. at base, thin, subhyaline, usually pink, puberulous without (the hairs up to 175μ long), glabrous within, the costa and a pair of lateral nerves predominating; bractlets lanceolate, 8 mm. long, 2 mm. wide, subacute, in other respects similar to the bracts; calyx 8 to 12 mm. long, deeply segmented, the segments lanceolate, 1.5 to 2 mm. wide, acute, the inner surface glabrous, the outer puberulous with papilliform hairs,
the costa and lateral nerves obscure; corolla pink or light red, moderately and finely pubescent except the glabrous basal portion (the hairs up to 128 μ long, the pointed ones intermixed with a few stouter glandular ones), up to 35 mm. long, the tube 3 mm. broad at base, enlarged to 4 mm. and reduced to 3 mm. at 4 mm. above base, thence gradually enlarged to 4 or 5 mm. at mouth, the lips subequal, 12 to
15 mm. long, the upper lip erect, ovate, about 8 mm. wide at base, obtuse at tip, the lower lip strongly recurved, about 5 mm. wide near tip, 3-lobed, the lobes ovate, 3 to 5 mm. long, obtuse or rounded, the middle one 2 mm. wide, the lateral ones slightly narrower; stamens exserted, reaching tip of the upper lip of the corolla, the filaments flat, adnate to the corolla tube about 5 mm. below its mouth, glabrous or bearing a few minute hairs near base, the anther lobes slightly superposed, nearly parallel, 2 mm. long and 0.75 mm. broad, the lower cell ending in a blunt whitish tail about 0.5 mm. long and 0.25 mm. broad; pistil slightly shorter than the stamens, sparingly and minutely hirtellous; capsules clavate, 15 mm. long, 4 mm. broad, 3 mm. thick, finely hirtellous, the hairs about 125μ long, those at the tip spreading, the others retrorse; retinacula 2 mm. long, flat and truncate at tip; seeds suborbicular, flattened, about 2.5 mm. broad and long, strongly papillose.

Type in the U.S. National Herbarium, No. 1352491, collected in a thicket between Suratá and California, Department of Santander, Colombia, 1,740 to 2,000 meters altitude, January 8-11, 1927, by E. P. Killip & Albert C. Smith (No. 16797). Isotypes: GH, NY.


Justicia chrysocoma is closely related to J. rohrii, the inflorescences of the two species being quite similar in general appearance. Several striking differences exist, however. In J. chrysocoma, the leaf blades, especially on the lower surface, the petioles, stems, and internodes of the inflorescence are densely subtomentose with golden hairs, the bracts, bractlets, and calyces, as well as the internodes of the inflorescence, bear no patelliform hairs, and the corollas are pink or red. On the other hand, in J. rohrii the stems are minutely puberulous, the leaves are almost, if not entirely, glabrous, the bracts, bractlets, and calyces, as well as the internodes of the inflorescence, bear, in addition to the pointed hairs, some terminating in large patelliform glands, and the corollas are white or yellowish. There is also a marked difference in size. The plants of J. rohrii rarely exceed 2 meters in height, whereas those of J. chrysocoma may reach as much as 6 meters.

The characters delineating J. chrysocoma are not so well marked in Haught’s No. 3947. A fair percentage of the hairs of the inflorescence is patelliform, and the tomentum is neither so dense nor of so
golden a yellow as in typical specimens. Haught's plant seems to be intermediate between *J. chrysocoma* and *J. rohrii*.

The specific epithet, *chrysocoma*, is from the Greek χρυσόκομος, golden-haired.

17. **Justicia chrysea** Leonard, sp. nov. Figure 197

Herba, caulibus subquadrangularibus (angulis rotundatis) deorsum retrorse puberulis vel glabratis, pilis curvatis, sursum hirsutis, pilis rectis vel leviter curvatis, patulis vel plus minusve retrorsis, fulvis; lamina foliorum oblongo-ovata vel oblongo-elliptica, acuta vel breviter acuminata, basi obtusa vel aliquanto firma, integra, supra hirsuta, pilis ascendentibus vel subappressis, fulvis, subtus hirsuta, pilis praecipue in costa et venis prominentibus positis, cystolithis supra minitis et inconspicuis, subtus pluribus et conspicuis; petioli hirsuti; rami apice dense aureo-hirsuti, pilis patulis, longis; pedunculi terminales, solitarii, quadrangulares, dense aureo-hirsuti, apice furcati; spicae solitariae vel plures, rhachibus et pedunculis dense hirsutis; bracteae firmae, lanceolatae, acutae, glabrae vel apice parce hirsutae, marginibus dense ciliatis, pilis fulvis, longis, costa prominenti; bracteae firmae, subulatae, carinatae, ciliatae; calycis segmenta anguste triangularia, graciliter acuta, sursum ciliata; corolla pallide lilacina, deorsum glabra, sursum hirsuta, labiis subaequalibus, labio superiore triangulo-ovato, acuto, labio inferiore 3-lobato, lobis parvis, rotundatis; stamina vix exserta, lobis antherarum superpositis, glabris, suberectis, lobis inferiore basi calcarato; capsulae (immaturae) clavatae, sursum puberulae, deorsum glabrae; retinacula leviter curvata, apice anguste cucullata.

Herbs; stems subquadrangular with rounded angles, the lower parts retrorsely puberulous or glabrate, the hairs curved, about 0.1 mm. long, the upper portions hirsute, the hairs straight or slightly curved, spreading or more or less retrorse, yellowish brown, up to 1.5 mm. long; leaf blades oblong-ovate or oblong-elliptic, up to 10.5 cm. long and 4 cm. wide, acute or short-acuminate (the tip itself subacute), obtuse or acute at base, moderately firm, entire, the upper surface moderately hirsute, the hairs ascending or subappressed, up to 1.5 mm. long, yellowish brown, the lower surface hirsute, the hairs densest on costa and lateral veins (about 10 pairs), these prominent beneath, less so above, the hairs similar to those of the upper surface, the cystoliths minute and obscure on the upper surface, more numerous and conspicuous on the lower surface; petioles up to 3 cm. long, those of the upper leaves more or less densely hirsute, those of the lower leaves glabrate or puberulous, the tip of the branches densely golden hirsute, the hairs mostly spreading and up to 1.5 mm. long; peduncles terminal, solitary, up to 7 cm. long, quadrangular, densely hirsute
with golden spreading or slightly retrorse hairs up to 1.5 mm. long, branching at tip and producing 1 to several spikes up to 5 cm. long and 8 mm. broad, the rachis, like the peduncles, densely hirsute; bracts firm, lanceolate, 8 mm. long, 1.25 mm. wide, gradually nar-

**Figure 197.** *Xylopia chrysea* Leonard (Cuatrecasas 13731): a, Tip of plant showing inflorescence and leaves; b, bract; c, one of a pair of bractlets and the calyx; d, hairs on margin of bractlet; e, anther. (a, Natural size; b, c, 4 times natural size; d, 26 times natural size; e, 8 times natural size.)

rowed from below middle to an acute tip, glabrous or sparingly hirsute dorsally except the margins, these rather densely ciliate, the hairs mostly ascending, those near base up to 1.5 mm. long, the others about 0.75 mm. long, all yellowish brown, the costa broad, low but prominent, flanked by 2 pairs of marginal nerves; bractlets firm,
subulate, 6 mm. long, about 0.5 mm. wide, carinate, ciliate, the hairs spreading or ascending, up to 0.5 mm. long; calyx 5.5 mm. long, the tube glabrous, the segments narrowly triangular, 0.75 mm. wide at base, gradually narrowed from base to a slender tip, the lower portion glabrous, the upper ciliate, the hairs up to 0.5 mm. long; corolla (immature) light lilac, about 6 mm. long, the lower portion glabrous, hirsute above, the lips rather densely so, the upper lip triangular-ovate, acute, the lower lip 3-lobed, the lobes about 1 mm. long, rounded; stamens reaching the tip of the subequal lips, the lobes superposed, about 1 mm. long and 0.5 mm. broad, glabrous, the cells subvertically attached to the connective, the lower cell calcarate at base, the tail about 0.25 mm. long, blunt and whitish, the style about as long as the stamens, the stigma minute; capsule (immature) about 1 cm. long, clavate, the upper half moderately puberulous, the lower solid stipate portion glabrous; retinacula 1.5 mm. long, the tip slightly curved, narrowly cuculate; seed not seen.

Type in the U. S. National Herbarium, No. 1852681, collected in the valley of the Rio Anchicayá, Quebrada del Danubio, Department of El Valle, Colombia, 300 to 350 meters altitude, December 20, 1942, by J. Cuatrecasas (No. 13731).

*Justicia chrysea* should be readily recognizable because of the dense golden stiffish hairs, especially those clothing the branchlets. The specific epithet is from the Greek word, χρυσός, golden.

18. *Justicia chaetocephala* (Mildbr.) Leonard, comb. nov.


Type in the Berlin Herbarium, collected at La Portada, Santa Marta, Department of Magdalena, Colombia, 250 meters altitude, December 23, 1926, by Arnold Schultze, No. 679. Photograph US (Field Mus. No. 8925).

Name is from καίτη, hair, and κεφαλή, head.

Slender, sometimes half scandent shrubs up to 1.5 meters high; stems subquadrangular, 4-sulcate, glabrous to moderately puberulous, the hairs curved, subappressed, about 0.25 mm. long; internodes 1 to 9 cm. long; leaf blades elliptic to ovate-lanceolate, 3 to 12 cm. long, 1 to 5 cm. wide, acuminate, acute to obtuse at base, moderately firm, entire or undulate, the upper surface glabrous or the costa puberulous, the cystoliths numerous and conspicuous under a lens, the lower surface more or less minutely punctate, sparingly to moderately puberulous, the hairs up to 0.5 mm. long, spreading or ascending, the cystoliths usually less conspicuous than above, the costa and lateral veins (5 to 7 pairs) more prominent than above; petioles rather slender, up to 3 cm. long, puberulous; flowers borne in crowded terminal subcapitate corymbs; lower bracts usually foliaceous, lanceolate, about 2 cm. long and 5 mm. wide, slenderly acuminate; upper bracts linear-filiform, up to 4 cm. long, 0.5 to 0.75 mm. wide, more or less triangular in cross
section, rather densely hirtellous, the hairs ascending, 0.5 mm. long, sometimes a few additional gland-tipped hairs present; bractlets similar but slightly shorter; calyx up to 13 mm. long, deeply segmented, the segments lanceolate, 1.5 to 2 mm. wide, acuminate, rather sparingly hirtellous and ciliate, the hairs ascending, up to 0.5 mm. long; corolla 3.5 to 4 cm. long, bright red, scarlet or pink, sparingly glandular-pubescent, the hairs 75 to 150μ long, the tube 2.5 cm. long, 3 mm. broad at base, narrowed at 4 mm. above base to 2.5 mm., thence gradually enlarged to 5 mm. at mouth, the upper lip erect, lance-ovate, 2.5 cm. long, 6 mm. wide near base, bidentate at tip, the lobes 1 mm. long, 0.75 mm. wide, spreading from a rounded sinus, the lower lip spreading, 3-lobed, about 2 cm. long, the lobes obovate, subequal, about 1 cm. long and 7 mm. wide, rounded at tip; stamens exserted about 12 mm. beyond mouth of corolla tube, the filaments glabrous; anther cells widely divergent, slightly superposed, the upper cell horizontal, 2.5 mm. long, 1 mm. broad, muticous at base, the lower cell 3 mm. long, 1.5 mm. broad, the basal spur white, blunt, 0.3 mm. long, the connective about 1 mm. broad; pistil exserted 1 cm. beyond mouth of corolla tube, glabrous; ovary glabrous.

Endemic. Limited to damp forests or thickets of Magdalena. Haught’s No. 3716 was collected at 300 meters altitude. Vageler’s No. 22, a paratype probably in the Berlin Herbarium, was cited by Mildbraed. This was collected in a forest at Banco, Department of Magdalena.

**Magdalena:** Road to east from Becerril, about 60 km. northeast of Chiriguana, **Haught 2302** (US). Forest of Cerro Chimichagua, about 4 km. north of Chimichagua, **Haught 2360** (US). Damp forest near Codazzi, **Haught 3716** (US). Forests near La Jagua, 40 km. northeast of Chiriguana, **Cyril Allen 628** (GH); **Haught 2283** (US); **Haught 3645** (US). Bushland, lower Magdalena, **Dawe 440** (K, US).

**Without Locality:** **Mulis 3904** (US).

19. **Justicia croceochlamys** Leonard, sp. nov.

Herba vel suffrutex, caulibus subquadrangularibus, glabris vel sursum bifariam strigosis; lamina foliorum oblongo-elliptica, subacuta vel breviter acuminata (apice ipso obtuso), basi angustata et in petiolum decurrens, firma, undulata, glabra, costa et venis lateralibus prominentibus; petioli glabri; thyrsus terminalis, subhelicoideus, pedunculis et internodiis inflorescentiarum quadrangularibus, bifariam et retrorse hirsutis; bracteae infimae foliaceae; bracteae cymas subdentes graciliter lanceolatae, glabrae vel parce hirsutae; bracteae Flores subtendentes filiformes, longae, flavae, graciliter striatae, parce ciliatae; bracteolae bracteis similis sed longiores; calycis segmenta flava, lanceolata, graciliter acuta, striata, ciliata; corolla longa, alba, parce glandulosopubescens, tubo subcylindrico, intus basi dense hirsuto,
labiis subaequalibus, labio superiore erecto, oblongo-ovato, apice emarginato, labio inferiore plus minusve patulo, 3-lobato, lobis oblongis, apice rotundatis; stamina exserta, in labio antico corollae declinata, lobis antherarum leviter superpositis, lobo superiore obliquo, inferiore fere recto, basi calcarato; ovarium glabrum.

Figure 198.—Justicia croceochlamys Leonard (Cuatrecasas 7383): a, Tip of plant to show inflorescence and leaves; b, portion of leaf blade (under surface) in detail to show venation; c, bract and bractlets; d, one of the calyx segments; e, anther. (a, b, Natural size; c, d, 2½ times natural size; e, about 3 times natural size.)

Herbs or suffrutescent plants up to 70 cm. high; stems subquadangular, the angles rounded, glabrous or the tips bifariously strigose, the hairs up to 0.5 mm. long; leaf blades oblong-elliptic, up to 25 cm. long and 7 cm. wide, subacute to short-acuminate (the tip itself
blunt), narrowed to base and decurrent on the petiole, firm, undulate, glabrous, the costa, lateral veins (9 or 10 pairs) and veinlets prominent, but more so beneath than above; petioles up to 1.5 cm. long, glabrous; flowers borne in terminal subhelicoid thyrsi up to 7 cm. long and 5 cm. wide, the peduncles about 1 cm. long, these and the internodes of the inflorescence (the lowermost 1 cm. long, the others successively shorter) quadrangular, enlarging at tip, bifariously and retrorsely hirsute, the hairs about 0.75 mm. long, whitish; bracts subtending the lowermost cymes leaflike, about 3 cm. long and 1 cm. wide, those subtending the cymes slenderly lanceolate, up to 4 cm. long and 2.5 mm. wide, glabrous or sparingly hirsute, those subtending the flowers filiform, up to 3 cm. long and 0.5 mm. wide, yellow, finely striate, sparingly ciliate, the hairs up to 1 mm. long; bractlets similar to the bracts but somewhat longer; calyx yellow, 18 mm. long, the tube about 1 mm. long, the segments lanceolate, about 2 mm. wide, gradually narrowed from below middle to a slender tip, finely striate, ciliate, the hairs up to 0.75 mm. long; corollas about 4 cm. long, rather sparingly glandular-pubescent without, white, the tube subcylindrical, about 8 mm. broad at mouth and 5 mm. at base, slightly narrowed at about 5 mm. above base, densely hirsute within at base, the lips subequal, the upper lip erect, oblong-ovate, 6 mm. wide near base, emarginate at tip, the lower lip more or less spreading, 3-lobed nearly to the base, the lobes oblong, about 4 mm. wide, rounded at tip; stamens almost reaching the tip of the upper lip of the corolla, the anther lobes slightly superposed, the upper lobe obliquely attached, 4 mm. long, the lower nearly vertical, about 5 mm. long, calcarate, the tail 0.5 mm. long, both lobes pilose dorsally; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 1774448, collected in woods at San José del Guaviare, Caño Grande, Comisaría del Vaupés, Colombia, 240 meters altitude, November 2, 1939, by J. Cuatrecasas (No. 7383).

Philipson, Idrobo & Fernandez' No. 1579 (BM, US), collected in dense humid forest along the Río Guapaya, Sierra de la Macarena, Intendencia del Meta, 450 meters altitude, November 26, 1949, is also of this species.

The relatively long and very slender yellow flower bracts serve to distinguish Justicia croceochlamys, which apparently has no close relative in Colombia. The specific epithet is from the Greek ἱππέως, yellow, and χάλιμος, bract.
20. Justicia bracteosa (Mildbr.) Leonard, comb. nov.


Type in the Berlin Herbarium, collected at Aracataca, at the southern base of the Sierra Nevada de Santa Marta, Department of Magdalena, Colombia, 50 meters altitude, December 17, 1925, by Arnold Schultze (No. 234). Photograph US (Field Mus. No. 8923). The specific epithet, bracteosa, alludes to the conspicuous bracts.

Erect, sparsely branched leafy shrubs up to 2.5 meters high; stems quadrangular, glabrous or finely puberulous, 4-sulcate (herbarium material), the internodes 1.5 to 8 cm. long and 4 to 6 mm. in diameter; leaf blades oblong-elliptic, up to 28 cm. long and 12 cm. wide, acuminate, acute or the larger leaves obtuse at base, moderately firm, entire or undulate, the upper surface glabrous or minutely appressed puberulous, the hairs 0.25 mm. long, the lower surface glabrous or nearly so, the cystoliths of both surfaces obscure, 125 to 150μ long, the costa and lateral veins (about 12 pairs) prominent beneath, less so above; petioles 2 to 5 cm. long, glabrous or sparingly puberulous, 1.5 to 2 mm. broad; inflorescence a dense ovoid-cylindrical panicle up to 30 cm. long and 8 cm. broad, usually acute at tip, one or more of the lateral stem branches often bearing smaller panicles; bracts conspicuous, greenish white, lanceolate to ovate-lanceolate, up to 4 cm. long, 5 to 6 mm. wide near base, filiform-acuminate, narrowed at base, thin, entire, finely pubescent and ciliate, the hairs white, ascending, about 0.5 mm. long; the costa rather prominent, the lateral veins obscure; bractlets similar to the bracts but somewhat narrower and shorter; calyx about 10 mm. long, deeply segmented, the segments lanceolate, 7 to 8 mm. long, 1.5 mm. wide, acuminate, thin, greenish-white, softly and rather densely pubescent, except the glabrous basal portion, the hairs ascending, up to 1 mm. long; corolla lemon-yellow (Pennell), 25 to 33 mm. long, the tube 2 mm. broad at base, abruptly contracted to 1.5 mm. at 2.5 mm. above base, thence gradually enlarged to 4 mm. at throat, the upper lip erect, narrowly ovate, 13 mm. long, 5 mm. wide near base, thence gradually narrowed to a blunt tip; the lower lip spreading, about 15 mm. long, cuneate, 4 mm. wide near tip, gradually narrowed to base, 3-lobed, the lobes subequal, up to 2.5 mm. long and 1.5 mm. wide, rounded; stamens 15 mm. long, adnate to corolla tube slightly below mouth, the filaments glabrous or minutely and sparingly hirtellous near base, the anther cells about 2 mm. long and 0.5 mm. broad, superposed, one about 0.5 mm. above the other, the lower cell calcarate at base, the spur 0.75 mm. long, 0.25 mm. thick, rounded at tip, the connective narrow; style about 28 mm. long, glabrous, the stigma minute and capitate;
capsules clavate, 13 mm. long, 3.5 mm. broad, 3 mm. thick, finely pubescent, the hairs about 0.25 mm. long, ascending at tip of capsule, the others retrorse; retinacula about 2 mm. long and 0.75 mm. wide, flattened and truncate at tip; seed ovate, 3 mm. long, 2.5 mm. broad near base, narrowed to a rounded tip, muricate.

Vernacular names: "Cresta de gallo" (Bro. Elias) and "gallito" (Schultze).

Justicia bracteosa is usually found in wooded regions at rather low altitudes (mostly from 20 to 500 meters). The densely bracted slender panicles, although greenish in color, nevertheless very conspicuous, according to Haught.


**MAGDALENA:** Barro Blanco, Haught 4750 (US). Damp woods near Valledupar, Haught 3928 (US).

**SANTANDER:** Bucaramanga, Sandeman 5999 (K). Roadside north of Pescadero, on the Río Sogamoso, Steere 7095 (US). Dry sandy bank of Río Chicamocha, Araque-M. & Barkley 18S.275 (US).

21. **Justicia chaponensis** Leonard, sp. nov. Figure 199

Herbs, caulibus erectis, subquadrangularibus, sulcatis, sulcis inconspicuis, puberulis et etiam pilosis, pilis magnis rectis, late patentibus, badiis, et parvis subappressis, curvatis intermixtis; lamina foliorum lanceolato-elliptica, apice acuta, basi angustata et in petiolum breviter decurrens, firma, undulata, supra dense pilosa, pilis ascendentibus, badiis, costa puberula et etiam longe pilosa, subtus pilosa, marginibus ciliata, costa et venis utrinque prominentibus, cystolithis obscuris vel nullis; petioli aliquanto crassi, pilosi; spicae plures, axillae vel terminales, erectae vel ascendentes, floribus densis et secundis, pedunculis brevibus, rhachibus puberulis et etiam longe pilosis, pilis longis, patulis, badiis; bracteae quadrifariae, dorsales steriles, ventrales flores subtendentes; bracteae steriles lineares, pilosae, pilis longis, fere in margine positis, badiis; bracteae flores subtendentes late elliptico-obovatae, cuspidatae, firmae, parce pilosae et dense ciliatae, pilis plus minusve patulis, badiis; bracteolae anguste lineares, dense ciliatae, pilis longis patulis, badiis; calycis segmenta 5, lanceolata, acuminate, parce hirtella et ciliata, pilis ascendentibus, costa obscura; corollae desunt; capsulae clavatae, basi glabrae, apice hirtellae, pilis patulis vel retrorse appressis.

Herbs up to 1.6 meters high; stems erect, subquadrangular, inconspicuously sulcate, both puberulous and pilose, the longer hairs
mostly spreading, straight, up to 2.25 mm. long, septate but not conspicuously so, the smaller hairs recurved and subappressed, up to 0.28 mm. long; leaf blades lance-elliptic, up to 18 cm. long and 6 cm. wide, acute at tip, narrowed at base and briefly decurrent on the petiole, firm, undulate, the upper surface rather densely pilose, the hairs ascending, similar to those of the stem as are also the additional small curved hairs of the costa, the pubescence of the lower surface

Figure 199.—Justicia chaponensis Leonard (Lawrance 60): a, Node showing inflorescence and leaves; b, portion of stem enlarged to show pubescence; c, a hair from the stem; d, bract and bractlet; e, calyx; f, valve of capsule. (a, Half natural size; b, twice natural size; c, 10 times natural size; d, 3 times natural size; e, 5 times natural size; f, 3 times natural size.)

similar to that of the upper except for the absence of the small curved hairs on the costa, the margins ciliate, the venation of both surfaces (lateral veins 9 to 10 pairs) rather prominent, the veinlets coarsely reticulate but not conspicuously so, the cystoliths minute and obscure, sometimes lacking; petioles up to 1.5 cm. long, pilose; spikes axillary, several pairs produced at each node, up to 12 cm. long and about 1 cm. broad, the flowers secund, rather crowded, erect or ascending; peduncles up to 1 cm. long, pilose; rachis both pilose with long spreading
hairs and puberulous with short curved subappressed ones; dorsal bracts sterile, linear, pilose, the hairs up to 3.25 mm. long, mostly marginal, more or less spreading, brown; ventral bracts broadly elliptic obovate, long-cuspidate, 12 mm. long, 4 mm. wide, acuminate, rather firm, sparingly pilose and densely ciliate, the hairs more or less spreading, reddish brown, up to 3.25 mm. long; bractlets narrowly linear, 8 or 9 mm. long, 0.5 mm. wide, rather densely ciliate, the hairs similar to those of the bracts; calyx 5 mm. long, deeply segmented, the segments 5, lanceolate, 3.5 mm. long, 0.5 mm. wide near base, gradually narrowed to a slender tip, sparingly hirtellous and ciliate, the hairs ascending, up to 0.48 mm. long, the costa evident but rather obscure; corolla not seen; capsules clavate, about 10 mm. long, 3 mm. broad and 2 mm. thick, glabrous toward base, sparingly hirtellous toward tip, the hairs spreading or retrorse and subappressed, up to 0.2 mm. long; retinacula 1.5 mm. long, obtuse and more or less fimbriate at tip; seeds not seen.

Type in the U. S. National Herbarium, No. 1482402, collected in thick low forest in the region of Mount Chap6n, Department of Boyacá, Colombia, "3,500 feet" altitude, May 27, 1932, by A. E. Lawrance (No. 60). Isotype: GH.

*Justicia chaponensis* is closely related to and resembles in some respects *J. hyperdasya* and *J. pampolystachys*. The leaf blades of these species are more of an ovate shape and the bracts subtending the flowers are larger, elliptic or suborbicular in shape, and obtuse and apiculate at the tip.

No corollas could be found on either of the two sheets cited, but according to the label notes they were mauve with purple stripes. They are probably small in size and somewhat similar to those of the two related species.

22. *Justicia unguiculata* Leonard, sp. nov. 

*Herba recta, parce ramosa, basi aliquando decumbens, caulibus subquadrangularibus (angulis rotundatis), sursum bifariam pilosis, pilis longioribus patulis et pilis minutis recurvatis intermixit, deorsum aliquando glabratis; lamina foliorum oblongo-ovata, acuta vel acuminata (apice ipso obtuso), basi acuta, aliquanto tenuis, integra vel undulata, supra glabra vel parce hirtella, pilis appressis, praecipue in costa et venis positis, subtus hirsuta et hirtella, pilis in costa et venis longis, plus minusve patulis, pilis intercostalibus minutis appressis, cystolithis minutis, subpunctiformibus; petioli pilosi; spicae terminales et axillares, erectae vel ascendentes, laxae, floribus secundis, rhachibus bifariam et minute strigosis pilis longioribus parvulis intermixit; bracteae suborbiculares, apice obtusae vel rotundatae, apiculatae, basi unguiculatae (unguiculis gracilibus),
ciliatae, pilis longis, patulis; bracteolae subulatae, glabrae vel apice pilosae; calycis segmenta lanceolata, parva, acuminata, glabra vel apice ciliata; corolla parva, lilacina, minute pubescens, tubo sub-cylindrico, labio superiore erecto, trianguli-ovato, apice bilobato, lobis minutis, rotundatis, labio inferiore plus minusve patulo, cuneato, trilobato, lobis ovatis, apice rotundatis; stamina vix exserta, lobis antherarum superpositis, rectis, glabris, lobo inferiore basi calcarato; capsuleae parvae, clavatae, glabrae; retinacula curvata, apice tenuia, leviter cucullata, erosa; semina suborbicularia plana, brunnea, tuberculosa.

Herbs up to about 30 cm. high, erect or sparingly branched, sometimes decumbent at base, the stems subquadrangular (the angles...
rounded), pilose, the hairs up to 2 mm. long, these intermixed with minute retrorsely recurved hairs, both kinds of hairs more or less bifariously arranged, the lowermost portions of the stem sometimes terete and glabrate; leaf blades oblong-ovate, up to 15 cm. long and 6 cm. wide, acute to acuminate (the tip itself obtuse), narrowed from below middle to an acute base, rather thin, entire or undulate, the upper surface glabrous or sparingly hirtellous, the hairs mostly confined to the costa and lateral veins, up to 0.48 mm. long, appressed, the lower surface hirsute and hirtellous, the hairs confined to costa and lateral veins, more or less spreading, up to 1.5 mm. long, those of the intercostal areas up to 0.38 mm. long and appressed, the venation (lateral veins 8 to 10 pairs) scarcely prominent, the cystoliths (?) minute and subpunctiform; petioles up to 1 cm. long, pilose; flowers secund, borne in rather lax spikes up to 6 cm. long and 1 to 1.5 cm. broad, these forming terminal leafy panicles usually up to about 6 cm. broad, the spikes erect or ascending, the internodes of the inflorescence (lowermost up to 14 mm. long) and rachises bifariously and minutely strigose with additional spreading brownish hairs (up to 2 mm. long) present in more or less abundance; bracts subtending the flowers loosely imbricate, suborbicular, about 6 mm. in diameter, obtuse or rounded and apiculate at apex, unguiculate at base (the claw slender, 4 to 5 mm. long), ciliate, the hairs spreading, mostly up to 1.5 mm. long, the flat surfaces glabrous or the costa and lateral veins (usually 2 pairs) minutely and sparingly strigose; bractlets subulate, barely 0.5 mm. wide, thin, glabrous except the pilose tips; calyx 4 to 5 mm. long, deeply segmented, the segments lanceolate, 0.5 mm. wide, acuminate (the tips slender), glabrous or bearing a few scattered hairs; corolla about 14 mm. long, lilac, minutely pubescent, the tube about 1.5 mm. broad at base, 3.5 mm. broad at mouth, the upper lip erect, triangular-ovate, 3 mm. wide at base, gradually narrowed to tip, this bilobate, the lobes about 0.25 mm. long and wide, rounded, the lower lip more or less spreading, cuneate, 6 mm. wide at base of lobes, these ovate, about 4 mm. long and 2 to 3 mm. wide, rounded at tip; stamens exerted about 2 mm. beyond the mouth of the corolla tube, the anthers 1.75 mm. long, the lobes superposed, vertically attached to the connective, glabrous, the lower lobe calcarate, the tail about 0.25 mm. long, blunt; capsules clavate, 1 cm. long, 3 mm. wide, 1.5 mm. thick, glabrous; retinacula 1.5 mm. long, the tip rounded, thin, shallowly cuculate, erose; seed suborbicular, about 1.5 mm. in diameter and 0.5 mm. thick, brown, tuberculate.

Type in the U. S. National Herbarium, No. 2029221, collected at Villavicencio, Intendencia of Meta, Colombia, July 12, 1945, by Helen Schiefer (No. 813A).
Also of this species are Helen Schiefer’s No. 813 (GH) collected with the type and Cuatrecasas’ No. 13198 at El Banco, at the confluence of the Ríos Cubugón and Cobaría, in the region of Sarare, Department of Norte de Santander, altitude 320 meters, November 15, 1941.

_Justicia unguiculata_ is easily recognized among other Colombian species by its conspicuous ungulate ciliated bracts. These are strikingly similar to those of _Jacobinia axiologa_ but are much smaller. The closest relative is probably _Justicia pilosa_ (Nees) Lindau of Perú. This it resembles in many respects, especially as to the inflorescences. The ovate leaf blades of the Peruvian species however are much smaller, the uppermost barely exceeding the spikes or even shorter, and gradually narrowed from below the middle to an obtuse tip. In size they rarely exceed 5 cm. in length and 2.5 cm. in width, whereas the thinner blades of _J. unguiculata_ are as much as 15 cm. long and 6 cm. wide and are often slenderly acumin ate.

The specific epithet, _unguiculata_, alludes to the unguliculate or clawed bracts.

23. _Justicia pampolystachys_ Leonard, sp. nov.  

Frutex, caulibus subquadrangularibus (angulis rotundatis), pilosis, pilis brunneis, patulis vel ascendentiibus, longis; lamina foliorum ovata, breviter acuminata (apice ipso obtuso), basi angustata, submembranacea, integra vel undulata, supra parce pilosa, pilis brunneis, appressis vel ascendentiibus, subtus aliquanto dense pilosa, cystolithis obscursis; petioli dense pilosi; spicae plures, terminales et axillares, imbricatae. bracteis imbricatis, secundis, rhache hirtella, pilis curvatis; bracteae suborbiculares, apiculatae, basi cuneatae, membranaceae, glabrae vel supra pilos paucos ferentes, marginibus dense ciliatis, pilis patulis, brunneis, nitidis, septatis; bracteolae lineari-subulatae, apice longe ciliatae, deorsum glabrae; calycis segmenta lanceolata, apice subulata, glabra vel apice paullo pilifera, costa gracili; corolla caerulea, hirtella, labiis subaequalibus, labio superiore rotundato, labio inferiore patulo, 3-lobato, lobis suborbiculatis, rotundatis; stamina vix exserta, filamentis planis, submembranaceis, costa conspicua, lobis antherarum superpositis, loculo inferiore calcarato; capsulae clavatae, parvae, glabrae vel apice parce hirtellae; retinacula apice tenuia, anguste cucullata.

Shrubs; stems subquadrangular (the angles rounded and separated by 4 narrow light brown grooves), pilose, the hairs brown, spreading or ascending, up to 4 mm. long; leaf blades ovate, up to 10 cm. long and 5 cm. wide, short-acumin ate, the tip blunt, narrowed at base, rather thin, entire or undulate, the upper surface sparingly pilose, the hairs brown, appressed or ascending, up to 2.25 mm. long, the lower surface
more densely pilose with similar hairs, the costa and lateral veins (6 to 8 pairs) barely conspicuous, the cystoliths obscure above, more prominent beneath; petioles up to 2 cm. long, densely pilose with long hairs; spikes numerous and crowded, terminal and in the axils of the upper leaf blades, 6 to 8 cm. long, 13 to 14 mm. broad, the bracts closely imbricate, secund, the rachis slender, hirtellous, the hairs curved, about 0.5 mm. long; bracts suborbicular, about 8 mm. in diameter, apiculate, the apicula about 1 mm. long, abruptly narrowed to a small cuneate base, 1.5 to 2 mm. long, thin, glabrous or the upper surface bearing a few brown hairs up to 2 mm. long, the margins densely ciliate with spreading nitid brown hairs up to 3 mm. long and about 10-jointed; bractlets linear-subulate, 3 to 10 mm. long, ciliate toward tip with spreading brown hairs up to 2 mm. long; calyx 5 mm. long, the segments lance-subulate, thin, glabrous or bearing 1 to several hairs at or near tip, these up to 1 mm. long, the costa delicate; corolla blue, 13 mm. long, moderately pubescent except at base, the hairs about 0.2 mm. long, the tube 2 mm. broad at base, narrowed to 1.5 mm. at middle, the throat 3 mm. broad, lips subequal, 5 mm. long, the upper lip ovate, 3.5 mm. wide at base, narrowed to a rounded emarginate tip, the lower lip broadly cuneate, 7 mm. wide near tip, 3-lobed, the lobes suborbicular, rounded, the middle lobe 3.25 mm.

Figure 201.—Justicia pampolystachys Leonard (Klug 1724): a, Portion of plant showing lower part of the inflorescence and a leaf blade; b, bract and bractlet; c, a trichome from margin of bract; d, calyx; e, corolla; f, stamen (a, Half natural size; b, c, twice natural size; e, 13 times natural size; d, 4 times natural size; f, 6 times natural size.)
wide, the lateral lobes 2.25 mm. wide; stamens attached near throat, the filaments 4 mm. long, flattened, membranous, terminating a slender vascular strand, the anther cells superposed, the upper about 0.25 mm. above the lower, or the cells contiguous, the upper cell 0.75 mm. long, the lower 1 mm. long, the base tipped by a blunt white tail 0.5 mm. long; capsule clavate, about 6 mm. long, 2 mm. broad and 1.5 mm. thick, 4-seeded, glabrous; retinacula 1 mm. long, thin and narrowly cucullate at tip; mature seed not seen.

Type in the U. S. National Herbarium, No. 1517999, collected in forest in the vicinity of Umbría, Comisaria of Putumayo, Colombia, 325 meters altitude, October to November 1930, by G. Klug (No. 1724).

The specific epithet is from the Greek words, πάραμυχλός very many, and στάχνος, spike.

24. Justicia hyperdasya Leonard, sp. nov. Figure 202

Herbs up to 30 cm. high or more, ascending; stems subquadrangular, grooved, both pilose and bifariously subtomentose, the longer hairs spreading; nitid, septate, up to 5 mm. long, those arranged in lines about 0.5 mm. long, dense and retrorsely curved; leaf blades oblong-ovate, up to 12 cm. long and 5.5 cm. wide, short-acuminate (the tip itself blunt), narrowed at base, rather thin, undulate, the upper surface moderately pilose, the hairs ascending, brown, nitid, septate, the lower surface densely pilose, the hairs similar to those of the upper surface, the costa and lateral veins (6 to 8 pairs) obscure above, less so beneath, the cystoliths obscure or lacking; petioles up to 1.5 cm.
long, densely pilose, the hairs resembling those of the stem; spikes terminal and axillary, up to 5 cm. long and 1 cm. wide, the bracts closely imbricate, secund, the rachis angled, glabrous or moderately hirtellous with curved hairs, the peduncle up to 5 mm. long, pilose; bracts elliptic, up to 14 mm. long and 13 mm. wide, obtuse and apiculate (the apiculus about 0.5 mm. long), cuneate at base, thin, the

![Figure 202.—Justicia hyperdasya Leonard (a–d, f, Cuatrecasas 7542; e, Cuatrecasas 7536): a, Tip of plant showing leaves and inflorescence; b, portion of stem enlarged to show pubescence; c, bract, bractlet and calyx; d, a calyx segment; e, corolla; f, valve of capsule. (a, Half natural size; b, c, twice natural size; d, 3½ times natural size; e, natural size; f, 2½ times natural size.)

costa and veins rather prominent, both surfaces glabrous or bearing a few scattered hairs, the margin densely ciliate with nitid spreading septate brown hairs up to 4 mm. long; bractlets linear-subulate, up to 7 mm. long, and 0.5 mm. wide at base, ciliate, the hairs similar to those of the bracts; calyx 4 mm. long, the segments lanceolate, 3.5 mm. long, 0.75 mm. wide, slenderly acuminate, bearing several
trichomes (up to 1.5 mm. long) at and near tip, otherwise glabrous; corolla white, about 2 cm. long, moderately hirtellous, the hairs up to 0.28 mm. long, the tube 2 mm. broad at base, 3.5 mm. broad at mouth, the upper lip oblong, erect, 6.5 mm. long, about 3 mm. wide, rounded and emarginate at tip, the lower lip spreading, 3-lobed, the lobes obovate, 5 mm. long, 3 mm. wide, rounded at tip; stamens about 4 mm. long, the cells superposed, nearly vertically attached, about 1 mm. long, 0.5 mm. broad, the lower cell terminated by a conspicuous white tail 0.5 mm. long, this flattened and rounded at tip; capsule 8 mm. long, 2.5 mm. broad and 1.5 mm. thick, glabrous or sparingly hirtellous near tip; retinacula 1 mm. long, narrowed, blunt and sub-cuculate at the tip; seed brownish, ovate, 2 mm. long, 1.5 mm. wide, faintly tuberculate.

Type in the Herbario Nacional Colombiano, collected in woods along the Río Guayabero, Comisaria del Vaupés, Colombia, 240 meters altitude, Nov. 8, 1939, by J. Cuatrecasas (No. 7536). Cuatrecasas' No. 7542 (Col), collected on the same day nearby, is also of this species.

**Justitia hyperdasya** is closely related to *J. pampolystachys* Leonard, differing chiefly in its herbaceous nature, the white flowers, and oblong or oblong-ovate leaf blades. *J. pampolystachys* is a shrub with blue flowers and ovate leaf blades. The specific epithet is derived from the Greek διπόδας, meaning very hairy.

25. **Justicia schultesii** Leonard, sp. nov.  

Suffrutex, caulibus quadrangularibus, sursum dense cinereopilosis, pilis patulis; lamina foliorum oblongo-elliptica, breviter acuminata (apice ipso obtuso vel rotundato), basi angustata et in petiolum decurrens, aliquanto firma, integra vel undulata, utrinque pilosa, pilis ascendentibus, costa et venis lateralis subtilis prominentibus, supra obscura; spicae solitarii vel 2, terminales et subterminales; bracteae quadrifariae; bracteae dorsales ovatae, subacutae, basi angustatae vel rotundatae, leviter obliquae, ciliatae, pilosae; bracteae ventrales ellipticae, acutae, basi angustatae, ciliatae, puberulae; bracteoleae lineares, ciliatae, glabrae vel minusve pilosae; calycis segmenta lineari-lanceolata, apice gracilia, puberula, costa prominentemente; corolla alba, aliquanto parva, deorsum sursum pubescens, tubo hypocrateriformi, labio superiore erecto, triangulares, apice angustato, obtuso, leviter emarginato, labio inferiori cuneato, apice trilobato, lobis ovatis; stamina vix exserta, glabra, lobis superpositis, rectis, connectivo gracili, lobo inferiore calcarato; capsulae clavatae, puberulae, semina plana, glabra.

Shrubs; stems quadrangular, at least the upper portion densely gray-pilose, the hairs spreading, up to 2 mm. long; leaf blades oblong-
elliptic, up to 17 cm. long and 5.5 cm. wide, obscurely short-acuminate (the tip itself obtuse or rounded), narrowed at base and decurrent on the petiole, moderately firm, entire or undulate, ciliate, both surfaces pilose, the hairs ascending, up to 2 mm. long, the costa and lateral veins (7 or 8 pairs) rather prominent beneath but obscure above, the cystoliths minute and scattered; spikes solitary or paired, terminal

Figure 203.—*Justicia schultesii* Leonard (Schultes & Cabrera 13322): a, Tip of stem showing a leaf and the inflorescence; b, bract (dorsal); c, bract (ventral); d, calyx and one of a pair of bractlets; e, lower corolla lip; f, upper lip of same; g, anther. (a, Half natural size; b, c, 3 times natural size; d, 3½ times natural size; e, f, 2½ times natural size; g, 9 times natural size.)

and subterminal, up to 4 cm. long and 12 to 17 mm. broad; peduncles up to 5 mm. long, these and the rachises densely pilose; bracts quadri-rifarious, those of the dorsal ranks ovate, 10 or 11 mm. long and 8 mm. wide, subacute, narrowed or rounded and more or less oblique at base, ciliate with hairs more or less spreading and up to 1.5 mm. long, their upper faces evenly pilose with ascending hairs mostly 0.5 to 1 mm.
long, the ventral bracts elliptic, 10 or 11 mm. long, 4.5 mm. wide, acute at both ends, ciliate, their faces puberulous with hairs up to 0.16 mm. long or those on the costa and lateral veins somewhat longer (0.5 to 1 mm. long); bractlets linear, 8 mm. long, 0.5 mm. wide, ciliate, the flat surfaces glabrous or more or less pilose dorsally; calyx segments 5, linear-lanceolate, 5.5 mm. long, 0.75 mm. wide near the base, gradually narrowed into a slender tip, puberulent, the costa rather prominent; corolla white, about 2 cm. long, the lower half glabrous, the upper half finely pubescent, the tube 2.5 mm. broad near base, 3.5 mm. broad at throat, the upper lip erect, triangular, 3.5 mm. wide at base, narrowed to an obtuse slightly emarginate tip, the lower lip ovate, about 1 cm. long and 6.5 mm. wide at middle, rounded and 3-lobed at tip, the lobes ovate, 1 mm. long, 1.25 mm. wide at base; stamens slightly exserted beyond the mouth of the corolla tube, glabrous, the anthers 3 mm. long, the lobes superposed, nearly vertical, the connective slender, about 0.5 mm. long and 0.2 mm. wide, the lower anther cell spurred, the spur 0.25 mm. long, rounded at tip; capsules clavate, pubescent, 7.5 mm. long, the fruiting portion about 3 mm. wide and thick, the lower half solid, 1 mm. wide near base of stipe, 2 mm. wide at base of seed-bearing cavity; retinacula 1.75 mm. long, the tip thin, subcucullate, rounded and more or less erose; seeds lenticular, about 2.5 mm. in diameter, glabrous.

Type in the U. S. National Herbarium, No. 2124632, collected on the Cerro Isibukuri, along the Río Kananarí, Comisaría of Vaupés, Colombia, 250 to 700 meters altitude, August 4, 1951, by Richard Evans Schultes and Isidoro Cabrera (No. 13322). Isotype: US.


Justicia earthafinensis Jacq. Enum. 11. 1760. Jacquin’s “Enumeration” was republished without change again in 1762. The specific epithet means “found in Cartagena.”

Adhatoda carthaginensis Nees in DC. Prodr. 11: 403. 1847.

Herbaceous or suffrutescent, up to 1.5 meters high; stems erect or ascending, branched, subquadrangular (the angles rounded), shallowly sulcate, glabrous or rather densely hirtellous, the hairs straight or curved, spreading or retrorse, up to 0.5 mm. long, whitish; leaf blades ovate, elliptic-ovate or broadly lanceolate, 2 to 8 cm. long, 1.5 to 5 cm. wide, short to rather slenderly acuminate with blunt or acutish tips, or sometimes acute, obtuse or even rounded, narrowed or occasionally rounded at base and decurrent on the petiole, glabrous to rather densely hirtellous, the lower surface even velvety to touch, the costa and veins (7 or 8 pairs) moderately prominent on both surfaces, the cystoliths usually 15 to 250µ long; petioles up to 2 cm. long, glabrous to hirtellous; flowers borne in dense terminal bracted spikes 2 to 7 cm. long and about 2 cm. broad; bracts spatulate, usu-
ally 10 to 15 mm. long and 2.5 to 6 mm. wide, rounded or obtuse at tip, more or less apiculate, narrowed from about the middle to a slender claw, subglabrous to moderately hirtellous and ciliate, the hairs spreading or ascending, up to 0.5 mm. long, some of them gland-tipped, the cystoliths usually conspicuous; bracts subtending the flowers narrowly spatulate, usually 7 to 10 mm. long and 1 to 3 mm. wide, rounded or obtuse, more or less hirtellous with glandular and eglandular hairs; calyx segments 5, narrowly lanceolate, 10 to 11 mm. long, 1 to 1.5 mm. wide, slenderly pointed, white-margined, more or less hirtellous and ciliate; corollas reddish purple, violet, or rarely white, glabrous to sparingly hirsute, the hairs up to 0.1 mm. long, sometimes a few of them gland-tipped, the tube 1.5 mm. long, 4 mm. broad at base, narrowed at 3 mm. above base to 3 mm., thence gradually expanded to about 4 mm. at mouth, the upper lip erect, triangular-ovate, about 10 mm. long and wide, rounded and notched at tip, the lower lip spreading, up to 17 mm. long, 3-lobed, the middle lobe 8 mm. wide, the lateral ones 7 mm. wide, all ovate and rounded at tip; stamens exserted about 5 mm. beyond mouth of corolla tube, the filaments 11 mm. long, glabrous, the anther lobes 2.2 mm. long, spreading, the upper lobe attached 1 mm. above the short-spurred lower lobe; style 20 to 22 mm. long, sparsely hirtellous toward base; stigma more or less 2-lobed; capsules clavate, 16 mm. long, 6 mm. broad and 3 mm. thick, subobtuse at tip (the solid basal portion 7 mm. long), puberulous, the hairs spreading or the lower ones retrorse; retinacula stout, 3 mm. long and 1 mm. wide, flattened, rounded at tip, this entire or coarsely erose; seeds only slightly flattened, almost spherical, puberulous or glabrate, 2.5 to 3 mm. in diameter, whitish, or black at maturity.

*Justicia carthaginensis* is usually found on slopes, in waste places, and thickets, these occasionally coastal. Although more common at lower altitudes, it has been found as high as 1,300 meters.

The species exhibits considerable variation. The upper lip of the corollas of Killip and Smith's No. 14711 was reported to be transversely white-barred at center. This may be a common character, but color markings are usually not apparent in dried herbarium material. The width of the bracts is especially variable. For instance, those of H. H. Smith's No. 566 from Bonda are fully 7 mm. wide with broadly rounded, almost truncate, and subemarginate apiculate tips, and those of Pennell's No. 2722 are barely 1 mm. wide and subacute. The pubescence of most of the specimens cited is sparse, but Haught's No. 4391 from Fonseca is dense, and soft and velvety to the touch. None of these characters, however, are consistent enough to warrant the maintenance of varieties or forms.


CUNDINAMARCA: Open bush formation about La Boca, Lehmann 6107 (K). Puente Natural de Icononzo, near Pandi, Uribe-Uribe 1883 (US); Pennell 2812 (NY). Between Fusagasugá and Pandi, Pennell 2722 (GH, NY).


27. Justicia erythrantha Leonard, sp. nov.

Suffrutex, caulibus subteretibus, glabris vel in nodis minute et parce strigosis, cystolithis minutis et subpunctiformibus; lamina foliorum oblongo-ovata, acuta vel acuminata vel breviter acuminata, basi angustata, integra vel undulata, subtus in axillis venarum pilosa, alibi glabra vel minute et parce strigosa, pilis praecipue in costa et venis positis, cystolithis minutis et obscuris; spicae terminales et axillares, pedunculis subquadrangularibus, plus minusve planis, glabris vel minute strigosis, rhache puberula, pilis sursum curvatis, brevibus; bracteolae lanceolatae, acuminatae, aliquanto tenues, venosae (costa prominente), plus minusve dense glandulosos-papillosae, marginibus ciliatis; calyxis segmenta parva, tenuia, acuta, parce glandulosos-papillosa, pilis paucis longis intermixes, marginibus ciliolatis; corolla rubra, aliquanto tenuiter pubescens, pilis patulis, rectis vel leviter curvatis, tubo subcylindrico, labio superiore erecto, oblongo-ovato, apice bilobato, lobis parvis, rotundatis, labio inferiore plus minusve patulo, cuneato, 3-lobato, lobis ovatis, rotundatis; stamina vix exserta, in labio antico corollae declinata, lobis antherarum superpositis, perpendicularibus, lobo inferiore caudato; capsule aliquanto parvae, clavatae, glabrae; retinacula apice rotundata, erosa; semina 4, cordata, plana, brunnea, muricata.

Shrubs up to 1.5 meters high; stems subterete, glabrous or the nodes minutely and sparingly strigose, the cystoliths minute and subpunctiform; leaf blades oblong-ovate to ovate, up to 14 cm. long and 4.5 cm. wide, acute to acuminate or short-acuminate, narrowed at base, rather firm, entire or undulate, the axils of the lower surface pilose, otherwise glabrous or minutely and sparingly strigose, the hairs confined chiefly to the costa and lateral veins (7 or 8 pairs),
the venation rather obscure, the cystoliths minute (about 0.08 mm. long), often obscure; flowers borne in terminal and axillary spikes up to 6 cm. long and about 1.5 cm. broad, the peduncles up to 2 cm. long, subquadrangular, more or less flattened, glabrous or sparingly and minutely strigose, the rachis puberulous, the hairs upwardly curved, up to 0.16 mm. long; bracts lanceolate, 10 to 12 mm. long, 3 to 4 mm. wide, acuminate, narrowed at base, rather thin and veiny (the costa prominent), more or less minutely glandular-papillose, rather sparingly ciliate, the hairs 0.2–0.4 mm. long; bractlets linear-lanceolate, about 9 mm. long and 1 mm. wide, rather sparingly glandular-puberulous with a few larger eglandular hairs intermixed with the smaller ones, the margins ciliate with hairs up to 0.45 mm. long; calyx 4 mm. long, the segments lanceolate, 3 mm. long, 0.75 mm. wide, acute, thin, sparingly glandular-papillose and like the bracts and bractlets with a few longer eglandular hairs intermixed, the margins ciliolate with hairs about 0.13 mm. long; corolla red, about 3 cm. long, finely and rather sparingly pubescent, the hairs spreading, straight or slightly curved, up to 0.16 mm. long, the tube 2.5 mm. broad at base, narrowed to 1.75 mm. at 3 mm. above base, thence gradually enlarged to 3.5 mm. at mouth, the upper lip erect, oblong-
ovate, 17 mm. long and 8 mm. wide at base, the tip bilobate, the lobes about 0.5 mm. long and broad, rounded, the lower lip more or less spreading, cuneate, 7 mm. wide at base of the lobes, these 3, ovate, about 3.5 mm. long, rounded; stamens reaching within 2 mm. of tip of the upper lip of the corolla and partially enfolded by it, the anthers about 4 mm. long, the lobes superposed, vertically attached, their tips overlapping about 0.5 mm., the base of the lower lobe apiculate or caudate, the tail about 0.25 mm. long; style reaching within 0.5 mm. of the tip of the upper lip of the corolla, the stigma minute and conical; capsules about 1 cm. long, 4 mm. wide and 2.5 mm. thick, 4-seeded, glabrous, the tip obtuse, the solid basal portion 3.5 mm. long and 3 mm. wide; retinacula about 2 mm. long and 0.5 mm. wide, curved, the tip rounded and erose; seeds cordate, flattened, brown, about 2.5 mm. long and broad, muricate.

Type in the U. S. National Herbarium, No. 1855848, collected along stream in woods at Hacienda El Cucharro, between Tocaima and Pubenza, Department of Cundinamarca, Colombia, 350 meters altitude, May 7, 1944, by E. P. Killip, A. Dugand and R. Jaramillo (No. 38284).

Also of this species are Francis W. Pennell's No. 2831 (GH, NY, US), collected in woods at Natural Bridge, Pandi, Department of Cundinamarca, 800 to 900 meters altitude, December 1–3, 1917; Triana's specimen (K) collected in the "Province of Cauca" 1853, Oscar Haught's No. 2396, collected in forest near the mouth of the Río Totare, Department of Tolima, about 300 meters altitude, October 28, 1938, and Lorenzo Uribe-Uribe's No. 2309, collected between Tocaima and Pubenza, Cundinamarca.

Characterizing Justicia erythrantha are the rather short spikes, the ovate acuminate bracts, and the red corollas. The specific epithet is from the Greek words ἐρυθρός, red, and ἄνθος, flower.

28. Justicia leptochlamys Leonard, sp. nov.  

Herba, caulibus deorsum teretibus, glabris, sursor subquadrangularibus, glabris vel bifariam puberulis, pilis subbrunneis, patulis vel retrorse curvatis; lamina foliorum lanceolata, acuminata (apice ipso obtuso), basi angustata, aliquanto tenuis, integra vel undulata, glabra vel subitus costa parce hirtella, cystolithis pluribus et conspicuis; petioli brevi, plus minusve minuti hirtelli; spicae terminales vel laterales, pedunculis brevibus, gracilibus, hirtellis, rhache glabra; bracteae rhombico-ovatae, acutae vel subacuminatae, basi angustatae, tenues, integrae, parce ciliatae, cystolithis conspicuis; bracteolae anguste lanceolatae, anguste acuminatae, apice ciliatae; calycis segmenta subulata, glabra vel parce hirtella, ciliolata; corolla alba, labiis subaequalibus, labio superiore erecto, integro, labio inferiore plus
minusve patulo, 3-lobato; stamina exserta, lobis antherarum superpositis; capsulae clavatae, glabrae vel splice minute hirtellae; semina ovata, plana, glabra.

Herbs up to 1 meter high; stems terete or the upper portions subquadrangular, glabrous or puberulous in 2 lines, the hairs brownish, up to 0.15 mm. long, spreading or retrorsely recurved, the internodes 1 to 4 cm. long; leaf blades lanceolate, up to 9 cm. long and 1.5 cm. wide, acuminate (the tip itself obtuse), narrowed at base, rather thin, entire or undulate, glabrous or the costa of the lower surface sparingly hirtellous, the lateral veins (5 or 6 pairs) obscure, the cystoliths of both surfaces numerous and conspicuous under a lens, up to 0.24 mm.

Figure 205.—Justicia leptochlamys Leonard (Pennell 4529): a, Tip of plant showing inflorescence and leaves; b, bract; c, bractlet; d, calyx. (a, Natural size; b-d, twice natural size.)

long; petioles up to 0.5 cm. long, more or less minutely hirtellous; spikes terminal and lateral, up to 3 cm. long and 1.5 cm. broad, rather lax at maturity, the peduncles about 0.5 mm. long, hirtellous, the hairs septate, up to 0.46 mm. long, the rachis glabrous or sparingly hirtellous, the cystoliths usually conspicuous under a lens; bracts rhombic-ovate, up to 13 mm. long and 7 mm. wide, acute or subacuminate, narrowed at base, thin, entire, sparingly ciliate with hairs up to 0.75 mm. long, otherwise glabrous or nearly so, the cystoliths conspicuous under a lens but less numerous than on the leaf blades; bractlets narrowly lanceolate, up to 8 mm. long and 1 mm. wide near base, slenderly acuminate, ciliate toward tip, otherwise glabrous; calyx 4 mm. long, deeply segmented, the segments subulate, about 0.5 mm. wide near base, gradually narrowed to a slender tip, glabrous
or sparingly hirtellous and ciliolate; corolla white, about 1 cm. long, 1 mm. broad at base and mouth, narrowed to 0.5 mm. above base, the lips about 2 mm. long, the upper lip erect, entire, the lower more or less spreading, 3-lobed at tip, the stamens exerted beyond the mouth of the corolla tube but not exceeding the corolla lips, the anthers 1.5 mm. long, 0.25 mm. thick, superposed, vertically attached to connective; capsule 7 mm. long, 2 mm. broad, 1 mm. thick, minutely hirtellous toward tip, becoming glabrous; retinacula about 3 mm. long, flat and rounded at tip; seed ovate, flattened, about 3 mm. long and 2 mm. broad, glabrous.

Type in the herbarium of the New York Botanical Garden, collected on the Río Esmeralda, between Las Dantas and Puerto Canoa, Department of Bolivar, Colombia, 400 to 800 meters altitude, February 27, 1918, by Francis W. Pennell (No. 4529).

The specific epithet is from the greek λεπτός, thin or delicate, and χαλκίς, bract.

29. Justicia gutierrezii Leonard, sp. nov. Figure 206

Arbor parva, caulibus subteretibus, dense strigosis vel subtomentosis, pilis subbrunneis; lamina foliorum oblongo-elliptica, breviter acuminata (apice ipso subobtuso) basi angustata, aliquanto firma, integra, supra glabra vel parce et minute strigosa, costa et venis dense strigosis, subtus aliquanto dense et molliter strigosa vel subtomentosa; petioli graciles, dense striegosi vel subtomentosi; spicae terminales et axillares, bracteis quadrifariis dorsalisbus sterilibus, ventralibus flores subtendentibus, pedunculo breviter et rhache dense hirsutis vel subtomentosis; bracteae dorsales ovatae, subobtusae, apice subapiculatae, basi obtusae, submembranaceae, hirsuteae, ciliatae, costa et venis aliquanto prominentibus; bracteae ventrales late oblanceolatae, acutae, basi angustatae, submembranaceae, hirsuteae et ciliatae; bracteae lanceolatae acuminatae, basi angustatae, parce hirsuteae, ciliatae; calycis segmenta lanceolatae, graciliter acuminata, ciliata; corolla alba, sursum parce pilosa, deorsum glabra, tubo aliquanto angustato, labiis subequalibus, labio superiore erecto, triangulo-ovato, apice angustato, subacuto, labio inferiore plus minusve patulo, obovato, trilobato, lobis oblongo-ovatis, rotundatis, lateralibus leviter incurvatis; stamina vix exserta, loculis antherarum superpositis, rectis, lobo inferiore basi calcarato.

Small trees; stems subterete, rather densely strigose or subtomentose with light brownish hairs up to 0.5 mm. long; leaf blades oblong-elliptic, up to 12 cm. long and 5 cm. wide, short-acuminate (the tip itself blunt) narrowed at base, rather firm, entire, the upper surface glabrous or sparingly and minutely strigose, the costa and lateral veins (about 6 pairs) more densely so, the hairs up to 0.28 mm. long,
the lower surface rather densely and softly strigose or hirsute, the venation rather prominent, the cystoliths obscure or lacking; petioles up to 3.5 cm. long, slender, densely strigose or subtomentose; spikes terminal and subterminal, up to 2.5 cm. long and 12 mm. broad, the bracts closely imbricate, quadrifarious and secund, the peduncles up to 1 cm. long, these and the rachises densely hirsute or subtomentose with ascending hairs; dorsal bracts sterile, ovate, 11 mm. long and 8 mm. wide, subobtuse and subapiculate, obtuse at base, submembranaceous, hirsute and ciliate, the hairs up to 1.25 mm. long, spreading or ascending, the costa and about 4 pairs of lateral veins rather prominent; ventral bracts (those subtending the flowers) broadly oblanceolate, 14 mm. long, 4 mm. wide, acute, gradually narrowed from about the middle to base, submembranaceous, hirsute and ciliate, the hairs up to 2 mm. long, the costa and a pair of lateral veins rather prominent; bractlets lanceolate, 9 mm. long and 1.5 to 2 mm. wide, acuminate, pilose and ciliate; calyx 1 cm. long, the segments lanceolate, 0.75 mm. wide, slenderly acuminate, ciliate and sparingly hirsute;

Figure 206.—Justicia gutierrezii Leonard (Gutierrez-V Schultes 606): a, Tip of plant showing leaves and inflorescence; b, dorsal view of spike; c, ventral view of spike; d, dorsal bract; e, bract, bractlet, and tip of calyx (from ventral side of spike); f, one of the calyx segments; g, corolla; h, stamen. (a, g, Natural size; b, c, half natural size; d-f, twice natural size, h, 4 times natural size.)
corolla white, about 2.5 cm. long except the glabrous basal portion, sparingly pilose, the hairs spreading or retrorsely ascending, up to 0.5 mm. long, the lips subequal, the upper lip erect, 1 cm. long, triangular-ovate, 3.5 mm. wide near base, rather gradually narrowed to a subacute tip, the lower lip more or less spreading, obovate, 4 mm. wide near middle, 3-lobed, the lobes oblong-ovate, 3 mm. long, 1.25 mm. wide, rounded, the outer lobes slightly incurved; stamens reaching the tip of the upper lip, slender, glabrous, flattened, subhyaline, the anther-lobes superposed, 1.25 mm. long, 0.5 mm. wide, vertically attached to the connective, this about 0.75 mm. long, the lower anther lobe calcarate, its tail about 0.5 mm. long, white, the upper anther-lobe subacute at the base; ovary glabrous; capsules not seen.


The bracts, bractlets, and calyx of the dried specimens are red.

30. Justicia macarenensis Leonard, sp. nov. Figure 207

Herbs up to 70 cm. high; stems subquadrangular, glabrous or puberulous in 2 lines, the hairs about 0.25 mm. long, brownish, septate, retrorsely curved; leaf blades oblong-elliptic or oblong-lanceolate, up to 25 cm. long and 6 cm. wide, slenderly acuminate (the tip itself blunt), gradually narrowed to base, firm, entire or undulate, the upper surface glabrous, the venation obscure, the lower surface glabrous except the costa and lateral veins, these prominent and rather spar-
ingly puberulous, the cystoliths inconspicuous; petioles up to 2.5 cm.
long, puberulous, some of the hairs cyathiform; spikes 1, terminal, or
if two terminal and subterminal, oblong, up to 12 cm. long and 2 cm.
broad, the peduncles ca. 1 cm. long, puberulous in 2 lines, the rachis
puberulous with brownish hairs about 0.16 mm. long; bracts red or
bronze purple, oblong-ovate, 4–5 cm. long, 16 mm. broad near base,

obtuse at apex, rounded at base, thin, sparingly ciliate (the hairs up
to 0.75 mm. long), otherwise glabrous except the more or less puberulous
costa, the veins and the coarsely reticulate veinlets prominent;
bractlets oblong-lanceolate, 17 mm. long and 3 mm. wide, acute,
thin, glabrous or sparingly strigose toward base, sparingly ciliate,
coarsely reticulate-veined; calyx 11 mm. long, deeply segmented,
the segments 5, lanceolate, 10 mm. long, 1 mm. wide near base, slenderly acuminate, ciliate toward tip, moderately puberulous with blackish glandular hairs 50 to 125μ long (appearing as dark specks under a lens), these, intermixed with acute hairs, sometimes also present on the bractlets; corolla white or the lobes sometimes reddish, up to 32 mm. long, rather densely pubescent, except the enlarged lower glabrous portion, the tube 3 mm. broad at base, narrowed to 2.5 mm. at 3 mm. above base, thence gradually enlarged to 4 mm. at mouth, the lips equal, 11 mm. long, the upper lip erect, lanceolate, about 2 mm. wide, acute, the lower lip somewhat spreading, 3-lobed at tip, the lobes 2.5 mm. long, the middle lobe 1.5 mm. wide, the lateral ones 0.75 mm. wide, all rounded at tip; stamens exserted 8 mm. beyond mouth of corolla tube, the filaments flat and glabrous; anthers 5 mm. long, the lobes vertical, superposed, the upper 1 mm. above the lower, the upper lobe 2 mm. long and 0.75 mm. broad, muticous, the lower 2.5 mm. long, muticous or briefly and bluntly spurred; ovary glabrous; capsules not seen.


The following also represent the species:


The thin veiny reddish bracts and narrow white or reddish corollas are characters by which Justicia macarenensis can be readily recognized.

31. Justicia pharmacodes Leonard, sp. nov.

Suffrutex ramosus, caulibus subquadrangularibus, puberulis vel deorsum glabratris, pilis curvatis, subappressis vel paucis patulis; lamina foliorum ovata vel oblongo-ovata, breviter acuminata (apice ipso obtuso), basi angustata et in petiolum breviter decurrens, aliquanto firma, integra vel undulata, supra parce puberula, subtus aliquanto puberula, pilis minute curvatis, ascendentibus, cystolithis obscursis; petioli aliquanto longi, puberuli; spicae axillares, aliquanto breves; pedunculi longi, erecti vel ascendentes, puberuli, rhache puberula; bracteae suborbiculares, apice obtusae vel rotundatae, minute apiculatae, basi unguiculatae, puberulae, costa et venis lateralibus obscursis; bracteolae ellipticae, apice late obtusae vel rotundatae, minute apiculatae, basi unguiculatae, puberulae; bracteae
et bracteolae pilis minutis glandulosis in marginibus praeditae; calycis segmenta parva, 5, lanceolata, acuta, apice parce hirtella, pilis subappressis vel ascendentibus, curvatis; corolla alba, lineis purpureis insignis, puberula, tubo lato, brevi, labio superiore erecto, late cucullato, apice marginibus rugosis, labio inferiore lato, 3-lobato, lobis ovatis, apice rotundatis, marginibus rugosis; stamina in labio antico corollae declinata, glabra vel deorum parce furfuracea, lobis antherarum leviter superpositis, lobo inferiore caudato; capsulae clavatae, glabrae.

Branching shrubs up to 3 meters high; stems subquadrangular, puberulous or the lower portions glabrate, the hairs up to 0.48 mm. long, curved, mostly subappressed, a few ascending; leaf blades ovate or oblong-ovate, up to 25 cm. long and 10 cm. wide, short-acuminate (the tip itself obtuse), narrowed at base and briefly decurrent on the petiole, moderately firm, entire or undulate, the upper surface sparingly puberulous, the lower surface moderately puberulous but more densely so than the upper, the hairs up to 0.32 mm. long, curved and ascending, the cystoliths obscure, the venation moderately prominent (the lateral veins 8 to 10 pairs); petioles up to 6 cm. long, puberulous; flowers borne in axillary spikes, these usually 2 to 5 cm. long and 2 to 2.5 cm. broad, sometimes subcapitate, the peduncles erect or ascending, up to 10 cm. long, puberulous; rachis puberulous, the lowermost internode 4 mm. long, the others successively shorter toward tip; bracts suborbicular, up to 13 mm. long and 7 mm. wide, broadly obtuse or rounded at the apex and minutely apiculate, unguiculate at base, the narrowed portion 4 to 6 mm. long and 1 to 2.5 mm. wide, the entire blade puberulous, the costa and lateral veins evident but not prominent; bractlets elliptic, up to 1 cm. long and 4 to 4.5 mm. wide, broadly obtuse and minutely apiculate at apex, unguiculate at base, the entire bractlet puberulous, both bracts and bractlets often bearing glandular marginal hairs up to 0.16 mm. long, these intermixed with the shorter eglandular ones; calyx 4.5 mm. long, deeply segmented, the segments 5, lanceolate, 4 mm. long, 1.5 mm. wide, acute, hirtellous and ciliolate toward tip, the hairs ascending or subappressed, curved, up to 0.13 mm. long; corolla 18 mm. long, white, marked with purple lines, puberulous, the hairs straight or curved, up to 0.2 mm. long, the corolla tube about 1 cm. long, 4 mm. broad at base, 10 mm. broad at mouth, the upper lip erect, ovate, 8 mm. long, about 12 mm. wide, cucullate, enclosing the stamens, the lower lip about 13 mm. long and 1 cm. wide at base of the 3 lobes, these ovate, 8 mm. long and 6 mm. wide, rounded, the margins of both lips crinkled at tip; stamens 18 mm. long, glabrous or sparingly scurfy toward base; anthers 3.5 mm. long and 2 mm. broad, slightly superposed, the lower lobe terminating
in a short tail about 0.1 mm. long; capsules clavate, glabrous, 2 cm. long, 6 mm. broad, 3 mm. thick, the broad seed-containing portion obscurely and irregularly furrowed, the solid stipe 15 mm. long and 4 mm. broad; retinacula 4.5 mm. long, nearly straight, rounded at tip; seeds not seen, but, as indicated by the retinacula, 2 in number (one pair abortive).

Type in the U. S. National Herbarium, No. 1708866, collected near stream in forest, vicinity of Manaure, Department of Magdalena, 700 meters altitude, April 13, 1944, by Oscar Haught (No. 4072).

Paratypes are Haught's No. 3999 (US), collected near Barrancas, 170 meters altitude, February 16, 1944, and his No. 3816 (US), collected in the forest 12 km. north of Codazzi, both localities in the Department of Magdalena, and Schlim's No. 887 (K), collected in
forest at the foot of the Sierra Nevada, at Riohacha, Department of Magdalena.

Haught tells us in his label notes that this species is strictly a forest plant and is probably poisonous. It dries with a peach-kernel odor and is not eaten by stock. The flowers are early deciduous, opening in the early morning and falling by noon.

The spatulate bracts remind one of *J. carthaginensis*, but that species does not have long-pedunculate inflorescences, and its bracts are relatively narrower and the leaf blades smaller. The specific epithet is from the Greek ἀμακώδης, meaning poisonous.

32. *Justicia phytolaccoides* Leonard, sp. nov.

*Herba vel suffrutex, caulisibus subquadriangularibus, glabris vel sursum aliquanto strigosis; lamina foliorum oblongo-ovata vel ovato-lanceolata, acuta vel breviter acuminata vel aliquando obtusa, basi acuta vel obtusa vel rotundata, plus minusve obliqua, firma, integra vel leviter undulata, glabra vel costa et venis lateraliibus parce strigosa, subtus venis prominentibus, cystolithis sub lente prominentibus; petioli crassi, glabri vel parce strigosi; spicae 1 vel plures, terminales vel axillares, breviter pedunculatae, rhachis puberula; bracteae obovatae, obtusae, crassae, minute puberulae et ciliolatae; spicae 1 vel plures, terminales vel axillares, breviter pedunculatae, rhachis puberula; bracteae obovatae, obtusae, crassae, minute puberulae et ciliolatae; costa et venis lenticularibus prominentibus; venulis reticulatis; calycis segmenta oblongo-lanceolata, minute punctata, ciliata; corolla caerulea, albolineata, puberula, labiis subaequalibus, labio superiore erecto, ovato, aculeata (aculeis ipso obtusis), labio inferiore 3-lobato, lobis suborbicularibus, rostrate; stamina exserta, lobis superpositis, lobo superiore mutico, glabro, calcarato, filamentis planis, glabris; capsulae glabrae, aculeatae, minute puberulae; retinacula ligulata, apice tenuia, rotundata; semina brunnea, plana, tuberculata.

Herbs or shrubs up to 2 meters high; stems subtetragonal, glabrous or the upper portions sparingly to moderately strigose, the hairs more or less in two rows; leaf blades oblong-ovate or ovate-lanceolate, up to 25 cm. long and 11 cm. wide, acute to short-acuminate or occasionally obtuse at apex, acute to obtuse or rounded and more or less oblique at base, rather firm, entire or undulate, glabrous or the costa and lateral veins (8 to 12 pairs) sparingly strigose, the venation prominent beneath, less so above, the cystoliths numerous, conspicuous under a lens, about 0.28 mm. long; petioles rather stout, up to 6 cm. long, glabrous or sparingly strigose; spikes solitary and terminal or sometimes both terminal and axillary, up to 11 cm. long, 2 cm. broad, the peduncles usually about 5 mm. long, these and the rachis puberulous; bracts obovate, averaging 17 mm. long and 8 mm. wide, obtuse at tip, narrowed to 3 mm. at base, firm, entire, minutely puberulous
and ciliolate, veiny, the costa and about 6 pairs of lateral veins prominent, the veinlets coarsely reticulate; bractlets oblong-lanceolate, 10 mm. long, 3 mm. wide, subacute, 1.75 mm. wide at base, minutely puberulous and ciliolate, the costa and lateral veins (3 or 4 pairs) prominent; calyx 12 mm. long, deeply segmented, minutely punctate

and ciliolate, the segments oblong-lanceolate, 10 mm. long, 2.75 mm. wide; corollas 3 cm. long, blue, lined with white, puberulous except the enlarged glabrous basal portion, this 4 mm. broad at base, the corolla tube narrowed at 7 mm. above base to 3 mm., thence gradually enlarged to 4 mm. at mouth, the upper lip erect, ovate, 15 mm. long,
5 mm. wide, narrowed to an obtuse tip, the lower lip spreading, 15 mm. long, ovate, suborbicular, 3-lobed, the middle lobe 3.5 mm. long and 4 mm. wide, rounded, the lateral lobes 3 mm. wide, obtuse, somewhat oblique; stamens exserted 12 mm. beyond the mouth of the corolla tube, the anthers 3.5 mm. long, the lobes superposed vertically or nearly so, the upper lobe muticous, dorsally densely pubescent, the lower lobe glabrous, calcarate, the tail blunt, about 0.75 mm. long, the filaments flattened, glabrous; capsules clavate, 16 to 18 mm. long, 5 mm. wide, 3.5 mm. thick, acute, finely puberulous; retinacula ligulate, 2.5 mm. long, 0.5 mm. wide, the tip thin, whitish, rounded; seed 4 mm. long, 3.25 mm. wide, 1 mm. thick, brown, tuberculate.

Type in the U. S. National Herbarium, No. 2045848, collected along stream at San Antonio, Department of Cundinamarca, Colombia, 200 meters altitude, June 14, 1948, by Oscar Haught (No. 6242).

Other collections are:

**Antioquia:** Dry rocks of Río Magdalena at Angostura de Nare, André 447 (K).

**Cundinamarca:** Hacienda Paramillo, on road between Guaduas and Alto de Aguacaliza, 1,040–1,320 meters altitude, July 24, 1947, García-Barriga 12353 (US); 12646 (US).

**Santander:** San Juan Valley in the vicinity of Puerto Berrio, between Carare and Magdalena Rivers, 100–700 meters altitude, June 15, 1935, Haught 1788 (US); June 24, 1935, Haught 1807 (US). Along stream at San Fernando, between Puerto Berrio and Río Carare, 300 meters altitude, June 30, 1939, Haught 2853 (US).

**Tolima:** Cañón del Río Gualf, on the road from Fresno to Falán, 1,120–1,700 meters altitude, December 5, 1939, García-Barriga 8341 (US). Falán, region of “Calamonte,” 1,120 meters altitude, December 7, 1939, García-Barriga 8346 (US).

**Without Locality:** Mutis 892 (US); 1503 (US).

García-Barriga (No. 12353) describes the flowers of his collection as being “amarillas.” This may possibly be an error since some of the bluish coloration still remains in one of the dried corollas. Aside from this possible color variation, García-Barriga’s specimen is identical with the other specimens cited. The flowers of Haught’s No. 1807 were rose, lined with white, showing that there is some color variation.

33. *Justicia xanthostachya* Leonard, sp. nov.  

*Figure 210*

Frutex, caulibus subquadrangularibus, sursum strigosis, pilis rigidis; lamina foliorum oblongo-elliptica vel oblongo-ovata, apice subacuta, basi acuta, aliquando firma, integra vel undulata, utrinque glabra vel parce strigosa, costa et venis prominentibus, cystolithis obscuris vel nullis; petioli parce strigosi; spicace terminales, solitariae vel plures paniculam laxam terminalem formantes, pedunculis subquadrangularibus, strigosis, rhachibus hirtellis, pilis albis patulis; bracteae membranaceae, imbricatae, sulphureo-flavae, elliptico-ovatae, utrinque acutae, hirtellae, pilis crasis glandulosus et pilis gracilibus
eglandulosum intermixtis, costa et venis lateralis gracilibus; bracteolae bracteis similis sed minores; calycis segmenta puberula, pilis papilliformibus, crassis, glandulosum et pilis gracilibus eglandulosum intermixtis; corolla clara sulphureo-flava, hirtella, pilis patulis vel retrorsis, tubo subcylindrico, labiis subaequalibus, labio superiore erecto, oblongo-ovato, acuto, labio inferiore oblongo-obovato, apice trilobato, lobis suborbicularibus, apice rotundatis; stamina exserta,

![Diagram](image_url)

**Figure 210.** *Justicia xanthostachya* Leonard (Kalbreyer 930): a, Tip of plant; b, node of stem to show leaf blades; c, tip of leaf; d, bract; e, bractlet; f, segment of calyx; g, portion of bract enlarged to show pubescence; h, anther. (a–e, Half natural size; d–f, twice natural size; g, 23½ times natural size; h, 4½ times natural size.)

Shrubs up to 2 meters high; stems subquadrangular, upwardly strigose, the hairs up to 0.11 mm. long, rigid; leaf blades oblong-elliptic or oblong-ovate, up to 24 cm. long and 6.5 cm. wide, subacute at tip, acute at base, rather firm, entire or undulate, the upper surface drying dark olive-green, glabrous or sparingly strigose, the hairs up to 0.19 mm. long, the costa and lateral veins (14 to 16 pairs) promi-
nent on both surfaces, the lower surface drying light olive-green, nitid and sparingly strigose, the cystoliths obscure or lacking; petioles up to 1.5 cm. long, sparingly strigose; flowers borne in terminal spikes up to 7 cm. long and 3 cm. broad, these solitary or several, forming a loose panicle; peduncles up to 3 cm. long, subquadrangular, strigose; rachis hirtellous, the hairs spreading, up to 0.11 mm. long, white; bracts imbricate, bright sulphur yellow, elliptic-ovate, up to 28 mm. long, and 11 mm. wide, acute at both ends, hirtellous, up to 0.13 mm. long, some heavy and gland-tipped, others slender and eglandular, the costa and 2 or 3 pairs of lateral veins evident but not prominent; bractlets similar to the bracts but smaller, up to 18 mm. long and 6 mm. wide; calyx 15 mm. long, puberulous, the hairs a mixture of heavy subpapillate gland-tipped ones and fine slender eglandular ones, all spreading and up to 0.16 mm. long; corolla 3 cm. long, bright sulphur yellow, hirtellous, the hairs up to 0.2 mm. long, spreading or retrorse, the tube subcylindric, 3 mm. broad at base, constricted at 4 mm. above base to 2.5 mm. thence abruptly enlarged to 4 mm., then gradually to 5 mm. at mouth, the upper lip more or less erect, oblong-ovate, about 1 cm. long and 4 mm. wide, acute, the lower lip more or less spreading, oblong-ovate, 1 cm. long, 3.5 mm. wide at base of the three lobes, these suborbicular, 1.5 mm. long and rounded at the tip, the middle lobe about 2 mm. wide, the lateral ones somewhat narrower; stamens reaching tip of the upper corolla lip, the filaments glabrous, at least above, the anthers 4 mm. long, the cells superposed and vertically attached to the connective, each 2 mm. long and 0.5 mm. thick, the lower cell tailed, the tail about 0.75 mm. long and 0.25 mm. wide; style about 3 cm. long, sparingly and minutely hirtellous near base, otherwise glabrous, the stigma minute and bilobed; ovary nitid, papillose; capsules not seen.

Type in the Kew Herbarium, collected at Carmen, between Ocaña and Pamplona, Department of Norte de Santander, Colombia, "25–3000" altitude, January 27, 1879, by W. Kalbreyer (No. 930).

This well marked species should be easily recognized by its showy bright sulphur-yellow glandular spikes. There are apparently no close relatives. The specific epithet is from the Greek ξανθός, yellow, and στάχυς, spike.

34. Justicia rohrii Vahl


*Beioperone rohrii* Nees in *DC. Prodr.* 11: 415. 1847. Type locality: Santa Marta, Magdalena, Colombia. Collected by Bertero. Type
Beloperone sanmartensis Rusby, Descr. So. Am. Pl. 128. 1920. Type collected in low damp parts of the dry forest region near Mamatoca, Santa Marta, Department of Magdalena, Colombia, 100 feet altitude, November 1898, by H. H. Smith, No. 96 (Ph, NY [holotype], S, US).

Shrub up to 2 meters high or more; stems stout, obtusely quadrangular, broadly sulcate, minutely puberulous; leaf blades ovate, oblong-ovate, elliptic or somewhat obovate, 15 to 30 cm. long, 7 to 16 cm. wide, short-acuminate or acute, usually narrowed to an obtuse, rounded or subcordate base although occasionally acute, rather thin, entire or undulate, the upper surface glabrous or sparingly and minutely puberulous, the hairs subappressed, the costa impressed, this and the lateral veins rather obscure, the lower surface glabrous or the costa and veins (14 or 15 pairs) minutely and inconspicuously puberulous, the venation prominent, the cystoliths of both surfaces minute (about 0.3 mm. long) and obscure; petioles 2 to 7 cm. long, minutely puberulous; panicles terminal, up to 22 cm. long and 8 cm. broad, more or less narrowed toward tip; peduncles stout, up to 5 cm. long, appressed-puberulous; lowermost nodes of the inflorescence subtended by small leaves; branches of the inflorescence ascending, up to 9 cm. long, the internodes both of the branches and the rachis densely hirtellous, the longer hairs gland-tipped, up to 0.5 mm. long, the flowers and bracts crowded and more or less secund; lowermost bracts subtending the flowers ovate, 12 mm. long, 9 mm. wide near base, acute (the tip itself obtuse), rounded at base, densely hirtellous, the hairs up to 0.3 mm. long, some of them terminating in large patelliform glands, the costa rather prominent, the lateral veins delicate, the bractlets oblong-elliptic, 12 mm. long, 5 mm. wide, acute, narrowed at base, the pubescence and venation that of the bracts, the succeeding bracts and bractlets similar to the lowermost but becoming gradually smaller toward tip of the inflorescence branches; calyx 13 mm. long, deeply segmented, the pubescence and venation that of the bracts and bractlets, the segments lanceolate, slenderly acute, 2.25 mm. wide; corolla white or pale yellow, up to 3 cm. long, rather densely pubescent except the lower glabrous portion, the hairs spreading, or retrorse, up to 1 mm. long, the tube 2.25 mm. broad at base, enlarged to 3 mm. slightly above base and narrowed to 2.25 mm. at 4 mm. above base, thence gradually enlarged to 4 mm. at throat, the lips subequal, about 15 mm. long, the upper lip erect, ovate, acute, 7 mm. wide at base, the lower lip recurved, 3-lobed, 4 mm. wide at base of lobes, the lobes oblanceolate, 7 mm. long, 2 mm. wide near tip, rounded; stamens exserted, reaching tip of the upper corolla lip, the filaments glabrous, the anther cells obliquely attached to the connective and superposed, the upper lobe 2.25 mm. long and 0.75 mm.
broad, blunt at base, borne at a 40-degree angle from the horizontal, the lower lobe 2.5 mm. long and 0.75 mm. broad, vertical, the lower tip terminated by a blunt tail 0.5 mm. long; styles slightly shorter than the stamens, essentially glabrous; capsules clavate, 12 mm. long, 4 mm. broad, about 3 mm. thick, the solid stipitate basal portion 4 mm. long and 3 mm. wide, the outer surface finely pubescent, the hairs up to 0.25 mm. long, those at and near the tip spreading, the others retrorse; retinacula 3 mm. long, thin, whitish and subtruncate at tip; seed suborbicular, flattened, about 2.5 mm. long and broad, strongly papillose.

Limited in Colombia apparently to the arid forested coastal belt of the Santa Marta region. The following note accompanies H. H. Smith’s No. 96: “Shrub, 4–6 ft. Common locally in low damp parts of the dry forest region below 1000 ft. Flowers Nov.–Dec. pale yellow.”


35. *Justicia cabrerae* Leonard, sp. nov.

Herba ramosa, caulibus ascendentibus, in nodis basalibus radicantibus, subquadrangularibus, puberulis, pilis retrorse curvatis; lamina foliorum ovata vel elliptica, apice obtusa, basi angustata et in petiolum decurrens, aliquanto firma, integra vel undulata, costa et venis lateralibus puberulis, cystolithis nullis; petioli puberuli; spicae terminales, anguste ovoideae, rachibus puberulis; bracteae ovatae vel ellipticae, acutae, basi angustatae, parce puberulae, ciliatae, pilis patulis vel ascendentibus; bracteolae lineari-lanceolatae, ciliatae; calycis segmenta lineari-lanceolata, apice gracilia, hirtella; corolla alba, deorsum glabra, labiis minute hirtellis, tubo hypocrateriformi, labio superiore erecto, ovato-lanceolato, apice obtuso, emarginato, labio inferiore plus minusve patulo, apice trilobato, labio medio ovato, obtuso, lobis lateralibus triangularibus, apice obtusis; stamens vix exserta, glabra, antheris superpositis, rectis, connectivo lato; ovarium apice hirtellum.

Branching herbs up to 20 cm. high, ascending, rooting at the lower nodes; stems subquadrangular, puberulous, the hairs retrorsely curved, up to 0.16 mm. long; leaf blades ovate to elliptic, up to 8 cm. long and 4 cm. wide, obtuse at tip, narrowed at base and decurrent on the petiole, moderately firm, entire or undulate, the costa and lateral veins (8 pairs) puberulous, the hairs similar to those on the stems, the intercostal areas essentially glabrous or minutely hirtellous toward the margins with narrowly triangular separte hairs, the venation rather obscure, at least not prominent, the cystoliths lacking; petioles up to 1.5 cm. long, puberulous; spikes terminating the branches forming poorly defined leafy panicles, the spikes themselves narrowly
ovoid, up to 5 cm. long and 1.5 to 2 cm. broad, the rachis puberulous; bracts ovate to elliptic, 1 to 1.5 cm. long, 6 to 10 mm. wide, acute, narrowed at base, the flat surfaces sparingly puberulous, the margins ciliate with spreading or ascending hairs up to 1.5 mm. long, pinnately veined, the veinlets coarsely reticulate; bractlets linear-lanceolate, 9 mm. long, 1 mm. wide, ciliate with hairs up to 1 mm. long, the flat surfaces essentially glabrous; calyx 5 mm. long, the segments 5, linear-lanceolate, 4.5 mm. long, 0.5 mm. wide at base, narrowed to a slender tip, the upper part hirtellous (the hairs at tip up to 0.25 mm. long), the lower portion glabrous; corolla white, about 2 cm. long, glabrous except the lips, these minutely hirtellous, the tube 2 mm. broad near the base, about 4.5 mm. broad at throat, the upper lip erect, ovate-lanceolate, 4 mm. long and 2 mm. wide at base, obtuse and emarginate at tip, the lower lip more or less spreading, ovate, 7 mm. long, 6 mm. wide at base of lobes, these 4 mm. long, the middle one ovate, 4 mm. wide at base, the lateral ones triangular, 2.5 mm.
wide at base, all three lobes obtuse at tip; stamens glabrous, slightly exserted beyond the mouth of the corolla tube, the anther cells 1.5 mm. long and 0.25 mm. wide, superposed, vertical, about 0.5 mm. apart, the upper one on a short slender stalk about 5 mm. long, the connective 0.25 mm. wide; style as long as the stamens, the stigma 2-lobed, the lobes lanceolate, slightly recurved, 0.75 mm. long, 0.25 mm. wide; top of ovary and the base of the style sparingly hirtellous, the hairs straight, ascending or spreading, up to 0.8 mm. long; capsules not seen.

Type in the U. S. National Herbarium, No. 2124630, collected at Soratama, along the Río Apaporis, between Río Pacoa and Río Kananari, about 250 meters altitude, June 20, 1951, by Richard Evans Schultes and Isidoro Cabrera (No. 12701).

Schultes and Cabrera’s No. 12679 (US), collected on a flood bank on the same date and in the same general region as the type, is also of this species.

36. Justicia leucerythra Leonard, sp. nov.

Herba vel suffrutex, caulibus erectis, quadrangularibus, glabris vel bifariam puberulis, pilis retrorse curvatis, subappressis; lamina foliorum oblongo-ovata vel elliptica vel oblongo-ovobovata, acuminata (apice ipso obtuso), basi angustata, aliquanto firma, integra vel undulata, utrinque glabra vel costa et venis lateralis puberulis, cystolithis inconspicuis et raris; petioli glabri vel puberula, pilis curvatis; spicae 1 vel plures, terminales vel subterminales, oblongae, apice obtusae vel truncatae, pedunculatae, rhache puberula, pilis curvatis, subappressis; bracteae ovatae, acutae vel breviter acuminatae, basi angustatae, firmae, glabrae vel parce strigose, pilis appressis, ciliatae, costa et venis (crasse reticulatis) aliquanto prominentes; bracteolae lanceolatae, apice acuto, sensim angustatae, parce et minute strigose et ciliatae, costa prominente, venis lateralis obscuris; calycis segmenta 5, lineari-lanceolata, ciliolata, minute et parce strigosa; corolla punicea vel aliquando rubra, subiliter pubescens, labiis subaequalibus, labio superiore lanceolato, acuto, labio inferiore plus minusve patulo, 3-lobatis, lobis oblongis, apice rotundatis; stamina exserta, lobis antherarum superpositis, plus minusve obliquis, lobo inferiore basi breviter calcarato, lobo superiore mutico, filamentis planis, glabris; capsulce (immaturae) clavatae, glabrae; semina suborbiculata, plana, muralata, subrubra.

Slender erect herbs (becoming suffrutescent at maturity) up to 1 meter high; stems subquadrangular, glabrous or puberulous, the hairs retrorsely curved, subappressed, arranged more or less in two rows; leaf blades oblong-ovate, elliptic or oblong-ovobovate, 20 cm. long and 6 cm. wide, short-acuminate (the tip itself obtuse), narrowed at base, rather firm, entire or undulate, the costa and lateral veins (6 to 8
pairs) puberulous, the cystoliths often inconspicuous and scattered; petioles up to 3 cm. long, glabrous or puberulous with curved hairs; spikes one or several, terminal and subterminal, up to 7 cm. long and 2.5 cm. broad, obtuse or truncate at tip, the peduncles usually about 1 cm. long, the rachis sparingly puberulous, the hairs curved, sub-appressed, about 0.2 mm. long; bracts ovate, ca. 18 mm. long, 8 mm. wide, acute or short-acuminate, narrowed to base, firm, glabrous or sparingly strigose (hairs appressed, white, ca. 75μ long), sparingly ciliate with hairs up to 0.5 mm. long, the veins coarsely reticulate,

Figure 212.—Justicia leucriphyra Leonard (Haught 6729): a, Tip of plant showing leaves and inflorescence; b, bract; c, bractlet; d, calyx; e, corolla; f, anther; g, pistil. (a, Half natural size; b–d, twice natural size; e, g, natural size; f, 4 times natural size.)

these and the costa rather prominent; bractlets lanceolate, up to 8 mm. long, 1 mm. wide, gradually narrowed to an acute tip, sparingly and minutely strigose and ciliate, the costa prominent, the lateral veins obscure; calyx 5 mm. long, 5-parted, the segments linear-lanceolate, 4.5 mm. long, ca. 0.6 mm. wide, ciliolate, minutely and sparingly strigose; corolla pink or occasionally red, up to 33 mm. long, finely pubescent, the hairs up to 0.2 mm. long, the tube 22 mm. broad at base, narrowed to 1.5 mm. at 3 mm. above base, thence gradually enlarged to 3 mm. at mouth, the lips subequal, 11 mm. long, the upper
lip lanceolate, 3 mm. wide, acute, the lower lip more or less spreading, 3-lobed, the lobes oblong, 10 mm. long, 4.5 mm. wide, rounded at tip, delicately veined; stamens exserted 8 mm. beyond mouth of the corolla tube, the anthers 3 mm. long, the lobes 0.5 mm. long, superposed, somewhat obliquely attached to the connective (0.5 mm. broad), the upper lobe muticous, the lower terminating at base in a short blunt spur 0.25 mm. long, the filaments flat, glabrous; ovary glabrous; style 2.5 cm. long, glabrous; stigma bilobed, minute; capsules (immature) 10 mm. long, 3 mm. broad, 2.5 mm. thick; seed orbicular, flattened, reddish, muriculate.

Type in the U. S. National Herbarium, No. 2046312, collected in flood-plain forest at Cerrejón, Department of Magdalena, Colombia, 100 meters altitude, December 3, 1949, by Oscar Haught (No. 6729).


*Justicia leucerythra* bears a general resemblance to the Peruvian species *J. glabribracteata* Lindau., but in that species the bracts are relatively broader and often obtuse or rounded instead of sharply acute, and the capsules are more or less hirtellous. The specific epithet is from the Greek *λευκέρυθρος*, meaning pink, in allusion to the pink corollas.

37. *Justicia enarthrocoma* Leonard, sp. nov.

Suffrutex, caulibus subquadrangularibus, bifariam pilosis, pilis curvatis, plus minusve patulis, septatis, aureo-brunneis; lamina foliorum oblongo-ovata vel oblongo-ovobovata, plus minusve panduri-formis, acuminata (apice ipso obtuso), basi angustata, aliquanto tenuis, integra vel undulata, supra subtomentosa, glabra vel costa parce puberula, subtus glabra, costa et venis lateralis puberulis, pilis aureobrunneis, septatis, cystolithis parvis, inconspicuis; petiolis breves, hirtellis; spicae terminales vel subterminales, pedunculis glabris vel parce pilosis, rhachis glabra, costa et venis lateralis puberulis, pilis aureobrunneis, septatis, cystolithis parvis, inconspicuis; petiolis breves, hirtellis; spicae terminales vel subterminales, pedunculis glabris vel parce pilosis, rhachis glabra; bracteis oblongo-ellipticis, acutae, basi subobtusae, tenues, glabrae, parce ciliatae; bracteis oblongo-lanceolatae, acutae, basi sessiles et obtusae, glabrae, costa prominente; calycis segmenta lanceolata, acuta, aliquanto tenuia, costa prominente; corolla coccinea, basi glabra, deorsum aliquando pilosa, pilis retrorsa curvatis vel patulis, labiis subaequalibus, labio superiore erecto, ovato, apice bilobato, lobis rotundatis, labio inferiore patulo, trilobato, lobis oblongo-ovatis, apice rotundatis; stamina exserta, fila-
mentis glabris, antherarum lobis obliquis, leviter superpositis, basi muticis vel minute apiculatis; ovarium glabrum; styli glabri.

Shrub up to 2 meters high, a little branched, the stems subquadrangular, the hairs curved, more or less spreading, arranged in 2 rows, conspicuously septate, golden brown; leaf blades oblong-ovate or obovate (some of them slightly panduriform), ca. 20 cm. long, 7 cm. wide, acuminate, narrowed at base, rather thin, entire or undulate, the upper surface subnitid, glabrous or the costa bearing a few small hairs, the cystoliths 0.25 mm. long, inconspicuous, the lower surface glabrous except the costa and lateral veins (9 or 10 pairs), these hirtellous with ascending golden brown septate hairs up to about 0.25 mm. long, the cystoliths about 0.2 mm. long, inconspicuous, sometimes drying

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**Figure 213.** — *Justicia enarthrocoma* Leonard (Grant 10900): a, Tip of stem, showing leaf and inflorescence; b, hair from upper portion of stem; c, bract; d, bractlet; e, calyx; f, anther. (a, Half natural size; b, 36 times natural size; c–e, slightly less than natural size; f, 3½ times natural size.)
blackish in young leaves; petioles up to 5 mm. long, hirtellous; spikes terminal or subterminal, the peduncles up to 3 cm. long, glabrous or sparingly hirtellous, the rachis glabrous, marked by a few parallel cystoliths; bracts oblong-elliptic, 25 mm. long, 10 mm. wide, acute, obtuse at base, thin, glabrous, sparingly ciliate, the veinlets coarsely but rather obscurely reticulate; bractlets oblong-lanceolate, 11.5 mm. long, 3.5 mm. wide, acute, obtuse at base, thin, glabrous, the costa rather prominent, the lateral veins delicately and coarsely reticulate; calyx 12.5 mm. long, deeply segmented, the segments lanceolate, 1.5 mm. wide at middle, acute, rather thin, the costa prominent, the 6 or more pairs of lateral veins obscure; corolla scarlet, up to 6 cm. long, except the glabrous basally enlarged portion, rather densely pilose with spreading or retrorsely curved brownish septate hairs up to 0.5 mm. long, the tube 3 mm. wide at base, enlarged to 4 mm. at 3 mm. above base and contracted to 1.5 mm. at 6 mm. above base, thence gradually enlarged to 6 mm. at mouth, densely and retrorsely pilose at and below the insertion of the stamens within the tube, the lips subequal, the upper lip erect, ovate, 12 mm. long, 10 mm. wide near base, 2 mm. wide near tip, bilobed, the lobes 0.75 mm. long, rounded, the lower lip spreading, 13 mm. long, 3-lobed, the lobes oblong-ovate, 11 mm. long, 4.25 mm. wide, rounded at tip; stamens exserted 15 mm. beyond mouth of corolla tube, the filaments glabrous, the anthers 3.5 mm. long, the cells slightly superposed and somewhat obliquely attached by a connective about 0.5 mm. wide, muticous or minutely apiculate at base; ovary glabrous; style glabrous, rather short; mature capsule not seen.

Type in the U. S. National Herbarium, No. 2045441, collected in-subs tropical forest 12 km. east of Codazzi in the Espíritu Santo Valley of the Sierra de Perijá, Cordillera Oriental, and 13 km. from the Venezuelan border, Department of Magdalena, Colombia, 1,250 meters altitude, February 11, 1945, by Martin L. Grant (No. 10900).

*Justicia enarthrocoma* is closely related to *J. leucerythra*, differing in the subpanduriform leaf blades, the septate golden brown hairs on stems and young leaf blades, and the much larger scarlet corollas, these with a bilobed upper lip. The specific epithet is from the Greek ἕναρθρος, jointed, and κόμη, hair.

38. *Justicia sanchezloides* Leonard, sp. nov.

*Suffrutex, caulibus subquadrangularibus, glabris vel parce bifariam strigosis, pilis plus minusve curvatis; lamina foliorum oblongo-elliptica vel late lanceolata, apice acuta vel breviter acuminata (apice ipso obtuso), basi angustata, firma, integra vel leviter undulata, glabra, costa et venis lateralibus subtus prominentibus, supra obscuris; petioli crassi, glabri vel minute strigosi; paniculae terminales, spicarum unilaterarium compositae; pedunculi dense plus minusve bifariam
hirsuti, pilis curvatis, subbrunneis vel purpureis; rhachis hirsuta, pilis plus minusve glandulosis; bracteae acutae et bracteolae acuminatae subaequales, lanceolatae, intus glabrae vel apice hirsutae, extus aliquanto hirsutae, marginibus ciliatae, pilis ascendentibus, nervis obscuris; calycis segmenta 5, lanceolata, apice angustata, intus strigosa, extus hirtella, pilis subflavis; corolla rosea, parce pubescens, pilis plus minusve glandulosis, tubo sursum gradatim ampliato, labio superiore erecto, oblongo-ovato, apice obtuso, labio inferiore patulo, cuneato, apice trilobato, lobis ovatis, rotundatis; stamina exserta, filamentis planis, glabris vel deorsum parce et minute hirtellis, lobis antherarum superpositis, basi albo-caudatis; ovarium glabrum.

Suffrutescent plants up to 3 meters high; stems subquadrangular, glabrous or sparingly and bifariously strigose, the hairs more or less curved; leaf blades oblong-elliptic to broadly lanceolate, ca. 28 cm. long, 8 cm. wide, acute to short-acuminate, narrowed at base, firm, entire or shallowly undulate, glabrous, the costa and lateral veins (10 to 15 pairs) prominent beneath, obscure above, the cystoliths numerous and rather prominent under a lens, up to 0.3 mm. long; petioles stout, up to 1.5 cm. long and 2 mm. in diameter, glabrous or minutely strigose; inflorescence a terminal panicle composed of several unilateral spikes up to 12 cm. long and about 1 cm. wide, the peduncles up to 2 cm. long, densely and more or less bifariously hirsute, the hairs curved, about 0.3 mm. long, brownish or purple, the rachis similarly hirsute or some of the hairs spreading and glandular; bracts and bractlets subequal, lanceolate, the inner surface glabrous or hirsute toward tip, the outer surface moderately hirsute, the hairs yellowish brown, about 0.5 mm. long, the margins ciliate with ascending hairs, the bracts 18 mm. long and 3 mm. wide near base, acute, the bractlets slightly longer than the bracts, 1 to 2 mm. wide, acuminate, both bracts and bractlets obscurely nerved; calyx 17 mm. long, the segments 5, lanceolate, 15 mm. long, 2 mm. wide at middle, gradually narrowed to a slender tip, strigose within, hirtellous without, the hairs yellowish, about 0.3 mm. long, the costa and lateral veins obscure; corolla 6.5 cm. long, pale purple ("cárdeno pálida," Cuatrecasas) or bright rose (Klug), the tube rather gradually ampliate upwardly, the basal portion (5 mm. long) 2 mm. in diameter, thence expanding to 6 mm. at throat, sparingly and finely pubescent, some of the hairs glandular, the upper lip erect, oblong-ovate, up to 37 mm. long and 8 mm. wide near base, gradually narrowed to 2 mm. at the rounded subtruncate tip, the lower lip spreading, 7 mm. wide near tip, gradually narrowed to 5 mm. at base, the 3 lobes ovate, 4 mm. long and 3 mm. wide, rounded; stamens reaching to 7 mm. below tip of the upper lip of the corolla, the filaments flat, glabrous or sparingly and minutely hirtellous toward
base, the anther cells slightly superposed, 2.5 mm. long, 1.25 mm. broad, caudate at base, the tails whitish, about 0.5 mm. long; pistil extending about 5 mm. beyond the stamens, the stigma capitate; ovary glabrous.

Type in the U. S. National Herbarium, No. 1798530, collected in the wet forests along the Río Putumayo at Puerto Ospina, Comisaría of Putumayo, Colombia, 230 meters altitude, November 14, 1940, by J. Cuatrecasas (No. 10581).

Caquetá: Florencia, December 1930 Pérez-Arbeláez 746 (US).
Santander: San Gil, Apolinar-Maria 92 (GII). Forests of Soto, Schlim 1093 (K).
Justicia sanchezioides is easily recognized by its inflorescence of unilateral spikes, the narrow bracts and bractlets (these similar), the large pink flowers, and large glabrous leaf blades.

39. Justicia homoea Leonard, sp. nov.

Syruphe gracilis, caulibus subquadrangularibus (angulis rotundatis), minute et antrorse strigosis, pilis aureo-brunneis; lamina foliorum oblongo-ovata, apice breviter acuminata, basi subobtusa, firma, undulata vel leviter et obscure crenulata, utrinque glabra, costa et venis subtus conspicuis parce strigosis excepta, venulis graciliter reticulatis, cystolithis pluribus et conspicuis; petioli aliquanto longi, minute strigosii, pilis aureo-brunneis; spicae magnae, binae vel ternae, densae, axillares et terminales, bracteis quadrifariis, pedunculis et rhachibus subquadrangularibus, dense hirtellis, pilis ascendentibus, rigidis, rectis; bracteae paululum paulo ovatae, acutae, sessiles, valde parallelo-nervatae, aliquanto dense puberulae, pilis subpapilliformibus, vel pilis paulo longioribus eglandulosis praeditae, marginibus ciliatis; bracteae similes sed minores; calycis segmenta linearis lanceolata, acuta, puberula, pilis pilosis glandulosis et pilis longioribus eglandulosis intermixtes; corolla rosea, dense et retrose hirtella, pilis rigidis, tubo subcylindrico, labiis subaequalibus, labio superiore erecto, oblongo-ovato, apice rotundato, labio inferiore valde recurvato, cuneato, trilobato, lobis ovatis, rotundatis; stamina vix exserta, filamentis sursum glabris, basi auriculatis, dense pilosis, pilis rectis, patulis, subalbidis, antheris glabras, lobis verticalibus superpositis, lobo inferiore caudato; ovariun glabrum.

Slender shrubs up to 2 meters high; stems subquadrangular, the angles rounded, minutely and antrorsely strigose, the hairs up to 0.2 mm. long, golden brown; leaf blades oblong-ovate, up to 26 cm. long and 11.5 cm. wide, short-acuminate, subobtuse at base, firm, undulate or shallowly and indistinctly crenate, both surfaces glabrous except the costa and lateral veins, these conspicuous especially beneath and sparingly strigose, the hairs up to 0.24 mm. long, the veinlets delicately reticulate beneath, the cystoliths numerous and conspicuous under a lens, up to 0.32 mm. long; petioles up to 4 cm. long and 2.75 mm. thick, minutely strigose with yellowish hairs; flowers borne in dense axillary and terminal spikes, these borne in pairs or in threes, up to 10 cm. long and 13 mm. thick, the bracts quadrifarious, the peduncles about 1 cm. long, these and the rachis subquadrangular, densely hirtellous with yellowish ascending straight rigid hairs up to 0.2 mm. long; bracts slightly obovate, 11 mm. long, 4.25 mm. wide slightly above the middle, acute, sessile, strongly parallel-nerved (4 to 6 pairs of lateral nerves), rather densely puberulous with erect straight glandular subpapillate hairs up to 0.03 mm. long and bearing
toward tip a few additional ascending eglandular hairs up to 0.24 mm.
long, the inner surface essentially glabrous, the margins ciliate with
hairs about 0.16 mm. long; bractlets similar but smaller (6.5 mm.
long, 2 mm. wide); calyx 1 cm. long, the segments linear-lanceolate, 8.5 mm.
long, 1.5 mm. wide, the pubescence similar to that of the bracts and
bractlets; corolla rose color, 2.3 cm. long, densely and retrorsely
hirtellous with rigid hairs up to 0.16 mm. long, the tube rather narrowly
cylindric, 2.5 mm. broad at base, narrowed at 5 mm. above base to
1.5 mm., thence enlarged to 2 mm. at the throat, the lips subequal,
8 mm. long, the upper lip erect, oblong-ovate, about 4 mm. wide near
base, 1 mm. wide at tip, rounded, the lower lip strongly recurved,
cuneate, about 6 mm. wide at base of the lobes, these 3, ovate, 3.5 mm.
long, the middle one 2 mm. wide, the lateral ones slightly narrower, all rounded; stamens reaching tip of the upper lip of the corolla, the filaments flat, glabrous except the auriculate base, the auricles densely pilose with straight spreading whitish hairs about 0.32 mm. long, the anthers 3.5 mm. long, 0.75 mm. broad, glabrous, the cells superposed and vertically attached to the connective, the cells about equal in length, the lower one caudate, the tail about 0.75 mm. long and 0.25 mm. wide, rounded at tip; style exserted about 5 mm. beyond the mouth of the corolla tube, glabrous toward tip, hirtellous toward base, the stigma minute, subcapitate; ovary glabrous except the hirsute tip, the hairs ascending, up to 0.32 mm. long, capsules not seen.

Type in the U. S. National Herbarium, No. 1995082, collected in wet forest southeast of Chigorodo, 40 km. south of Turbo, Department of Antioquia, Colombia, 50 meters altitude, April 15, 1945, by Oscar Haught (No. 4565).

*Justicia homoea* has the same habit and general appearance as *J. phlebophylla* Leonard (Haught, No. 4564); in fact, plants of the two species were growing in the same colony. Both are slender shrubs 2 meters high, with large, almost glabrous, veiny leaves bearing numerous conspicuous cystoliths. The spikes of the two species are, however, definitely dissimilar. Those of *J. homoea* have oblong, slightly obovate, strongly nerved bracts up to 11 mm. long and 4.25 mm. wide and the flowers are 4-ranked; in *J. phlebophylla* the flowers are secund and the bracts are ovate and 3 mm. long and 1.5 mm. wide. The corolla of the latter is purple, marked with light lines; that of *J. homoea* is rose color. The specific epithet is from the Greek word διομή, meaning similar, in allusion to its resemblance to *J. phlebophylla*.

40. *Justicia filibracteolata* Lindau

*Justicia filibracteolata* Lindau, Bull. Herb. Boiss. 5: 673. 1897. Type collected along the Rio Guacaica near Manizales, Department of Antioquia, Colombia, 1,800 meters altitude, September 14, 1883, by F. C. Lehmann, No. 3094. Photograph of type (B) in the U. S. National Herbarium (Field Mus. No. 8826).


Herbs rarely over 1 meter high, erect or ascending, simple or moderately branched; stems obscurely quadrangular, shallowly sulcate, at least above, glabrous or sparingly puberulous, the hairs curved and subappressed, about 0.25 mm. long, disposed more or less in 2 rows, the internodes of the stems up to 12 cm. long but usually 6 cm. or less; leaf blades lanceolate, up to 20 cm. long and 6 cm. wide but averaging 15 cm. in length and 3 cm. in width, acuminate, often slenderly so (the tip itself acute or obtuse), narrowed at base, rather thin, entire or undulate, the upper surface glabrous or sparingly to
moderately hirsute, the hairs up to 0.75 mm. long, more or less curved, the lower surface glabrous or very sparingly hirtellous or occasionally rather densely so, the hairs curved, up to 0.38 mm. long, the costa and lateral veins (9 or 10 pairs) prominent, the cystoliths of both surfaces small but rather prominent under a lens, up to 0.2 mm. long; petioles 1 to 1.5 cm. long or occasionally up to 4 cm. long, the channels more or less densely puberulous with curved hairs; flowers borne in dense panicles usually up to 10 cm. long and 3 cm. broad, the flowers and bracts more or less secund, the rachises and peduncles rather densely puberulous, the hairs retrorsely curved, about 0.1 mm. long, the peduncles 2 to 6 cm. long, the lower branches of the panicle often borne in the axils of the uppermost leaf blades; bracts subulate, usually up to 12 mm. long, 0.5 mm. wide at base, keeled, glabrous or sparingly hirtellous, the hairs up to 0.2 mm. long, brownish; bractlets subulate, up to 3 mm. long and 0.25 mm. wide, glabrous or sparingly hirtellous; calyx 1 cm. long, deeply segmented, the segments lanceolate, 9 mm. long, 1.5 mm. wide slightly above middle, rather densely hirtellous, the hairs straight, brownish, up to 0.3 mm. long, the costa, veins and reticulated veinlets prominent; corolla 2 to 4 cm. long, pink, purple, violet or lilac, glabrous below, finely pilose toward tip, the hairs spreading, up to 0.4 mm. long, the nerves conspicuous, the tube 1 cm. long, 2.5 mm. broad at base, gradually enlarged to 4 mm. at mouth, the upper lip oblong-elliptic, more or less erect, 12 mm. long, 4 mm. wide at middle, plicate, dorsally pilose, minutely glandular-puberulous on the upper surface, rounded and emarginate at tip, the lower lip ovate, spreading, 13 mm. long, 9 mm. wide, transversely fluted, saccate, 3-lobed, the lobes ovate, rounded, 3 mm. long, 2.5 mm. wide; stamens exserted 8 mm. beyond the mouth of the corolla, the filaments glabrous or bearing a few hairs near the base, the staminal plaits densely and retrorsely pilose, the anther lobes slightly superposed, the connective 0.75 mm. broad, the upper lobe 1.5 mm. long, 0.75 mm. broad, white-puberulous on margin, muticous and subapiculate at base, the lower cell 1 mm. long and 0.5 mm. broad, white-puberulous on margin, tipped by a white tail about 0.2 mm. long; style 17 mm. long, glabrous, the stigma minutely bilobed; capsule short-clavate, 8 mm. long, 3 mm. broad, 2.5 mm. thick (the solid basal portion 3.5 mm. long), rather sparingly and finely puberulous, the hairs white, up to 0.15 mm. long, retrorsely ascending except at tip of capsule, there spreading; retinacula 2 mm. long, curved, the tip thin, obtuse, subcucullate, minutely lacerate; seeds 4, ovate, flattened, 2.5 long, 2 mm. broad, about 0.5 mm. thick, glabrous, the margin recurved over a concave surface and bordered by a row of flattened hairs up to 0.2 mm. long, these merging to form a thin lamina toward base of seed.
The species is partial to forests and thickets, often growing along streams. It occurs at various altitudes (50 to 2,000 meters) but seems to be most common between 1,000 and 2,000 meters.


**Caldas:** La Sombra, east of Apia, Pennell 10273 (GH, NY). Río Quindío, above Armenia, Pennell, Killip & Hazen 8597 (GH, Ph, NY, US).

**Caucó:** Cupica, Fernández 350 (US). Quebrada Guarapo, near Andagoya, Killip 35198 (US).


**El Valle:** Valley of Albán, between Quebradita del Retiro and Río Albán, Cuatrecasas 22620 (US). Cuchilla, east of Zarjal, Pennell, Killip & Hazen 8505 (GH, NY, US).

**Meta:** Macoya Guáfa, Río Meta, Cuatrecasas 4139 (Col).

**Norte de Santander:** Vicinity of Chinágota, Killip & Smith 20507 (US). Villamarina, between Pamplona and Cúcuta, Garganta-Fábrega 782 (US).


**Tolima:** Buenavista, Triana s.n. (Col, NY). Libano, Pennell 3390 (GH, NY, US).

**Without locality:** Mutis 1512 (US).

**KEY TO THE VARIETIES**

- Stems glabrous, puberulous or sparingly hirtellous.
  - Leaf blades lanceolate, acuminate (usually slenderly so) narrowed at base; corollas pink, red, purple or red-violet. \( \text{var. filibracteolata} \)
  - Leaf blades ovate to oblong-ovate, obtuse or short-acuminate at tip, rounded or abruptly narrowed at base; corollas blue. \( \text{var. azurea} \)
- Stems rather densely pilose or hirsute, the hairs more or less disposed in two lines.
  - Inflorescence conspicuously gray-pilosulous. \( \text{var. pubescens} \)
  - Inflorescence not gray-pilosulous, the hairs brownish.
    - Corollas white. \( \text{var. leucantha} \)
    - Corollas orange-yellow. \( \text{var. aurantiaca} \)
    - Corollas lilac. \( \text{var. lilacina} \)

**40a. Justicia filibracteolata** Lindau var. azurea Leonard, var. nov.

Herba, caulibus subquadrangularibus, puberulis, pilis retrorse curvatis; lamina foliorum ovata vel oblongo-ovata, obtusa, vel acuta vel breviter acuminate (apice ipso acuto), basi rotundata vel acuta, in petiolum decurrens, utrinque glabra vel costa et venis parce puberulis; bracteae et bracteolae et calycis segmenta minute hirtella et ciliolata; corolla azurea.

Herbs about 1.8 meters high, stems subquadrangular, puberulous, the hairs retrorsely curved; leaf blades ovate to oblong-ovate, obtuse, acute, or short-acuminate (the tip itself acute), rounded or narrowed.
at base and decurrent on the petiole; petioles up to 2 cm. long, puberulous with recurved hairs; rachises, bracts, bractlets and calyx segments minutely hirtellous and ciliolate; corolla blue.

Type in the U. S. National Herbarium, No. 1772289, collected in thicket along the Río Dagua, near Cisneros, Department of El Valle, Colombia, 300 to 500 meters altitude, May 5, 1939, by E. P. Killip (No. 35589).

40b. *Justicia filibracteolata* Lindau var. *pubescens* Lindau

*Justicia filibracteolata* Lindau var. *pubescens* Lindau, Bull. Herb. Boiss. 5: 674. 1897. Type collected in the vicinity of Ocaña, Department of Norte de Santander, Colombia, 3,500 meters altitude, by L. Schlim, No. 196.

Suffrutescent subscandent herbs up to 1 meter high or more; stems and leaf blades moderately to rather densely hirsute, the hairs up to 0.6 mm. long, more or less curved, spreading or ascending; bracts, bractlets, and calyx densely gray-pilosulous, the hairs more or less spreading, white, up to 0.5 mm. long; calyx segments often purple; corolla pinkish red to bright red.

*Justicia filibracteolata* var. *pubescens* is a forest plant usually found between 1,600 and 2,200 meters altitude.


Herba, caulibus subquadrangularibus, dense bifariam pilosis, pilis retrorsse curvatis; lamina foliorum magna, oblongo-elliptica; corolla alba.

Suffrutescent herbs up to 1 meter high or more; stems subquadrangular, pilose, the hairs retrorsely curved, disposed in two lines, brownish, up to 1 mm. long; leaf blades oblong-elliptic, up to 20 cm. long and 9 cm. wide, short-acuminate (the tip itself acute), narrowed at base and decurrent on the petiole, the upper surface glabrous to sparingly pilose, the lower surface more densely so, the hairs of both surfaces brownish, up to 1.5 mm. long, subappressed to ascending, more numerous on costa and veins of the lower leaf-surface than elsewhere; corolla white; capsules densely puberulous, in other respects similar to the typical variety.

Type in the U. S. National Herbarium, No. 1853617, collected at 500 meters altitude at Villavicencio, Intendencia of Meta, Colombia, by J. Cuatrecasas (No. 4513). Isotype in the U. S. National Herbarium, No. 2056178.
The following also represent the variety:

**Cundinamarca:** Moist forest between Pipiral and Susumuco, southeast of Quetame, Pennell 1714 (GH, NY).

**Meta:** Dense humid forests on the bank of Río Guapaya, Sierra de la Macarena, Philipson, Irobebo & Fernández 1550 (BM, US). Rich soil of damp rocky woods along the Río Guatiquia, vicinity of Villavicencio, Araque & Barkley 18M.015 (US); 18M.026 (US); 18M.027 (US). Ocoa, near Villavicencio, Schiefer 828 (GH). Villavicencio, Killip 34355 (US); Sprague 139 (K). Along the Río Guamal between Acacias and San Martín, 430 meters altitude, Uribe-Uribé 1320 (US).

The heavy brownish bifarious pilosity of the stems, the large oblong-elliptic short-acuminate leaf blades, and the white corollas are characters of *Justicia filibracteolata* var. *leucantha* which readily separate it from the typical variety. Pennell’s No. 1714 was collected between 1,100 and 1,300 meters, the other specimens cited were from between 350 and 500 meters. The specific epithet *leucantha* is from the Greek λευκός, white, and ἄνθος, flower.

40d. **Justicia filibracteolata** Lindau var. *aurantiaca* Leonard, var. nov.

Suffrutex, caulibus subquadrangularibus, pilosis, pilis brunneis, plus minusve bifariam dispositis; lamina foliorum plus minusve dense pilosis; corolla aurantiaca.

Suffrutescent; stems subquadrangular, these and the rachises rather densely pilose, the hairs brownish, up to 2 mm. long, more or less disposed in two rows; leaf blades oblong-lanceolate, up to 17 cm. long and 6 cm. wide, acute or short-acuminate, narrowed at base and decurrent on the petiole, both surfaces pilose, the younger leaves densely so, the hairs brownish, up to 1.5 mm. long, subappressed to spreading; petioles about 1 cm. long, pilose at least above; bracts and calyx segments conspicuously ciliate, the hairs up to 0.75 mm. long, mostly spreading, brownish; corollas orange-yellow.

Type in the U. S. National Herbarium, No. 1773531, collected at Villavicencio, Intendencia of Meta, Colombia, 500 meters altitude, November 11, 1938, by J. Cuatrecasas (No. 4701).

*Justicia filibracteolata* var. *aurantiaca* seems to be more closely related to the variety *pubescens* than to the typical variety.

40e. **Justicia filibracteolata** Lindau var. *lilacina* Leonard, var. nov.

Herba vel suffrutex, caulibus plus minusve bifariam pilosa, pilis brunneis, lamina foliorum saepe magna, oblongo-elliptica, acuta vel breviter acuminata; corolla lilacina.

Herbs becoming suffrutescent; stems subquadrangular, pilose, the hairs brownish, curved, up to 1 mm. long, more or less disposed in two rows; leaf blades oblong-elliptic, up to 20 cm. long and 8.5 cm. wide, acute or short-acuminate, narrowed at base and decurrent on the petiole; corollas lilac.
Type in the U. S. National Herbarium, No. 1799251, collected in woods between Sucre and La Portada, Comisarfa del Caquetá, Colombia, 1,200 to 1,350 meters altitude, April 5, 1940, by J. Cuatrecasas (No. 9147).

Meta: Stones on river bank, Río Guapaya, Sierra de la Macarena, 450 meters altitude, November 29, 1949, Philipson, Idrubo & Fernández 1627 (BM, US); 1634 (BH).


41. Justicia porphyrocoma Leonard, sp. nov. Figure 216

Herba vel suffrutex, ascendens, in nodis radicans, caulisibus subquadrangularibus, deorsum glabris, sursum retrorse pilosis, pilis septatis; lamina foliorum oblongo-elliptica, acuta vel acuminata, basi angustata, supra dense pilosa, pilis purpureis, curvatis, ascendentibus, conspicue septatis, subtus plus minusve glabra, costa et venis hirtellis, pilis parvis, patentibus, cystolithis obscuris; petioli graciles, plus minusve pilosi; spicae terminales, pedunculo aliquanto longo, quadrangulari, bifariae hirsute, pilis ascendentibus, rhachis glabra vel parce hirtella; bracteae lanceolatae, acutae, glabrae, cystolithis minute, parallelis, conspicuis; bracteolae lanceolatae, glabrae vel apice hirtellae; calycis segmenta anguste lanceolata, acuminata, glabra, marginibus minute ciliolatis exceptis, pilis ascendentibus, cystolithis plus minusve conspicuis; corolla ignota; capsulae clavatae, glabrae; retinacula angusta, curvata, apice acuta; semina plana, subbrunnea, muricata.

Herbs or suffrutescent plants up to 60 cm. high or more, ascending, rooting at the nodes; stems subquadrangular, about 4 mm. in diameter near base, the lower parts glabrous, the upper parts retrorsely pilose, the hairs up to 0.6 mm. long, conspicuously septate; leaf blades oblong-elliptic, up to 10 cm. long and 2.5 cm. wide, acute to acuminate, narrowed at base, the upper surface rather densely pilose, the hairs purplish, curved, ascending, up to 0.75 mm. long, conspicuously septate; the lower surface more or less glabrous except the costa and veins (about 8 pairs), these hirtellous, the hairs ascending, about 0.28 mm. long, the cystoliths obscure; petioles up to 1.5 cm. long, rather slender, more or less pilose; flowers borne in terminal spikes up to 6 cm. long and 15 mm. broad; peduncles 2 to 3 cm. long, quadrangular, bifariae hirsute, the hairs ascending, the rachis glabrous or sparingly hirtellous; bracts lanceolate, about 5 mm. long and 2 mm. wide, acute, glabrous, the cystoliths minute, parallel, conspicuous; bractlets lanceolate, about 6.5 mm. long and 1.5 mm. wide, acute, glabrous or hirtellous near tip; calyx 22 mm. long, glabrous, deeply segmented, the segments narrowly lanceolate, 1.5 mm. wide, acuminate, minutely ciliolate, the hairs ascending, the cystoliths more or
less conspicuous; corollas not seen; capsules clavate, 18 mm. long, 4 mm. broad, 3 mm. thick, glabrous, the retinacula 2 mm. long, curved, narrow, acute at tip; seed (immature) ovoid, flattened, about 2 mm. long and 1.5 mm. wide, brownish, muricate.

Figure 216.—Justicia porphyrocoma Leonard, sp. nov. (Ariste-Joseph "B"): a, Tip of plant to show leaves and inflorescence; b, a hair from the upper surface of a leaf blade; c, node of inflorescence to show a bract and bractlet; d, a small portion of a bract to show cystoliths and ciliolated margin; e, a calyx segment; f, valve of a capsule, dorsal view. (a, Natural size; b, 25 times natural size; c, 2½ times natural size; d, about 9 times natural size; e, 1⅔ times natural size; f, twice natural size.)

Type in the U. S. National Herbarium, No. 1122813, collected at Paime, Department of Cundinamarca, Colombia, 1922, by Bro. Ariste-Joseph (No. "B").

The specific epithet is from the Greek πορφυρός, purple, and κύμη, hairs, in allusion to the pubescence of the upper surface of the leaf blades.
42. *Justicia periplocifolia* Jacq.

*Justicia periplocifolia* Jacq. Collect, Suppl. 5, pl. 7, fig. 2. 1796. Type collected at Caracas, Venezuela, by Jacquin. Photograph of type in the Vienna Herbarium in the U. S. National Herbarium (Field Mus. No. 32730).

*Justicia reflexiflora* Vahl, Enum. 1: 157. 1804. Type collected on gravelly mountain, St. Thomas, West Indies, by Richard.

*Adhatoda periplocifolia* Nees in DC. Prodr. 11: 395. 1847. Based on *Justicia periplocifolia* Jacq.

*Adhatoda reflexiflora* Nees in DC. Prodr. 11: 398. 1847. Based on *Justicia reflexiflora* Vahl.

Suffrutescent plants, sometimes weakly clambering over small bushes; stems terete or the upper portions obscurely quadrangular, glabrous or the nodes bearing a few minute curve subappressed hairs; leaf blades usually narrowly lanceolate, but sometimes oblanceolate, up to 16 cm. long and 2.5 cm. wide, acuminated, often slenderly so, narrowed, obtuse or rounded at base, moderately firm, entire or undulate, both surfaces glabrous or the costa and lateral veins (5 or 6 pairs) sparingly puberulous, the hairs subappressed, up to 0.15 mm. long, the venation obscure, the cystoliths minute and inconspicuous; petioles up to 1 cm. long, minutely puberulous; flowers sessile, axillary or the uppermost forming dense to lax spikes, these sometimes up to 6 cm. long and 2.5 cm. broad; bracts and bractlets subequal, linear-lanceolate, 15 mm. long, the bracts 1.5 mm. wide, the bractlets 1 mm. wide, both bracts and bractlets slenderly acuminate, sparingly hirtellous, the hairs ca. 0.2 mm. long, usually some of them glandular; calyx 12 mm. long, deeply segmented, sparingly hirtellous, the segments lanceolate, 1.5 mm. wide, slenderly acuminate, white-margined; corolla up to 4.5 cm. long, rose-red, sparingly pubescent, the hairs up to 0.2 mm. long, some of them glandular, the corolla tube up to 2.5 cm. long, 3 mm. broad at base, narrowed at 4 mm. above base to 2 mm., thence gradually enlarged to 5.5 mm. at mouth, the upper lip conical-ovate, 2 cm. long, erect, 8 mm. wide at base, 1.5 mm. wide at tip, rounded or shallowly emarginate, the lower lip spreading, oblong, 10 mm. wide, trilobate at tip, the lobes ovate, 7 mm. long, 4 mm. wide at base, rounded; stamens exerted 15 mm. beyond mouth of the corolla, the filaments flat, glabrous, the anther lobes superposed, the connective 0.5 mm. wide, the upper lobe 2.5 mm. long, 1 mm. wide, the lower 3.5 mm. long and 1 mm. wide, the base tipped by a white blunt sigmoid tail 1 mm. long and 0.5 mm. wide; style reaching tip of stamens, glabrous or bearing a few minute hairs toward base; capsules clavate, 15 mm. long, 6 mm. broad, 5 mm. thick (the solid basal portion flat, 7 mm. long, 4 mm. wide), obtuse, finely puberulous; retinacula 2.5 mm. long, the tip flat and bidentate; seed subspherical, 3 mm. in diameter, 2 mm. thick, minutely gray tomentose, the coating deciduous leaving the seed reddish brown to black, smooth and nitid.
Occasional in northern South America but more general in México and the West Indies. Thickets, slopes, and banks, limited more or less to coastal regions.

_Arauca:_ Río Casanare, Barranco de Atahuarpa, altitude 120 meters, _Cuatrecasas_ 4269.

43. _Justicia sciota_ Leonard, sp. nov.  

_Branch, caulibus subquadrangularibus, glabris; lamina foliorum oblongo-elliptica, breviter acuminata (apice ipso obtuso), basi angustata, firma, integra, utrinque glabra vel costa et venis prominentibus, puberulis, cystolithis prominentibus; petioli glabri; spicae axillares, solitariae vel binae, graciles, pedunculis et rhachibus minute et parce strigosae; bracteae subulatae, subcarinatae, parce strigosae; bracteolae anguste triangulares, acutae, parvae; calycis segmenta parva, triangulares, acuta, ciliata; corolla alba, puberula, tubo aliquanto angusto, labiis subequalibus, labio superiore triangulo-ovato, apice rotundato et emarginato, labio inferiore oblongo, trilobato, lobis oblongo-ovatis, apice rotundatis; stamina vix exserta, filamentis glabris, lobis antherarum superpositis, rectis, glabris, lobo inferiori subacuto; ovarium glabrum.

Herbs up to 130 cm. high; stems subquadrangular, glabrous; leaf blades oblong-elliptic, up to 20 cm. long, 7 cm. wide, short-acuminate (the tip itself blunt), narrowed at base, firm, entire, both surfaces glabrous or the costa and lateral veins (7 or 8 pairs) sparingly puberulous, the hairs curved, about 0.2 mm. long, the venation rather prominent, more so beneath than above, the cystoliths prominent beneath, up to 0.2 mm. long, obscure above; petioles up to 15 cm. long, glabrous; spikes solitary or in pairs, up to 4 cm. long and 8 mm. broad, rather dense, the peduncles (up to 3 cm. long) and rachises minutely and sparingly strigose, the hairs up to 0.1 mm. long; bracts subulate, subcarinate, 5 mm. long, 0.5 mm. wide near base, sparingly strigose, the hairs about 0.1 mm. long; bractlets narrowly triangular, 1.5 mm. long, 0.5 mm. wide at base, sharply acute, ciliate; calyx 3 mm. long, the segments nearly triangular, 0.75 mm. wide at base, sharply acute, ciliate, bearing several small trichomes at tip; corolla white, puberulous, up to 38 mm. long, the tube 2.5 mm. broad at base, narrowed to 1.5 mm. at 3 mm. above base, thence gradually enlarged to 5 mm. at mouth, the lips up to 11 mm. long, the upper lip triangular ovoid, 5 mm. wide at base, emarginate and rounded at tip, the lower lip oblong, 5 mm. wide at base, 3-lobed at tip, the lobes oblong-ovate, about 8 mm. long, the middle lobe 4 mm. wide, the lateral slightly narrower, all rounded; stamens exserted about 10 mm. beyond mouth of corolla, the filaments glabrous the anthers superposed, almost vertically attached, the connective 1.5 mm. long between points of...
attachment and 0.5 mm. wide, the lobes 2.25 mm. long, 0.5 mm. broad, glabrous, the lower lobe subacute at base; ovary glabrous; capsule not seen.

Type in the Herbarium of the Missouri Botanical Garden, No. 1014436, collected in forest at Poponte, in the Magdalena Valley.

Figure 217.—Justicia sciota Leonard (Cyril Allen 844): a, Tip of plant showing inflorescence and leaf blade; b, bract, bractlet and calyx; c, bractlet enlarged to show pubescence; d, calyx segment; e, corolla; f, anther. (a, Half natural size; b, 3 1/2 times natural size; c, d, 6 times natural size; e, natural size; f, 4 times natural size.)

Department of Magdalena, Colombia, December 12, 1924, by Cyril Allen (No. 844). Isotype: K.

The specimens examined had dried to a dark olive-black color. The corollas of the Kew specimens were much smaller (about 24 mm. long) than those of the Missouri sheet. The specific epithet is from the Greek σκιωτός, meaning shaded.
44. Justicia phlebophylla Leonard, sp. nov.

Frutex gracilis, caulibus quadrangularibus, sursum minute antorse strigosis, pilis subflavis, deorsum glabris; lamina foliorum oblongo-ovata vel elliptica, apice acuta vel breviter acuminata, basi acuta vel obtusa vel rotundata, firma et aliquanto chartacea, glabra vel subtus in costa minute strigosa, cystolithis pluribus et conspicuis; petioli crassi, glabri vel parce et minute strigosi; spicae solitariae vel plures, terminales, floribus secundis dense praeditae, pedunculis minute strigosis vel subglabris, rhachis dense puberula, pilis brunneis; bracteae arcte appressae, ovatae, acutae, valde 5-7-nervatae, puberulae; bracteae flores subtendingentes triangulares, acutae, striato-nervatae, minute hirsutae et ciliolatae; bracteolae triangulares, acutae, ciliolatae; calycis segmenta lineari-lanceolata, acuta vel subacuta, obscure striata, graciliter et parce pubescentia et ciliata; corolla aliquanto parva, purpurea, in fauce albo-lineata, tubo subcylindrico, labio superiore erecto, triangulo-ovato, apice acuto, labio inferiore patulo, 3-lobato, lobis rotundatis; stamina exserta, filamentis in margine pilis minutis glandulosis praeditis, lobis antherarum superpositis, rectis, lobo inferiore breviter albo-calcarato; ovarium acipe pubescentum.

Slender shrub; stems quadrangular, glabrous below, the upper portions minutely and upwardly strigose, the hairs yellowish, up to 0.11 mm. long; leaf blades oblong-ovate to elliptic, up to 20 cm. long and 10.5 cm. wide, acute or short-acuminate, acute, obtuse or rounded at base, firm and somewhat chartaceous, both surfaces glabrous or the costa beneath minutely and inconspicuously strigose, the cystoliths numerous and conspicuous; petioles up to 5.5 cm. long and 2.25 mm. thick, glabrous or sparingly and minutely strigose; spikes one to several, terminal, up to 8 cm. long and 1 cm. broad, densely flowered, the peduncles up to 4 cm. long, minutely strigose to subglabrous, the rachis densely brown-puberulous with hairs up to 0.2 mm. or occasionally longer, the flowers secund; sterile bracts opposite the flowers closely appressed to the rachis, ovate, 3 mm. long, 1.5 mm. wide near base, acute, strongly 5- to 7-nerved, puberulous like the rachis; bracts subtending the flowers triangular, 3 mm. long, 1.5 mm. wide at base, acute, striate nerves, minutely hirsute and ciliolate; bractlets triangular, 1.75 mm. long, 0.5 mm. wide at base, acute, ciliate, the basal hairs up to 0.5 mm. long, otherwise glabrous or nearly so, the cystoliths minute but conspicuous on both bracts and bractlets; calyx 1 cm. long, the segments subulate, 6-8 mm. long, 0.5-1 mm. wide, acuminate, striate, finely and sparingly pubescent and ciliate, the hairs up to 0.25 mm. long; corolla 3 cm. long, rather densely pubescent with hairs variously curved and about 0.16 mm. long, purple with light lines on the medial inner surface of lips and throat, the corolla tube 2 mm.
broad at base, narrowed to 1.5 mm. at 4 mm. above base, thence gradually enlarged to 5 mm. at mouth, the upper lip erect, triangular, about 5 mm. wide at base, gradually narrowed to a slender tip, the lower lip spreading, oblong with narrowed base, 6.5 mm. wide, trunc-
the lobes superposed, 1.5 mm. long, vertically attached to the connective, the lower lobe terminating in a blunt white spur 0.5 mm. long; ovary pubescent at tip; capsules not seen.

Type in the U. S. National Herbarium, No. 1995081, collected along a stream in wet forest southeast of Chigorodo, 40 km. south of Turbo, Department of Antioquia, Colombia, 50 meters altitude, April 15, 1945, by Oscar Haught (No. 4564).

Antioquia: Dense damp forests between Río Guapá and Río León, 100 meters altitude, March 18, 1948, Eduardo Ruiz Landa, Rafael Rivera, & Fred A. Barkley 18C.430 (US). Trail through rain forests near Villa Arteaga, 150 meters altitude, December 6, 1948, F. López & M. J. Sanches 41 (US); August 4 to 8, 1947, W. H. Hodge 6978 (US).

The dense spikes, with small triangular bracts, the slender calyx segments, and the relatively large, papery, conspicuously veiny leaf blades covered with cystoliths are the distinguishing characteristics of J. phlebophylla. The specific epithet is from the Greek φλυ, vein, and φύλλον, leaf.

45. Justicia malacophylla Leonard, sp. nov.  

Figure 219  

Frutex, caulibus subquadangularibus, sursum dense hirtellis vel plus minusve tomentosis, pilis appressis vel ascendentibus vel patulis, deorsum teretibus, glabratis, cortice cinereo, nodis tumidis; lamina foliorum lanceolato-ovata, breviter acuminata (apice ipso obtuso), basi angustata, firma, integra vel undulata, supra hirsuta, pilis ascendentibus vel subappressis, costa et venis lateralis dense hirsutis, pilis patulis, subbrunneis, subtus dense et molliter hirsuta, pilis rectis vel leviter curvatis, patulis, subbrunneis, costa et venis prominentibus, cystolithis utrinque subter pilis obscuris; petioli dense hirsuti; paniculae terminales, foliosae, ramis spicatis, erectis vel suberectis; pedunculi et rhaches dense et molliter hirsuti, pilis subbrunneis ascendentibus; bracteae lanceolatae, apice obtusae, dense hirsutae; bracteolarum similes sed angustiores; calycis segmenta 5, lanceolata, acuminata, aliquanto dense hirtella, saepe erecta; corolla aliquanto magna, rubra, minute pubescens, pilis rectis, patulis, tubo anguste infululiformi, labiis subaequalibus, labio superiore oblongo-ovato, apice bilobato, lobis rotundatis, marginibus subhyalinis et glabris, labio inferiore suberecto, 3-lobato, lobis oblongis, apice rotundatis; stamina exserta, filamentis glabris, lobis antherarum superpositis, recte ad connectivo annexis, lobo inferiore breviter caudato; capsulae clavatae, subobtusae, glabrae, retinaculis curvatis, oblongis, apice rotundatis; semina (immatura) brunnea, plana, muricata, glabra.

Shrubs; stems hirtellous or more or less tomentose, densely so near the tips, the hairs appressed, ascending or spreading, 0.3 to 0.5 mm.
long, the main stems terete, glabrate, up to 6.5 mm. in diameter or more, the bark gray, the nodes swollen; leaf blades lance-ovate, up to 10.5 cm. long and 4 cm. wide, short-acuminate (the tip itself obtuse), narrowed and acute at base, firm, entire or undulate, the upper surface hirsute, the hairs ascending to subappressed, up to 0.5 mm. long, the costa densely hirsute with brownish spreading hairs, it and the

Figure 219.—*Justicia malacophylla* Leonard (*Cuatrecasas 20941*): *a*, Tip of plant to show leaves and inflorescence; *b*, node and basal portion of branch from lower part of stem; *c*, portion of under side of leaf blade enlarged to show pubescence; *d*, node of inflorescence to show calyx and scars left by fallen bracts and bractlets (one bractlet remaining); *e*, node of inflorescence from near the tip to show bract and bractlets; *f*, corolla; *g*, anther. (*a*, Natural size; *b*, about half natural size; *c–e*, twice natural size; *f*, 1½ times natural size; *g*, about 6 times natural size.)
lateral veins obscure, the lower surface densely and softly hirsute, the hairs straight or slightly curved, 0.5 mm. long, light brownish, erect, the costa and lateral veins prominent, the cystoliths of both surfaces obscured by the pubescence; petioles 5 to 15 mm. long, densely hirsute; flowers borne in leafy panicles of erect or suberect spikes up to 11 cm. long and 8 mm. broad (excluding corollas), the panicles up to 17 cm. long and 6 cm. broad, the peduncles up to 2.5 cm. long, the lowermost internodes of the rachis 5 mm. long, the others successively shorter toward tip of spikes, both peduncle and rachis densely and softly hirsute with light brownish ascending hairs; bracts lanceolate, 8 mm. long, 2.25 mm. wide, obtusish at tip, densely and softly hirsute; bractlets 1.25 mm. wide, in other respects similar to the bracts; calyx 6.5 mm. long, deeply divided into 5 segments, these lanceolate, 1.75 mm. wide near base, acuminate, rather densely hirtellous, erect or appressed to the ovary; corolla up to 4.7 cm. long, red, minutely pubescent with straight spreading hairs up to 0.2 mm. long, the tube 2.5 mm. broad at base, narrowed at 4 mm. above base to 1.5 mm. thence gradually enlarged to 7 mm. at throat, the lips subequal, 22 mm. long, the upper lip erect, oblong-ovate, 8 mm. wide at base, bilobed at apex, the lobes rounded, 0.5 mm. long, 0.75 mm. wide, the margins subhyaline and glabrous, the lower lip suberect, 3-lobed, the lobes oblong, 1 cm. long, 2.5 mm. wide, rounded at tip; stamens exserted 15 mm. beyond the mouth of the corolla tube, the filaments glabrous, the anthers 5 mm. long, the lobes superposed, 2.75 mm. long, 0.75 mm. broad, vertically attached to the connective, the basal end of the lower lobe terminating in a blunt whitish tail; capsules clavate, 17 mm. long, 4.25 mm. broad, 3.5 mm. thick, subobtuse, glabrous; retinacula curved, oblong, 2 mm. long, the tip rounded; seed (immature), glabrous, brown, flattened, muricate, the projections rounded.

Type in the U. S. National Herbarium, No. 1900474, collected in the Quebrada de los Osos, in the valley of the Rio Bugalagrande, Cordillera Central, Department of El Valle, Colombia, 2,170 meters altitude, April 20, 1946, by J. Cuatrecasas (No. 20941).

*Justicia malacophylla* has apparently no close relatives among the Colombian species of Acanthaceae. The specific epithet is from the Greek and was suggested by the soft velvety leaves, *μαλακός*, soft, and *φύλλον*, leaf.

46. *Justicia pelianthia* Leonard, sp. nov.  

*Frutex parvus, caulibus subquadrangularibus (angulis rotundatus), minute et plus minusve bifariam strigosis, sursum pilis aureo-brunneis; lamina foliorum oblongo-elliptica vel obovata, apice subobtusa et apiculata, basi angustata, in petiolum decurrens, aliquanto firma, integra vel undulata, supra glabra, costa et venis lateralis minute...*
strigosis exceptis, subtus glabra, costa et venis dense et minute
strigosis exceptis, pilis aureo-brunneis, cystolithis conspicuis; petioli
aliquanto crassi, minute strigosi; panicula terminalis, ramis spicatis,
floribus paucis, secundis, internodiis panicularum minute bifariam
strigosis, pilis aureo-brunneis, pedicellis brevibus, subglabratis; bracteae
infimae foliaceae, bracteae summae at bracteolae parvae, lanceolatae,
acutae, firmae, minute strigosae, pilis aureo-brunneisae; calycis
segmenta lanceolata, acuta, firma, strigosa vel puberula, pilis curvatis,
minutis, aureo-brunneis; corolla purpurea, parce et minute pubescens,
labio inferiore plus minusve patulo, oblongo, apice truncato, leviter
3-lobato, lobis rotundatis vel obtusis; stamina exserta, lobis anther-
rarum superpositis, lobo superiore horizontali, lobo inferiori plus
minusve recto, basi calcarato; ovarium glabrum.

Small shrub; stems subquadrangular (the angles rounded), minutely
strigose, the hairs averaging 0.13 mm. in length, more or less bifari-
ously arranged on the lower portion of the stem, those of the upper
part of the stem golden-brown; leaf blades oblong-elliptical or obo-
vate, up to 21 cm. long and 9 cm. wide, subobtuse and apiculate,
narrowed at base and decurrent on the petiole, rather firm, entire or
undulate, the upper surface glabrous except costa and lateral veins,
these minutely strigose, the hairs similar to those of the stems, the
cystoliths prominent, the lower surface glabrous except the costa and
lateral veins (10 to 12 pairs) these densely but minutely strigose, the
hairs golden-brown, up to 0.32 mm. long, those of the costa confined
chiefly to its margins, the cystoliths conspicuous, 0.25 to 0.32 mm.
long; petioles up to 3.5 cm. long, rather stout, minutely strigose
like the stems; flowers secund, borne in a terminal panicle about
16 cm. long and broad, the lateral branches of the inflorescence
composed of 1 to 3 rather loose spikes, these few-flowered, up to
about 3 cm. long, the peduncle 2 mm. long, the lowermost internodes
of the panicle 2 cm. in length, the others successively shorter towards
the tip of the inflorescence, all of the internodes minutely and densely
golden-brown strigose, the hairs averaging 0.2 mm. in length, more
or less bifariously arranged, the pedicels up to 2 mm. long, glabrous
or nearly so, the lowermost branches of the inflorescence subtended
by small leaves, the other branches by lanceolate bracts, these up to
5 mm. long and 1.25 mm. wide, acute, firm, strigose with minute
golden-brown hairs; bractlets resembling the bracts; calyx 7 mm. long,
deeply segmented, the segments lanceolate, 3.5 mm. wide at about the
middle, acute, firm, 3-nerved, strigose or puberulous, the hairs curved,
averaging 0.13 mm. in length, golden-brown; corollas purple, up to
6.5 cm. long, sparingly and minutely pubescent, the hairs spreading,
up to 0.2 mm. long, gland-tipped, the corolla tube subcylindric, about 2.5 mm. broad at base, 5 mm. broad at mouth, the upper lip erect, linear-oblong, 3.3 cm. long, about 6 mm. wide near base, 3 mm. wide near the rounded shallowly emarginate tip, the lower lip more or less spreading, oblong, 3.5 cm. long, 1 cm. wide, truncate and shallowly 3-lobed at tip, the lobes rounded or obtuse, 2.5 mm. wide and 1 mm. long; stamens glabrous, exserted 2.5 cm. beyond the mouth of the corolla tube, the anther lobes superposed one about 0.5 mm.
above the other, the upper lobe horizontally attached, the lower more or less vertical and terminated at base by a white blunt spur 0.5 mm. long; style slightly shorter than the stamens; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 1798544, collected in wet woods between Quebrada de la Hormiga and San Antonio del Guamués, Comisaría of Putumayo, Colombia, 330 meters altitude, December 18, 1940, by J. Cuatrecasas (No. 11157).

_Justicia pelianthia_ is readily recognized by its large erect purplish corollas, by the flowers being secund in short spikes, these forming a broad, rather flat panicle, and by the minute golden-brown pubescence of the panicle branches. Apparently it has no close relatives among the Colombian species. The specific epithet is from the Greek πελιάς, livid, and ἐρυθρός, blossom.

47. _Justicia anabasa_ Leonard, sp. nov. Figure 221

_Suffrutex scandens, caulibus subquadrangularibus, substrigosis, demum glabratis, pilis curvatis, rigidos; lamina foliorum ovata vel elliptica, breviter acuminata (apice ipso obtuso), basi angustata, aliquanto firma, integra vel undulata, utrinque parce hirsuta, costa et venis lateralibus aliquanto hirsutis, pilis curvatis, rigidis, cystolithis obscuris; petioli dense hirsuti, pilis antrorse curvatis, rigidis; racemi axillares et terminales, laxi, pedunculis et rhachibus subquadrangularibus, hirsutis, pilis curvatis, plus minusve patulis; bracteae flores subtendentes parvae, oblongo-ovatae, acutae, parce hirsutae; bracteae ramos racemi subtendentes oblongae, obtusae, hirsutae et ciliatae vel bracteae infimae foliiformes; calycis segmenta linearia, acuta, aliquanto hirsuta, pilis antrorse ascendentibus vel subapressis, pilis marginalibus longioribus, ascendentibus; corolla brunneo-aurea, deorsum pallida, aliquanto hirsuta, pilis plus minusve patulis vel basi retrorsis, glandulosae et eglandulosae intermixtae, tubo anguste infundibuliformi, labii curvatis, subaequalibus, labio superiore oblongo-ovato, apice bilobato, lobis aliquanto parvis, apice rotundatis, labio inferiore leviter patulo, oblongo-ovato, 3-lobato, lobis aliquanto parvis, apice rotundatis; stamina labium corollae aequalia vel subaequalia, filamentis glabris, lobis antherarum glabris, superpositis, verticalibus, lobo inferiore breviter caudato; pistillum exsertum labium corollae excedens, glabrum vel parce et minute hirtellum; stigma minute, rotundatum; ovarium glabrum.

_Woody vine; stems subquadrangular, hirsute to substrigose, the hairs upwardly curved, up to 0.26 mm. long, rigid, septate but not conspicuously so, the lower parts of the stems glabrate; leaf blades ovate to elliptic, up to 8 cm. long and 4 cm. wide, short-acuminate (the tip itself obtuse), narrowed at base, moderately firm, entire or
undulate, both surfaces sparingly hirsute except the costa and lateral veins (about 5 pairs), these inconspicuous and rather densely hirsute, the hairs curved and rigid, up to 0.4 mm. long; cystoliths very obscure; petioles up to 8 mm. long, densely hirsute with rigid upwardly curved hairs; flowers borne in axillary few-flowered racemes (2-4 pairs of flowers), these both terminal and axillary, and borne for some distance along the stems, up to 5 cm. long; peduncles 10 to 20 mm. long, 0.75 to 1.25 mm. thick, subquadrangular, hirsute, the hairs curved, more or less spreading, up to 0.32 mm. long, the rachis similar to the peduncles, the internodes usually 10 to 15 mm. long, slender; calyx sessile or sub-sessile at the tips of the slender pedicel-like branches, these 5 to 8 mm. long, hirsute like the rachis and bearing an apical pair of oblong-ovate bracts 0.75 mm. long, 0.5 mm. wide, acute, subcarinate, sparingly hirsute; bracts subtending the flower-bearing branches oblong, about 3 mm. long, 0.75 mm. wide, obtuse, hirsute and ciliate or the lowermost pair broader and leaflike; calyx 7 to 8 mm. long, the seg-

Figure 221.—*Justicia anabasa* Leonard (Killip & Smith 16091): a, Tip of branch to show inflorescence and leaves; b, portion of under surface of leaf blade enlarged to show pubescence; c, calyx and bract; d, portion of calyx segment enlarged to show pubescence; e, upper lip of corolla; f, lower lip of corolla; g, anther; h, portion of corolla enlarged to show pubescence. (a, Natural size; b, 4½ times natural size; c, 2½ times natural size; d, 16 times natural size; e, f, about 3 times natural size; g, about 6 times natural size; h, about 37 times natural size.)
ments linear, 6.5 mm. long, 1.25 mm. wide, acute, moderately hirsute, the hairs up to 1 mm. long, ascending to upwardly subappressed or the marginal ones longer (up to 0.25 mm. long) and ascending; corollas "burnt orange, paler proximally" (Killip & Smith), 3 to 3.5 cm. long, rather densely hirsute, the hairs more or less spreading except toward base, here retrorse, up to 0.13 mm. long, some of them gland-tipped, the tube 2 mm. broad at base, narrowed at 3 mm. above base to 1.5 mm., thence enlarged, first abruptly, then gradually to 5 mm. at mouth, the lips subequal, curved, about 2 cm. long, the upper lip oblong-ovate, about 4 mm. broad near base, thence gradually narrowed to a 2-lobed tip, the lobes about 1.5 mm. long and 0.5 mm. wide, rounded at tip, the lower lip slightly spreading, oblong-ovate, about 4 mm. wide at base, 3-lobed, the lobes oblong, about 2 mm. long and 1 mm. wide, rounded at tip; stamens exserted, reaching within 2 mm. of the tip of the upper lip and partially enfolded by it, the filaments glabrous, the anthers curved, 2.5 mm. long, 0.5 mm. broad, glabrous, superposed and attached vertically to the connective, their lower and upper tips overlapping 1.25 mm., the lower cell calcarate, the tail blunt at tip; style slightly exceeding the lips of the corolla, glabrous except at base, here sparingly and minutely hirtellous, the stigma bilobed, the lobes minute and rounded; ovary glabrous; capsule not seen.

Type in the U. S. National Herbarium, No. 1351865, collected in woods in the vicinity of Las Vegas, Department of Santander, Colombia, 2,600 to 3,000 meters altitude, December 21–23, 1926, by E. P. Killip and Albert C. Smith (No. 16091). Isotypes: GH, NY.

Justicia anabasa has apparently no close relatives. The specific epithet is from the Greek word ἀναβάσα, meaning ascending or climbing, in allusion to the habit of the plant.

48. Justicia aurantiaca Leonard, sp. nov.

Frutex vel suffrutex, caulibus subquadrangularibus, glabris; lamina foliorum ellipitica, breviter acuminata, basi angustata, membranacea, integra vel undulata, utrinque glabra, cystolithis nullis; petioli aliquanto graciles, glabri; cymae subhelicoideae, axillares et terminales, pedunculo glabro, subquadrangulari; internodia inflorescentiae apice dilatata, glabra vel bifarium et parce hirtella, pilis subappressis; bracteolae nullae; calyx anguste campanulatus, segmentis lanceolatis, acutis, membranaceis, glabris, obscure nervatis; corolla aurantiaca, glabra, aliquanto magna, tubo anguste infundibuliformi, labio superiore erecto, oblongo-ovato, apice subacuto, apice inferiori patulo vel recurvato, cuneato, 3-lobato, lobis oblongo-ovatis, rotundatis; stamina exserta, glabra, lobis antherarum superpositis, recte ad connectivo annexis, lobo inferiori basi breviter caudato; pistillum stamina leviter
shrub or suffrutescent herb, up to 1.5 meters high or more; stems quadrangular, glabrous; leaf blades elliptic, up to 21 cm. long and 10 cm. wide, short-acuminate, narrowed at base, thin, entire or undulate, glabrous on both surfaces; cystoliths lacking; petioles up to 4 cm. long, glabrous; flowers borne in axillary and terminal sub-helicoid cymes 2.5 to 4 cm. long (excluding corollas), the peduncles

Figure 222.—Justicia aurantiaca Leonard (Grant & Fosberg 9341): a, Tip of plant showing leaves and inflorescence; b, portion of cyme; c, ultimate node of inflorescence to show pubescence; d, bract; e, calyx; f, anther. (a, b, Half natural size; c, 4 times natural size; d, 3 times natural size; e, 2½ times natural size; f, 5 times natural size.)

1 cm. long, subquadrangular, glabrous, the internodes of the inflorescence up to 5 mm. long, 0.75 mm. in diameter at base, 2 mm. broad at their tips, glabrous or bifariously and sparingly hirtellous, the hairs about 0.1 mm. long and subappressed; bracts thin, cuneate, up to 1 cm. long, up to 6 mm. wide at tip, truncate or subemarginate, glabrous; calyx narrowly campanulate, 1 cm. long, the segments lanceolate, 8 mm. long, 1.75 mm. wide, gradually narrowed from 2.5 mm. above base to an acute tip, thin, glabrous, obscurely nerved; corollas orange, glabrous, up to 5.8 cm. long, 2.5 mm. broad near base, thence gradu-
ally enlarged to 6 mm. at throat, the upper lip erect, oblong-ovate, 2.2 cm. long, 6 mm. wide, subacute at tip, the lower lip spreading or recurved, cuneate, 2.5 cm. long, 1 cm. wide near tip, the 3 lobes oblong-ovate, 7 mm. long, the lateral ones 3.5 mm. wide, the middle one 5 mm. wide, all rounded; stamens exerted 1.5 cm. beyond the mouth of the corolla tube, glabrous, the anthers 4.25 mm. long, the cells 3.25 mm. long, 0.5 mm. broad, superposed and vertically attached to the connective, the lower cell briefly caudate; pistil slightly exceeding the stamens, the stigma minute, unequally bilobed, the lobes ovate, rounded; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045427, collected in temperate forest at San Isidro, 7 km. south of Gachalá, Department of Cundinamarca, Colombia, 2,200 meters altitude, May 27, 1944, by Martin L. Grant and F. R. Fosberg (No. 9341).

Also of this species is Grant’s No. 10278, collected in temperate forest at Toquiza, Gazaunta Valley, Cordillera de Helicona, 15 km. northwest of Medina, Cundinamarca, 2,135 meters altitude, September 24, 1944.

Justicia aurantiaca can be easily recognized by the cuneate truncate bracts and large orange flowers.

49. Justicia jacobinioides Leonard, sp. nov.

Herba ramosa, caulibus subquadrangularibus, angulis acutis, glabris vel parce pubescentibus, pilis retrorse curvatis; lamina foliorum ovata, breviter acuminata (apice ipso obtuso), basi angustata, firma, integra vel undulata, parce hirtella, subtus pilis praecipue in costa et venis prominentibus, cystolithis obscuris vel nullis; petioli breves, parce hirtelli; paniculae parvae, laxae, axillares, floribus ternis, pedunculis primariis et secundariis aequalibus, parce hirtellis, quadrangularibus, angulis acutis; bracteae ramorum paniculae parvae foliaceae; bracteae flores subtendentes oblongae, acutae, ciliatae, glabrae vel subglabrae; calycis segmenta oblonga, acuta, 3-nervata, nervis prominentibus, extus glabra, in marginibus parce hirtella, intus minute et parce hirtella; corolla rutila, basi glabra, sursum aliquanto dense puberula, labio superiore anguste ovato, erecto, apice 2-lobato, lobis parvis, rotundatis, labio inferiore plus minusve patulo, obovato, basi cuneato, apice rotundato, breviter trilobato, lobis rotundatis; stamina exserta sed labiis corollae breviora, lobis antherarum superpositis, basi breviter caudatis; ovarium glabrum.

Erect branched herbs up to 1 meter high; stems subquadrangular, the angles minutely acute, glabrous or sparingly pubescent, the hairs retrorsely curved, about 0.16 mm. long; leaf blades ovate, up to 6 cm. long and 2.5 cm. wide, short-acuminate (the tip itself obtuse), narrowed at base, firm, entire or undulate, both surfaces sparingly hirtellous,
the hairs of the lower surface confined chiefly to the costa and lateral veins, the hairs up to 0.3 mm. long, more or less curved, the venation (lateral veins 5 to 7 pairs) prominent beneath, less so above, the cystoliths obscure or lacking; petioles up to 5 mm. long and 1 mm. thick, sparingly hirtellous; flowers (1 to 3) borne in small axillary panicles up to 3 cm. long, the peduncles up to 11 mm. long, the secondary peduncles up to 8 mm. long, both primary and secondary peduncles sparingly hirtellous with more or less curved hairs, sub-

![Figure 223.](image)

**Figure 223.** *Justicia jacobinoides* Leonard (Kalbreyer 1043): a, Tip of plant; b, tip of a calyx segment; c, corolla; d, anther. (a, c, Slightly over natural size; b, about 4 times natural size; d, 5 times natural size.)

quadrangular, the angles acute; bracts subtending the secondary peduncles leaflike, ovate, 4 mm. long, 2 mm. wide, subacute at tip, narrowed at base, sparingly hirtellous, the petioles about 1 mm. long; bracts subtending the flowers oblong, 1.5 mm. long, about 0.5 mm. wide, acute, ciliate, the flat surfaces glabrous or nearly so; calyx 1 cm. long, the segments 5, oblong, 8.5 mm. long, 1.5 mm. wide, acute, conspicuously 3-nerved, the outer surface glabrous or bearing a few small hairs near or on the margins, the inner surface sparingly and minutely hirtellous; corollas, from base to tips of the lips, 4.4 cm.
long, puberulous except the glabrous basal portion, yellowish-red, the tube 2.5 mm. broad at base, expanding at 8 mm. above base to 4 mm., the upper expanded portion cylindric, the upper lip narrowly ovate, 2 cm. long, 7 mm. wide at base, thence gradually narrowed to a small 2-lobed tip, the lobes about 0.75 mm. long and 0.5 mm. wide, rounded, the lower lip ascending, 18 mm. long, 6.5 mm. wide just above middle, the basal portion cuneate, the tip rounded and minutely 3-lobed, the lobes 0.5 mm. long and 0.75 mm. wide, rounded; stamens exerted about 13 mm. beyond the mouth of the corolla; anther lobes superposed, 3 mm. long, 1 mm. thick, both lobes short-caudate at base; ovary glabrous; capsules not seen.

Type in the Kew Herbarium, collected in border of forest at La Obrell, between Ocaña and Pamplona, Department of Norte de Santander, March 25, 1879, by W. Kalbreyer (No. 1043).

*Justicia jacobinioides* may be related to *J. aurantiaca*. The two species have similar calyces and anthers, and the corollas are of the same general shape. The corollas of *J. aurantiaca*, however, are strictly glabrous instead of rather densely puberulous and the leaf blades are much larger, thinner, and glabrous. Moreover, the inflorescence of *J. jacobinioides* is axillary, whereas in *J. aurantiaca* it is terminal and more compound.

50. *Justicia novogranatensis* Leonard, sp. nov. Figure 224

*Suffrutex, caulibus subteretibus, glabris vel in nodis parce antrorse strigosis; lamina foliorum oblongo-ovata, acuminata (apice ipso obtuso), basi angustata et in petiolum breviter decurrent, aliquanto firma, integra vel undulata, glabra vel parce hirsuta, costa et venis lateralibus aliquanto strigosis exceptis, cystolithis obscuris; petioli glabri vel in canalibus hirtellis; spicae rigide laxae, fere rectae, ascendentes pedunculis aliquanto longis, subteretibus, glabris vel parce strigosis rhachibus subteretibus vel in nodis planis, glabris vel parce pubescentibus, pilis ascendentibus vel subappressis; flores solitarii, in nodis rhachium; bracteae lanceolatae, graciliter acuminatae, glabrae vel parce hirtellae et ciliolatae; bracteae lanceolatae, acuminatae, glabrae vel parce hirtellae et ciliolatae; calycis segmenta lanceolata, graciliter acuminata, glabra vel parce hirtella et ciliata, costa et nervis obscuris; corolla aliquanto magna, minute hirtella, pilis rigidis, anguste triangularibus, patulis, tubo aliquanto angusto, labiis subaequalibus, labio superiore oblongo-ovato, apice angustata, rotundata, emarginato, labio inferiore cuneato, plus minusve patulo, 3-lobato, lobis oblongis, apice obtusis; stamina in labio antico corollae declinata, filamentis glabris, basi retrorsae hirtellis exceptis, antheris glabris, lobis superpositis rectis, lobo inferiore obscure caudato; capsulae clavatae, glabrae; semina (immatura) papillosa.
Suffrutescent plants; stems subterete, glabrous or sparingly and antrorsely strigose near the nodes, the hairs straight, up to 0.32 mm. long; leaf blades oblong-ovate, up to 10 cm. long and 4.5 cm. wide, short-acuminate (the tip itself blunt), narrowed at base and briefly decurrent on the petiole, moderately firm, entire, undulate, glabrous or sparingly hirsute except the costa and lateral veins, these strigose, the hairs up to 0.32 mm. long, straight or nearly so, the cystoliths obscure; petioles rather slender, up to 1 cm. long, glabrous or the channel hirtellous; spikes axillary, lax, nearly straight, rigid, ascending, up to 10 cm. long and 6 mm. broad, the peduncles up to 4 cm. long and 1.75 mm. thick, subterete, glabrous or sparingly strigose, the lowermost internodes of the spikes up to 2 cm. long, the others
successively shorter, somewhat flattened near the nodes, glabrous or sparingly pubescent, the hairs ascending to subappressed, up to 0.2 mm. long, the flowers in pairs; bracts lanceolate, 6 mm. long, 1.25 mm. wide near the middle, slenderly acuminate, glabrous or sparingly hirtellous and ciliolate, the hairs about 0.08 mm. long; bractlets lanceolate, 4.5 mm. long and 0.75 mm. wide, acuminate, glabrous or sparingly hirtellous and ciliolate; calyx 5.5 mm. long, the segments 5, these lanceolate, 5 mm. long, 1 mm. wide near base, gradually narrowed to a slender tip, glabrous or sparingly hirtellous and ciliolate, the costa and a pair of lateral nerves evident when viewed against a strong light; corolla about 3 cm. long, minutely hirtellous with rigid narrowly triangular spreading hairs, the tube narrow, 1.5 mm. broad at base, gradually enlarged to 5 mm. at mouth, the lips subequal, about 16 mm. long, the upper lip oblong-ovate, 5 mm. wide at base, gradually narrowed to an emarginate rounded tip 1 mm. wide, the lower lip more or less spreading, cuneate, about 4 mm. wide at the base of the 3 lobes, these oblong, 7 mm. wide near the middle, the tip obtuse; stamens exserted 13 mm. beyond the mouth of the corolla and not quite reaching the tip of the upper lip and partly enfolded by it, the filaments glabrous except near base, there bearing a band of retrorse hairs about 0.13 mm. long, the anthers glabrous, their cells superposed, attached nearly vertically to the connective, each about 3.5 mm. long and 1 mm. thick, the lower cell obscurely caudate; style reaching the tip of the upper corolla lip, glabrous, the stigma rounded, minute and bilobate; capsule clavate, about 17 mm. long, 6 mm. broad and 3 mm. thick, glabrous; retinacula oblong, curved, 1 mm. long, rounded and flattened at tip; seed (immature) papillose.

Type in the Kew Herbarium, collected in the "Province de Prépayan," Department of Cauca, Colombia, 1,300 meters altitude, July 1853, by J. Triana (No. 4084-1). Isotypes: Col, NY.

There is a photograph apparently of the same Triana collection in the Berlin Herbarium (Field Mus. No. 8912) that bears an unpublished name of Lindau's.

The color of the corolla is not apparent in the dried material but is probably red.

51. Justicia secunda Vahl


*Rhytiglossa secunda* Nees in DC. Prodr. 11: 340. 1847 (except var. *b*). Based on *Justicia secunda* Vahl.


Suffrutescent; stems subquadrangular, glabrous or sparingly puberulous, the hairs retrorsely curved, subappressed; leaf blades
ovate to oblong-ovate, up to 15 cm. long and 6 cm. wide, acute to short-acuminate (the tip itself acute), subcordate, rounded, obtuse or acute at base, sometimes obliquely so, moderately firm, entire or undulate, both surfaces glabrous except the costa and lateral veins (6 to 8 pairs), these more prominent beneath than above, puberulous with recurved hairs about 0.2 mm. long; petioles slender, up to 2 cm. long, the channels puberulous with minute curved hairs; panicles terminal, small at first but becoming large and much branched, up to 17 cm. long and 8 cm. broad, the flowers secund and crowded on the branches of the panicles or distant (5 to 7 mm.) with age, the rachises moderately puberulous with curved hairs; bracts subulate or narrowly triangular, glabrous or sparingly hirtellous, keeled, the lowermost pairs about 7 mm. long, the succeeding bracts subtending the flowers triangular, 1.5 mm. long, 0.5 mm. wide at base, sharply acute, the lower branches of the panicles subtended by small narrow leaf blades; bractlets subulate, up to 2 mm. long and 0.25 mm. wide at base; calyx up to 7 mm. long, deeply segmented, hirtellous with a mixture of glandular hairs (0.08 mm. long) and eglandular ones (up to 0.3 mm. long), the segments of the calyx oblong-lanceolate, 1.25 mm. wide, acute, thin and herbaceous, ciliate; corollas dull crimson, 3 cm. long, the upper portions sparingly puberulous, some of the hairs glandular, the tube about 12 mm. long and 3 mm. broad, the lips subequal, 22 mm. long, the upper one erect, narrowly ovate, about 7 mm. wide near base, rounded and entire at tip, the lower lip spreading, oblong, about 6 mm. wide, 3-lobed at tip, the lobes ovate, 2.5 mm. long, 1 mm. wide, rounded at tip; stamens lying in upper lip and barely reaching its tip, the filaments glabrous; anther lobes subparallel, subequally attached by a connective 0.5 mm. broad, one lobe 2 mm. long, the other 1.5 mm. long, both about 0.5 mm. broad; style slightly shorter than the stamens, sparingly and minutely hirtellous, the stigma minute and subcapitate; capsule short-clavate, about 1 cm. long, 4.5 mm. broad, 2.5 mm. thick (the solid stipitate portion 5 mm. long, 0.5 mm. thick and 2.5 mm. broad) puberulous, some of the hairs glandular; retinacula 2 mm. long, the tip thin, erose, subcucullate; seeds 4, glabrous, slightly roughened.

**Justicia secunda**, common in the West Indies but rare in Colombia, is very closely related to Lindau’s *J. filibracteolata*. Superficially the two species resemble each other very closely, differing in the shorter bracts and bractlets of *J. secunda*. In *J. filibracteolata* the panicles usually remain compact and the branches of the inflorescence do not tend to become elongated as in *J. secunda*.

51a. Justicia secunda Vahl var. leucantha Leonard, var. nov.
A var. typica lamina foliorum lanceolata, corolla alba recedit.
Shrubby, leaf blades lanceolate, up to 16 cm. long and 4 cm. wide, acuminate; corolla white, in other respects similar to the typical variety.
Type in the U. S. National Herbarium, No. 533522, collected along the Agua Dulce Road, Santa Marta region, Department of Magdalena, Colombia, “800 feet” altitude, by H. H. Smith (No. 1413). Isotypes: NY, Ph.

52. Justicia atacta Leonard, sp. nov.
Suffrutex, caulibus subquadrangularibus, glabris, sursum cystolithis crassis parallelis praeditis; lamina foliorum oblongo-ovata, apice breviter acuminata, basi angustata, rotundata, plus minusve panduriformis, membranacea, integra vel undulata, utrinque glabra, costa et venis lateralibus prominentibus, cystolithis minutis et in conspicuis; petioli breves, glabri, crassi; paniculæ valde graciles, axillares, pedunculo et rhache gracilibus, sulcatis glabris vel parce hirtellis, ramis paniculæ parvis, spicatis vel paniculatis, floribus plus minusve secundis; bracteæ flores subtendentes subulatae, apices, apice graciles (apice ipso obtuso), carinatae, parce hirtellae, pilis rigidis, ascendentiis; bracteolæ bracteolis similis sed longiores; calycis segmenta parva, lanceolata, acuminata, parce hirtella; corolla parva, glabra, viridialba, tubo brevi, cylindrico, labiis subaequalibus, labio inferiore ovato, erecto, apice minute bilobato, lobis rotundatis, labio inferiore plus minusve patulo, 3-lobato, lobis brevibus et latissimis, rotundatis; stamina vix exserta, filamentis gracilibus, glabris, lobis antherarum leviter superpositis, verticalibus, lobo inferiore minute caudato, connectivo aliquanto lato; ovarium glabrum.

Shrubby plants with glabrous subquadrangular stems, their tips densely covered with thick parallel cystoliths; leaf blades oblong-ovate, up to 30 cm. long and 13 cm. wide, short-acuminate at tip, rounded at base, pandurate, thin, entire or undulate, glabrous, the costa and lateral veins (about 12 pairs) moderately prominent especially beneath, the cystoliths minute and inconspicuous; petioles about 3 mm. long, thick and glabrous; panicles very slender, axillary up to 30 cm. long and 8 mm. broad, the peduncle up to 10 cm. long, glabrous, sulcate, 1.25 mm. thick, the lowermost node of the rachis 4 cm. long, the others successively shorter toward the tip of the raceme, all sulcate, glabrous or sparingly hirtellous; flowers more or less secund, crowded in small slender spikes or panicles, several of these at each axil of the main rachis; bracts subtending the spikes or secondary panicles narrowly triangular, up to 3 mm. long and 0.3 mm. wide at base, subcarinate, narrowed to a slender tip, glabrous or hirtellous toward tip; bracts subtending the flowers subulate, about
1.25 mm. long, 0.25 mm. wide, gradually narrowed from base to a slender bluntish tip, carinate, sparingly hirtellous, the hairs rigid, ascending, 0.8 mm. long; bractlets similar but slightly longer; pedicels 1.5 mm. long, slender, glabrous; calyx 2.5 mm. long, the segments 5, lanceolate, 2 mm. long, 0.5 mm. wide near base, narrowed to a slender tip, sparingly hirtellous with rigid ascending hairs 0.32 mm. long, the costa evident but not prominent; corollas greenish white, about 5 mm. long, sparingly and finely pubescent, the tube subcylindric,

3.5 mm. long and 1 mm. broad at base, enlarged to 1.5 mm. from just above base to throat, the lips about 3 mm. long, the upper lip erect, oblong-ovate, about 1.5 mm. wide, minutely bilobed at tip, the lobes rounded, the lower lip more or less spreading, 1.5 mm. wide near base of the 3 lobes, these 1.5 mm. wide, 0.75 mm. long, rounded; stamens 3 mm. long, their filaments very slender, glabrous, the anthers glabrous, the cells slightly superposed, attached vertically to a relatively broad connective, the upper cell 1.75 to 2 mm. long, the lower 1.5
mm. long and short-caudate; style slightly longer than the stamens; stigma minute and bilobate; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045413, collected in a shaded wet place in rather scrubby, brusly woods on white clay soil, 2 km. east of Barbacoas and just south of the Río Telembí, Department of Nariño, Colombia, 100 meters altitude, October 13, 1943, by F. R. Fosberg (No. 21244). Isotype: US.

Chocó: Junto de Tamaná, March 1853, Triana s.n, (K, Col). San Pablo, March 1853, Triana s.n. (K).

Justicia atacta has a strong superficial resemblance to a Pseuderanthemum, having panduriform leaf blades and a long very slender inflorescence, the extremely small spicate or paniculate branches simulating the clusters of pedicelled flowers in Pseuderanthemum. Yet a close examination of the flowers reveals superposed anther lobes, the lower one tailed, and no staminodes.

The specific epithet is from the Greek ἄτακτος, meaning irregular or atypical.

53. Justicia ephemera Leonard, sp. nov.

Suffrutex vel frutex, caulibus ramosis, sursum subquadrangularibus, bifariam pilosis, pilis patulis, plus minusve rectis, deorsum subteretibus, glabratīs; lamina foliorum oblongo-elliptica, aliquanto subito sed graciliter acuminata, basi panduriformis, cordata, aliquanto firma, integra vel leviter crenata, glabra vel parce hirsuta, costa et venis subitus prominentibus, supra obscura, cystolithis minutis et obscuris; petioli brevi, crassi, glabri vel in canalis marginibus pilos paucos gerentes; flores plures, secundi in spicis dispositi, his paniculas terminales pyramidatas formantibus, pedunculis et internodiis panicularum bifariam hirsutis; bracteae triangulares, acutae, parce hirsutae; bracteolae bracteis similis sed minores; calycis linearis, graciliter trinervata, obtusa, glabra vel apice hirtella et ciliata, pilis rigidis, ascendentibus; corolla alba, tubo brevi et lato, labiis aequales, labio superiore ovato, apice obtuso, labio inferiore trilobato, lobis ovatis apice rotundatis; stamina inclusa, glabra, lobis antherarum leviter superpositis, obliquis, basi diversis; ovarium papillosum.

Suffrutescent herbs or shrubs up to 2 meters high; stems much branched, their upper portions subquadrangular, bifariously pilose, the hairs up to 0.8 mm. long, more or less straight and spreading, the lower portions of the stems subterete and glabrate; leaf blades oblong-elliptic, up to 16 cm. long, and 6.5 cm. wide, rather abruptly but slenderly acuminate, gradually narrowed to a panduriform cordate base, moderately firm, entire or shallowly crenate, glabrous or bearing a few spreading marginal hairs at base, the costa and lateral veins
(5 or 6 pairs) moderately prominent, more so beneath than above, the cystoliths numerous but minute and rather obscure, up to 0.13 mm. long; petioles very short and rather thick, up to 1 mm. long, glabrous or bearing a few hairs on the margins of the channels; flowers numerous and secund in spikes up to 6 cm. long, these forming terminal pyramidal panicles up to 10 cm. long and 13 cm. broad, the nodes of the panicle bearing 1 or 2 pairs of branches, the peduncles up to 3.5 cm. long, quadrangular, bifariously hirsute, the lowermost node of the central axis of the panicle bearing a pair of leaves, the blades oblong-elliptic, up to 7 cm. long and 2 cm. wide, abruptly and

![Diagram](image-url)

Figure 226.—*Justicia ephemera* Leonard (Haught 4775): a, Tip of plant; b, portion of the under surface of leaf blade enlarged to show veining and cystoliths; c, node of inflorescence; d, inflorescence node from near tip; e, calyx segment; f, anther. (a, Half natural size; b, about 6 times natural size; c, d, 4 times natural size; e, 8 times natural size; f, 12 times natural size.)

slenderly acuminate, narrowed to base, the petioles about 2 mm. long and ciliate on the margins of the channels, the internodes of the panicle similar to the peduncles but successively shorter and more densely hirsute toward the tips, the uppermost bracts narrowly triangular, 2.5 mm. long, 0.75 mm. wide at base, narrowed to an acute tip, sparingly hirsute, the hairs up to 0.2 mm. long; bractlets similar to the bracts but only about half as large; calyx segments linear, 2.5 mm. long, 0.5 mm. wide, subobtuse, glabrous except the margins toward tips, these ciliate with rigid ascending hairs up to 1 mm. long, the costa and a pair of lateral nerves slender and obscure;
corolla white, 8–12 mm. long, the tube short and relatively broad, 1 mm. broad at base, 1.25 mm. at 1 mm. above base, thence enlarged to 3 mm. at throat, the lips equal, 4.5–6 mm. long, the upper lip ovate, about 2 mm. wide, obtuse at tip, the 3 lobes of the lower lip ovate, 3.5 mm. long and 3 mm. wide, rounded at tip; stamens included, 3.5 mm. long, glabrous, the anther lobes somewhat superposed, about 1 mm. long and 0.5 mm. wide, obliquely attached to the connective, the bases divergent; pistil 2.5 mm. long, the style minute, 2-lobed; stigma glabrous; ovary papillose; capsules not seen.

Type in the U. S. National Herbarium, No. 1995088, collected in a forest at Turbo, Department of Antioquia, Colombia, less than 50 meters altitude, March 28, 1946, by Oscar Haught (No. 4775).

Also of this species is Haught's No. 4554, collected in low wet forest near Vijagual, 30 km. south of Turbo, Department of Antioquia, 40 meters altitude, April 12, 1945.

*Justicia ephemera* is a well-marked species apparently without near relatives. The panduriform leaf blades are like many of those in *Pseuderanthemum*. Staminodes, however, so constant in *Pseuderanthemum*, are definitely absent in this species. Haught states that the flowers are fragrant forming a showy inflorescence during the mornings but falling by afternoon. The plant is said to be in bloom only two or three days. The specific epithet is from the Greek word ἐφήμερος, meaning ephemeral or short-lived, in allusion to the fugacious blossoms.

54. *Justicia chloanantha* Leonard, sp. nov.  

*Suffrutex, caulibus subquadrangularibus (angulis rotundatis), glabris vel bifariam parce puberulis, pilis parvis, varie curvatis, cystolithis subpunctiformibus, minutis; lamina foliorum oblongo-ovata vel oblongo-ellipsis, breviter acuminata (apice ipso obtuso), basi acuta in petiolum decurrent, aliquanto tenuis, integra vel undulata, utrinque glabra vel parce strigosa, costa et venis prominentibus strigillosis; petioli puberuli; paniculae terminate, ramis patulis, pedunculo subquadrangulari, puberulo, pilis sursum curvatis, parvis, ramis paniculare puberulis; flores in apicibus ramorum spissi, sessiles vel subsestiles; bracteae ramos ultimos paniculare sub- tendentes lanceolatae, acuta, parva, parce ciliatae, costa prominentis; bracteae et bracteolae flores subtendentes subulatae, parvae, acuta, apice ciliatae; calycis segmenta 5, parva, linear-lanceolata, acuta vel graciliter acuminata, aliquanto tenuia, glabra vel in costa et marginibus parce ciliata, pilis dorsalisibus aliquando glandulosis; corolla virid-alba, tubo subcylindrico, parce et minute pubescente, labio superiori erecto, ovato, apice obtuso, labio inferiori cuneato, 3-lobato, lobis suborbicularibus; stamina exserta, in labio antico corollae declinata,
lobis antherarum superpositis, rectis, lobo superiore et connectivo hirtellis, lobo inferiore basi calcarato; capsulae clavatae, glabrae vel parce hirtellae, pilis patulis, glandulosis; retinacula curvata, apice rotundata; semina (immatura) tuberculata.

Figure 227.—Justicia chloanantha Leonard (a–e, Cuatrecasas 11137; f, g, Cuatrecasas 10933): a, Node from near tip of plant showing leaf blade and branch of the inflorescence; b, node from tip of inflorescence showing bracts, bractlets and calyx; c, bractlet; d, bract; e, a segment of the calyx; f, corolla; g, anther; h, dorsal view of capsule valve. (a, Half natural size; b, twice natural size; c, d, 10 times natural size; e, 7½ times natural size; f, about twice natural size; g, 8 times natural size; h, 3 times natural size.)
Shrubby plants up to 1 meter high; stems subquadrangular (the angles rounded) glabrous or bifariously and sparingly puberulous, the hairs about 0.16 mm. long, variously curved, the cystoliths numerous, minute and subpunctiform; leaf blades oblong-ovate or oblong-elliptic, up to 22 cm. long and 9 cm. wide, short-acuminate (the tip itself blunt), acute at base and decurrent on the petiole, rather thin, entire or undulate, sparingly strigose, or glabrous except the minutely strigose costa and lateral veins (about 9 pairs), the hairs up to 0.2 mm. long, the costa and veins rather prominent beneath, less so above, the cystoliths about 0.2 mm. long; petioles up to 3 cm. long, puberulous; flowers borne in terminal and axillary panicles up to 12 cm. long and 7 cm. broad, the branches spreading, the peduncles up to 12 cm. long, subquadrangular, puberulous, the hairs upwardly curved, about 0.2 mm. long, the lowermost internodes of the panicles up to 5 cm. long, the others successively shorter towards the tips of the branches, these like the peduncles puberulous, the branches of the panicles subtended by small leaf blades usually 1 to 3 cm. long and 3 to 7 mm. wide, the flowers usually 6 to 10, crowded at the tips of the branches of the inflorescence, sessile or subsessile (pedicels up to 0.75 mm. long); bracts subtending the ultimate branches of the inflorescence lanceolate, up to 5 mm. long and 0.75 mm. wide, acute, sparingly ciliate, the costa prominent; bracts subtending the flowers subulate, up to 4 mm. long and about 0.25 mm. wide, acute, sparingly ciliate; bractlets similar to the bracts but shorter, up to 2.25 mm. long; calyx 5 mm. long, deeply segmented, the segments 5, linear-lanceolate, 0.5 mm. wide, acute or slenderly acuminate, rather thin, glabrous or the costa and margins sparingly ciliate, the hairs up to 0.57 mm. long, the costal hairs sometimes gland-tipped; corolla greenish white (the tip white), 15 to 16 mm. long, the tube subcylindric, 1.5 mm. broad at base, 2 mm. broad just above base, 2.5 mm. broad at mouth, sparingly and minutely pubescent, the upper lip erect, ovate, 4 mm. long, 5 mm. wide near base, narrowed to a blunt tip, the lower lip 5 mm. long, 3-lobed, 5 mm. wide near base of lobes, the lobes suborbicular, about 1.25 mm. in diameter; stamens reaching tip of upper lip, the anthers 1.5 mm. long, the lobes superposed, attached to the connective almost vertically, the upper lobe and part of connective hirtellous, the lower lobe glabrous, terminated at base by a whitish spur about 0.3 mm. long, the filaments glabrous; style slightly exceeding the stamens, glabrous toward tip, sparing hirtellous toward base; capsules clavate, about 12 mm. long, 2.5 mm. broad, 1.5 mm. thick, glabrous or bearing a few spreading glandular hairs about 0.38 mm. long; retinacula 1.5 mm. long, slender, curved, rounded at tip; seed (immature) tuberculate.

Type in the U. S. National Herbarium, No. 1798543, collected in the wet forests along the Río San Miguel at the Quebrada de la
Hormiga, Comisaría of Putumayo, Colombia, 290 meters altitude, December 17, 1940, by J. Cuatrecasas (No. 11137).

Also of this species is Cuatrecasas' No. 10933 (Col), collected in wet forests of the Río San Miguel at the mouth of the Río Conejo, Colombian-Ecuadorian border, 300 meters altitude, December 9, 1940, and Sprague 396 (K), collected at Mocoa, Putumayo, May 25, 1899.

*Justicia chloanantha* has no close relatives among the Colombian species. A similarity of the inflorescences suggests *Justicia cuzcoensis* Lindau of Perú, but that species has much smaller, ovate, and more hairy leaf blades (up to 9 cm. long and 4 cm. wide) and yellowish white and purplish corollas. The specific epithet is from the Greek *χλαόνθα*, greenish, and *ἄνθος*, flower.

55. *Justicia helonoma* Leonard, sp. nov. Figure 228

Frutex, caulibus quadrangularibus, glabris vel sursum parce bifariam tomentose; lamina foliorum oblongo-elliptica vel oblongo-obovata, utrinque subacuta, firma, integra vel undulata, utrinque glabra vel foliorum juvenilium subitus parce hirtella, costa et venis lateralis prominentibus, venulis crasse reticulatis; petioli breves, crassi, glabri; paniculae terminales, laxae, ramis in spicas compactas terminantibus, pedunculis et internodiis panicularum quadrangularibus, glabris vel parce hirtellis; bracteae flores subtendentes triangulares, acutae (apice ipso obtuso), firmae, parce hirtellae et ciliolatae, nervis 3, crassis sed non conspicuis, pilis parvis, rigidis, ascendentibus vel subappressis; bracteolae anguste triangulares, subacutae, carinatae, parce hirtellae et ciliolatae, pilis rectis vel leviter curvatis, ascendentiibus; calycis segmenta 5, lanceolatae, acuta et minute hirtella et ciliolata, pilis rectis vel leviter curvatis, ascendentiibus; corolla aliquanto parva, subpurpurea, hirtella, pilis fere rectis, rigidis, patulis vel retrorsis, tubo subcylindrico, labiis subaequalibus, labio superiore erecto, oblongo, apice emarginato, labio inferiore cuneata, aliquanto patulo, 3-lobato, lobis oblongo-ovatis, apice rotundatis; stamina exserta, filamentis sursum glabris, deorsum hirtellis, lobis antherarum superpositis, rectis, lobo inferiore caudato; ovarium hirtellum.

Shrub about 1 meter high; stems quadrangular, glabrous or, near the tips, sparingly and bifariariously tomentose, the hairs up to about 1 mm. long; leaf blades oblong-elliptic or oblong-ovate, up to 23 cm. long and 10 cm. wide, subacute at both ends, firm, entire or undulate, glabrous or the younger leaves sparingly hirtellous beneath, the costa and lateral veins (usually 8 pairs) prominent but more so beneath than above, the veinlets coarsely reticulate, the cystoliths obscure; petioles 5 mm. long, 2.5 mm. thick, glabrous; flowers borne in spikes up to 5 cm. long and up to 8 mm. broad, these forming an open terminal panicle up to 17 cm. long and 10 cm. broad, the lowermost
internodes of the panicle up to 8 cm. long, the peduncles of the spikes up to 2.5 cm. long, both the peduncles and the internodes of the panicle quadrangular and glabrous or sparingly hirtellous, the nodes of the panicle bearing a pair of small leaves (their blades about 1.5 cm. long and 8 mm. wide); bracts subtending the flowers triangular, 3.5 mm. long and 2 mm. wide at base, acute (the tip itself blunt), firm, sparingly hirtellous and ciliate, the hairs rigid, mostly straight, up to 0.16 mm.

![Figure 228.](justicia_kelonoma_1754.png)

**Figure 228.—*Justicia kelonoma* Leonard (Haught 1754): a, Tip of plant; b, bract; c, bractlet; d, calyx; e, corolla; f, portion of corolla tube enlarged to show pubescence; g, anther. (a, Half natural size; b, c, 6 times natural size; d, 3 times natural size; e, 1½ times natural size; f, 50 times natural size; g, 6½ times natural size.)**

long or the marginal hairs somewhat longer, ascending to subpressed, the 3 nerves thick and broad but not conspicuous; bractlets narrowly triangular, 1.5 mm. long, 1 mm. wide at base, subacute and carinate, sparingly hirtellous and ciliate; calyx 9 mm. long, sparingly hirtellous, the segments lanceolate, 6 mm. long, 1 mm. wide near base, gradually narrowed upwardly to a slender acute tip, ciliolate, the hairs straight or slightly curved, up to 0.16 mm. long; corolla 19 mm. long, purplish, hirtellous, the hairs rigid, mostly straight, spreading or
retrorse, up to 0.13 mm. long, the corolla tube 11 mm. long, 2.25 mm.
broad near the base, 3 mm. broad at throat, the upper lip erect, 
oblong, 8 mm. long, 3 mm. wide at base, the tip 1 mm. wide, emargi-
nate, the lower lip somewhat spreading or ascending, cuneate, 9 mm.
long, 5 mm. wide at base of the 3 lobes, these oblong-ovate, about 4
mm. long, 2 mm. wide, rounded; stamens exserted 6 mm. beyond the
mouth of the corolla, the filaments glabrous toward tip, hirtellous
toward base, the anthers 2 mm. long, 0.75 mm. broad, the lobes
superposed, vertically attached to the connective, the lower cell
tailed, the tail about 1 mm. long, bent vertically to the axis of the lobe;
style exserted about 2 mm. beyond the mouth of the corolla tube,
hirtellous, the stigma minutely bilobed; ovary hirtellous toward tip;
capsules not seen.

Type in the U. S. National Herbarium, No. 1661616, collected in
swamp-forest at Puerto Araujo, on the Rio Carare, Department of
Santander, Colombia, 100 to 700 meters altitude, June 6, 1935, by
Oscar Haught (No. 1754).

Haught's No. 2186, a shrub 1 meter high with red-purple flowers
collected in flood-plain forest at Raizudo, Department of Santander,
about 200 meters altitude, April 28, 1937, also represents the species.

*Justicia helonoma* has no close relatives among the species treated
in this paper. The large, more or less succulent, glabrous leaf blades
and narrow panicled spikes of purplish flowers should serve as char-
acters by which it can be readily recognized. The specific epithet
is from the Greek word ἑλώνυμος, alluding to the swampy habitat.

56. *Justicia pectoralis* Jacq.
*Justicia pectoralis* Jacq. Enum. Pl. Carib. 11. 1760. Type locality: "Insulis
Caribaeis."
*Diantkera pectoralis* Gmel. Syst. Nat. 36. 1796. Based on *Justicia pectoralis*
Jacq.
*Stethoma pectoralis* Raf. Fl. Tellur. 4: 61. 1836 [1838].

Herbs up to 1 meter high; stems weak, erect or ascending, simple
or moderately branched, often rooting at the lower nodes, subquad-
angular, shallowly and coarsely grooved, glabrous or hirsutulous,
the hairs retrorsely curved, up to 0.5 mm. long, disposed more or
less in two lines, the internodes 1 to 7 cm. long, the cystoliths numer-
ous, subpunctiform; leaf blades narrowly to rather broadly lanceolate,
3 to 11 cm. long, 3 to 25 mm. wide, acuminate (the tip itself acute to
obtuse), acute to obtuse at base, entire or undulate, moderately
firm, the upper surface glabrous or the costa hirtellous, the hairs
curved, up to 0.2 mm. long, the cystoliths prominent under a lens,
125 to 200μ long, the lower surface glabrous, the cystoliths obscure,
the costa and lateral veins (5 or 6 pairs) barely prominent but more so than above; petioles slender, 2 to 12 mm. long, hirtellous, the hairs curved, about 0.2 mm. long; flowers borne in rather loose terminal panicles usually 5 to 16 cm. long and up to 6 cm. broad, the branches paired or verticillate, simple or the lower ones branched, subterete, puberulous, the eglandular hairs numerous, spreading, 50μ long, the glandular ones fewer, stouter, 75μ long, with broad turbinate tips, the lower internode usually 2 or 3 cm. long, the others successively shorter toward tip of panicle; lower bracts narrowly lanceolate, 5 to 10 mm. long, 0.5 mm. wide, acuminately costate, glabrous or the margins and costa more or less hirtellous, the succeeding bracts subulate, 1 to 2 mm. long, about 0.2 mm. wide at base, acuminately costate, puberulous with glandular and eglandular hairs; bractlets similar to the bracts but smaller; calyx 5-parted, deeply segmented, the segments subulate, 2.5 mm. long, about 0.25 mm. wide at base, acuminately puberulous with both glandular and eglandular hairs; corollas white, lilac, or purple, up to 8 mm. long, the throat transversely plicate, sometimes spotted with dark purple, the outer surface of the corolla moderately pubescent, the hairs spreading, 125 to 175μ long, the tube about 1 mm. broad at base, 1.5-2.5 mm. broad at throat, the upper lip triangular, erect, 2.5 mm. wide at base, terminating in a subtubular oblong subcucullate tip 1.5 mm. long and 1 mm. broad, the tip itself truncate and coarsely erose, the lower lip more or less spreading, cuneate, 4 mm. wide near tip, 3-lobed, the lobes 1.5 mm. long, the middle one 2 mm. wide, the lateral ones 1.5 mm. wide, all rounded; stamens attached to corolla tube, their free portions 2.5 mm. long, exserted about 1 mm. beyond throat of the corolla, the filaments glabrous except the adnate portion, this pilose, the hairs retrorse, the anther lobes equally attached or slightly superposed, borne on a connective about 0.25 mm. wide; style 7 mm. long, glabrous or bearing a few minute hairs near base; capsules clavate, 8 mm. long, 1.5 mm. broad, puberulous, the eglandular hairs intermixed with a few glandular ones; retinacula 2 mm. long, the tip rounded; seed flattish, 1.5 mm. broad, reddish brown, roughened.

Justicia pectoralis is closely related to J. comata, but typical plants of the former can be readily recognized by their terminal inflorescence with subterete glandular puberulous branches. The inflorescence of J. comata, on the other hand, is often both terminal and lateral with flattened branches, these hirtellous, usually bearing few if any glandular hairs.

The species is found in woods, waste places, and in cultivated fields.
in the West Indies as well as in continental tropical America. It prefers the lower altitudes, usually below 600 meters.


Without locality: Apolinar-Maria 157 (GH).

Humboldt collected a specimen of this species at Turbaco, Department of Bolívar.

56a. Justicia pectoralis Jacq. var. stenophylla Leonard, var. nov.

Herba parva compacta; folia numerosa, lamina anguste lanceolata; inflorescentia parva.

Herbs usually not exceeding 20 cm. in height, erect or ascending, the internodes of the stems short, usually less than 2 cm. long; leaf blades numerous, narrowly lanceolate, 2 to 6 cm. long, 1 to 5 mm. wide; inflorescence often becoming dense, up to 10 cm. long but usually 3 to 6 cm. long.

Type in the U. S. National Herbarium, No. 1320301, collected at Jiramena, Llano de San Martin, Intendencia of Meta, Colombia, 220 meters altitude, January 1856, by J. Triana. Isotype: Col.

El Valle: Buenaventura, Triana (Col, K). Cali, Duque 1339 (Cali).

Vaupés: Banks of the Río Pacoa, Schultes & Cabrera 15244 (US).

Vernacular names: Abrojo, descansé, rojizo.

The original herbarium label on the isotype sheet bears the following note: “Fortificante para lavar los niños.” On the label of the Cali sheet, Duque gives the following information: “Hierba de 30 cm. de altura, erecta, notable porque sirve para orlar las eras o líneas divisorias de la geometría de los parques.”

57. Justicia comata (L.) Lam.


Justicia comata Lam. Encycl. 1: 632. 1783. Based on Dianthera comata L.

Leptostachya comata Nees in DC. Prodr. 11: 381. 1847.


Herbs up to 1 meter high; stems weak, ascending to nearly erect, more or less branched, often rooting at the lower nodes, subquadran-
gular (the angles rounded), more or less grooved, glabrous or sparingly
puberulous (the hairs about 0.25 mm. long, spreading or retrorse and disposed more or less in 2 lines) or occasionally pilose with spreading hairs up to 3.5 mm. long, the cystoliths numerous, parallel, 100 to 200 μ long; leaf blades lanceolate to oblong or oblong-ovate, usually about 6 cm. long and 2 cm. wide but occasionally reaching a length of 15 cm. and a width of 4 cm., acuminate or acute at apex, rounded, obtuse or narrowed at base and decurrent on the petiole, entire or shallowly undulate, moderately firm, both surfaces glabrous or sparingly hirtellous, the costa and lateral veins (about 6 pairs) obscure, the cystoliths slender, about 150μ long, not often conspicuous; petioles up to 2 cm. long (including winged portion), the uppermost leaves often subsessile; inflorescence terminal or axillary, the flowers secund in slender simple or branched spikes, these fascicled or the lowermost disposed in peduncled umbels, the peduncles up to 5 cm. long, the spikes forming in aggregate a terminal paniculate or sometimes a paniculate inflorescence involving nearly the entire plant, the branches of the inflorescence very slender and almost filiform, more or less angular, minutely hirtellous, often with longer (up to 300μ) gland-tipped hairs intermixed; bracts subtending the flowers lanceolate, barely 1.6 mm. long and 0.35 mm. wide, sharply acute, glabrous, strongly costate; bractlets about 1 mm. long, 0.25 mm. wide, in other respects similar to the bracts; calyx 2.5 mm. long, the segments narrowly lanceolate, 2 mm. long, about 0.5 mm. wide at base, slenderly acute, glabrous; corollas white, lilac, light blue, purplish white, rose or greenish pink (Pennell), often marked with purplish lines or spots, 4.5 to 7 mm. long, glabrous or the upper part of the tube bearing a few minute spreading hairs, the tube ca. 1.2 mm. broad at the base, slightly enlarged upwardly, contracted at about the middle, here ca. 1.5 mm. wide, thence ampliate to the throat, this 2 to 3.5 mm. wide, the limb bilabiate, the upper lip erect, ovate, 2.5 mm. long, 1.25 mm. wide, rounded or obtuse at tip, the lower lip spreading, triangular, 1.5 mm. wide at base, 3 mm. wide near tip, 3-lobed, the lobes ovate, 0.5 mm. long, 1 mm. broad, obtuse; stamens exserted about 2 mm. beyond the mouth of the corolla tube, the filaments slender, pilose at base, otherwise glabrous; anthers purple, the cells obliquely attached to a relatively broad connective, the upper 0.5 mm. long, and 0.25 mm. wide, the lower one smaller, the connective about 0.25 mm. broad; style exserted about 3 mm. beyond mouth of the corolla tube, glabrous; capsules clavate, 4 to 5 mm. long, 2 mm. broad and 1 mm. thick, 4-seeded, sparingly hirtellous or glabrate; retinacula about 0.75 mm. long, narrowly cucullate at tip; seeds reddish brown, somewhat flattened, barely 1 mm. in diameter, about 0.25 mm. thick, roughened or indistinctly papillose.
Justicia comata, distributed throughout tropical America, generally grows at low elevations of 500 meters or less, but may be found occasionally as high as 2,000 meters. It is weedy in nature, and is equally at home in damp or dryish thickets, on slopes, in woods, on river banks, in waste places in general, on margins of ponds or small streams, or even growing in shallow water. As to be expected of a species of such an extensive range, considerable variation is exhibited. Plants in wet situations, especially those growing in water, tend to produce long narrow leaf blades gradually narrowed to a subsessile base. Killip's No. 34261 and von Sneidern's Nos. 494 and 2644 are plants of this nature. The leaf blades of these plants vary from 4 to 17 cm. in length but rarely exceed 13 mm. in width. Moreover, Killip's specimen shows a transition stage between the aquatic form and the typical form, which has broader blades with rounded or obtuse bases. Plants with strictly terminal inflorescences rather strongly hirtellous or even puberulous with a predominance of glandular hairs are likely to be confused with J. pectoralis. Killip & Garcia's No. 33598 is such a plant. Remarkable also is the development of pilosity in Pennell's No. 1473 and Killip & Smith's No. 14719. In these the hairs of the stems are white, spreading, straight, and up to 3.5 mm. long.

Amazonas: Trail bordering a thicket near the Amazon, near Letitia, Hermann 11287 (US). Rio Hamacayacu, between the Amazon and Putumayo watersheds, Schultes 8248 (US).


Caica: Cultivated fields at Cali, Duque 1051 (Cali). River bank, El Tambo, von Sneidern 494 (S); 2644 (S). Guayabal, on the Río Micaey, Cuatrecasas 14111 (Ch).

El Chocó: Rich damp mountain valley near El Piñón, Araque & Barkley 19Ch.112 (US). Clearing along Quebrada Jella, vicinity of Bahía Solano near Ciudad Mutis, Killip & Garcia 33598 (US). Rich sandy plateau along the Río Atrato, near Quibdo, Araque & Barkley 19Ch.058 (US); Archer 1925 (NY, US); 2220 (US).

Cundinamarca: Junín, Triana s.n. (Col). La Esperenza, Granjo Cafetera Enrique Soto, Gutierrez 416 (Ch, Med, US).

El Valle: Barco, Río Cajambre, Cuatrecasas 17093 (US). Río Anchicayá, between Sabaletas and Quebrada del Tátabro, Cuatrecasas 22063 (US). Río Naya, between Puerto Merizalde and Meréigulo, Cuatrecasas 14345 (US). Río Yurumangui, between Isla de Golondro and La Amargura, Cuatrecasas 16060
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(SU). Swamp at Santa Rosa, Killip 11565 (Ph, US). Woods at Veneral, Rio Yurumangui, Cuatrecasas 15916 (US); 16003 (Cali).

Huila: Rio Cabrera, about 18 km. northeast of Villavieja, upper basin of the Rio Magdalena, 450 m., Galen Smith 1199 (US).

MAGDALENA: Carare, Andre 301 (GH). Santa Marta region, H. H. Smith 1208 (Ph, US); 1416 (Ph, US).


TOLIMA: Running water along the Ambalema-Ibague railroad near Caldas, Haught 2388 (US).

Vichada: Puerto Carreño, Rio Orinoco, Cuatrecasas 3978 (US).

Without definite locality, Mutis 1488 (US).

58. Justicia namatophila Leonard, sp. nov.

Suffrutex gracilis, caulibus ramosis, subquadrangularibus, sursum puberulis, pilis curvatis, deorsum glabris; lamina foliorum lanceolata, anguste acuminata (apice ipso obtuso), basi angustata, aliquanto firma, undulata, supra parce strigosa, subtus costa et venis minute strigosis, cystolithis minutis et obscuris; petioli breves; paniculae axillares, graciles, ramosae, puberulae, pilis curvatis; bracteae et bracteolae lineares vel subulatae, strigosae; calycis segmenta subulata, hirtella, pilis plus minusve patulis; corolla purpurea, retrorse hirsuta, labiis venosis, labio superiore erecto, ovato, acuto, labio inferiore plus minusve patulo, 3-lobato, lobis obovatis, rotundatis; stamina vix exserta, filamentis planis, glabris, antheris superpositis, lobis obliquis, glabris, lobo inferiore caudato; capsule clavatae, puberulae, pilis patulis vel retrorsis; semina brunnea, plana, ovata, papillosa.

Slighter suffrutescent plants up to 50 cm. high; stems branched, subquadrangular, puberulous with upwardly curved whitish hairs about 0.1 mm. long, the lower suffrutficose portions glabrate, the internodes 1 to 4 cm. long; leaf blades lanceolate, up to 11 cm. long and 1.5 cm. wide, slenderly acuminate (the tip itself blunt), narrowed to a sub sessile base, moderately firm, undulate, the upper surface sparingly strigose, the hairs up to 0.5 mm. long, the lower surface minutely strigose, the hairs about 0.2 mm. long and confined chiefly to costa and veins (6 or 7 pairs), these slender and scarcely prominent, the cystoliths obscure and minute; petioles up to 3 mm. long, puberulous with curved hairs; flowers borne in slender axillary dichotomously and trichotomously branched panicles up to 6 cm. long, the peduncles usually 1 to 3 cm. long, 0.5 to 0.75 mm. in diameter, flattened, these and the branches of the inflorescence puberulous with curved hairs; pedicels slender, 2 mm. long, 0.28 mm. thick, puberulous, the hairs curved; bracts subtending the lowermost pair of branches of the panicle linear, 4 mm. long and 0.5 mm. wide, strigose, the subsequent
bracts subulate, 1.5 to 2.5 mm. long, strigose; bractlets minute, subulate; calyx 6 mm. long, hirtellous, the hairs mostly spreading, rigid, up to 0.15 mm. long, the segments subulate, 5 mm. long, 0.75 mm. wide at base; corolla purple, 15 mm. long, retrorsely hirsute, the hairs up to 0.2 mm. long, the lower half of the tube 1 mm. broad, the mouth 4 mm. broad, the lips veiny, the upper lip erect, ovate, 4 mm. long and 2.5 mm. wide, acute, the lower lip more or less spreading,

FIGURE 229.—Justicia namatophila Leonard (Haught 2135): a, Tip of plant to show leaves and inflorescence; b, portion of inflorescence enlarged to show calyx; c, anther; d, corolla. (a, Half natural size; b, 3 times natural size; c, 7 times natural size; d, 1½ times natural size.)

5 mm. long, 3-lobed, the lobes obovate, rounded, the middle lobe 2.5 mm. wide, the lateral ones 1.5 mm. wide; stamens slightly exserted beyond the mouth of the corolla tube, about 4.5 mm. long, the filaments flattened, glabrous, the anthers lobes slightly superposed and obliquely attached to the connective, the lobes 0.75 mm. long, glabrous, the lower lobe caudate, the tail about 0.15 mm. long; pistil slightly longer than the stamens, curved at tip, the stigma lobes minute and
rounded; capsules clavate, 11 mm. long, 2 mm. broad, 1.5 mm. thick, puberulous, the hairs straight, spreading or retrorse, about 0.1 mm. long, the solid stipitate portion of the capsule 5 mm. long; retinacula 1 mm. long, the tip flattened, rounded; seed dark brown, strongly flattened, ovate, 1.75 mm. long, 1.5 mm. wide, strongly papillose.

Type in the U. S. National Herbarium, No. 1740624, collected along a stream in the Quebrada Pontoná, about 18 km. west of La Dorada, Department of Caldas, Colombia, 400 meters altitude, December 30, 1936, by Oscar Haught (No. 2135).

*Justicia namatophila* is a well marked species easily recognized by its narrowly lanceolate leaf blades and numerous axillary panicles with slender branches and the subulate calyx segments. The specific epithet is derived from the Greek words υάμα, running water, and φιλος, loving.

59. *Justicia martiana* (Nees) Lindau


Herbs; stems subquadrangular, coarsely sulcate, hirsute, the hairs spreading or ascending, borne more or less in two lines, the cystoliths slender, parallel, up to 0.15 mm. long; leaf blades narrowly lanceolate, up to 16 cm. long and 22 mm. wide, slenderly acuminate, narrowed or rounded at base, moderately firm, entire or undulate, both surfaces glabrous or minutely and sparingly hispid, the hairs up to 0.3 mm. long, the cystoliths of the upper surface easily seen under a lens, up to 0.28 mm. long; petioles up to 12 mm. long, glabrous or rather sparingly hirtellous; flowers borne in dense terminal panicles, branching at base and composed of verticillasters of numerous slender ascending spikes, the panicles up to 25 cm. long and 12 cm. broad at base, the spikes up to 4 cm. long, the lowermost internode of the main rachis about 2 cm. long, the others successively shorter towards tip of inflorescence, the internodes of the spikes 2 to 7 mm. long, these and the main rachis rather densely hirsute, the hairs variously curved and up to 1.5 mm. long, the flowers secund; bracts subtending the verticillasters subulate, up to 5 mm. long, 0.5 mm. wide at base, glabrous or sparingly hirtellous; bractlets up to 3 mm. long, subulate, carinate, glabrous or sparingly hirtellous, the bracts and bractlets subtending the flowers similar to those subtending the verticillasters but slightly smaller; calyx 4 mm. long, deeply segmented, minutely hirtellous, the hairs ascending, up to 0.1 mm. long, the segments subulate, up to 0.5 mm. wide near base; corolla blue (Klug), sparingly pubescent (the hairs up to 0.13 mm. long), 6 mm. long, the upper lip 2.5 mm. long, 1 mm. wide, emarginate at tip, the lower lip spreading,
3 mm. long, about 3 mm. wide, 3-lobed, the lobes rounded, about 1 mm. in diameter; stamens 2.5 mm. long, the filaments slender, the anther lobes slightly superposed, somewhat obliquely attached, the upper 0.4 mm. long and 0.2 mm. wide, the lower slightly shorter, both rounded at base, the connective 0.25 mm. wide; style 5 mm. long, glabrous, the stigma minutely bilobed and rounded.

Woods, ditches, and grassy meadows in Colombia, Brazil, French Guiana, and Ecuador.

Justicia martiana is closely related to J. comosa but can be easily recognized by its large dense hirsute panicles. The species shows considerable variation. The flowers vary from white to blue. Schomburgk's No. 305, the type of var. hispida Nees, from French Guiana, has a glandular pubescent inflorescence and ovate leaf blades with rounded or subcordate bases. Klug's specimens, cited here, have slenderly lanceolate leaf blades gradually narrowed to the base, but those of Uribe-P., although likewise narrowly lanceolate, are rounded at base and briefly decurrent on the petiole. The capsules of Schomburgk's plant are 4 mm. long, 2.25 mm. wide, and about 1 mm. thick, short-clavate and rather densely hirtellous.

Caquetá: Without locality, Uribe-P. s.n. (US).

60. Justicia laevilingue (Nees) Lindau

Rhytiglossa laevilinguis Nees in Mart. Fl. Bras. 9, pt. 7: 120. 1847. Several syntypes, all from Brazil, are cited; a photograph (US) of a Sellow specimen without specific locality probably represents type material (Field Mus. No. 8838).

Rhytiglossa obtusifolia Nees, loc. cit. Two syntypes are cited: Buenos Aires, Argentina (Herb. Arnott), and Porto Alegre, Rio Grande do Sul, Brazil, Sellow; there is a photograph (US) of a specimen in the Berlin Herbarium collected in Brazil (without specific locality) by Sellow that may be type material (Field Mus. No. 8848).


Herbs; stems simple or moderately branched, erect or ascending and rooting at the lower nodes, more or less succulent, 4-sulcate, glabrous or sparingly and retrorsely pilose, the hairs septate, up to 1 mm. long; leaves sessile or the lowermost short-petioled (up to 3 mm. long), linear or narrowly lanceolate, up to 13 cm. long and 23 mm. wide, slenderly acuminate (the tip itself obtuse), acute, obtuse or rounded at base, both surfaces glabrous or the costa of the lower surface bearing a few scattered hairs, the cystoliths minute and inconspicuous; spikes terminal and axillary, up to 6 cm. long, rather slender, the flowers secund, the rachis glabrous, its internodes up to
5 mm. long at maturity, the peduncles up to 7 cm. long, glabrous or nearly so; bracts triangular, up to 2 mm. long, 1 mm. wide at base, acuminate, glabrous; bractlets subulate, 1 mm. long, 0.5 mm. wide at base, glabrous; calyx up to 7 mm. long, deeply segmented, the segments linear-lanceolate, 0.75 mm. wide, acuminate, glabrous or sparingly ciliolate toward tip, the minute delicate cystoliths rather prominent under a lens; corolla white, tinged with violet, blue violet or purple, glabrous or minutely and sparingly pubescent, rarely over 15 mm. long, the tube 6 mm. long, 1.5 mm. broad at base, 3 mm. broad at mouth, the upper lip obovate, up to 1 cm. long and 4.5 mm. wide, rounded, entire, the lower lip spreading, up to 13 mm. long and about 15 mm. wide, 3-lobed, the lobes ovoid, about 6 mm. long and wide, rounded, delicately veined; stamens exserted about 3 mm. above mouth of corolla tube, glabrous, the anther cells superposed, the upper cell horizontal, 1.25 mm. long, 0.5 mm. broad, the lower vertical, 1.75 mm. long, 0.5 mm. broad, acute at base, both cells glabrous, the connective about 0.5 mm. wide; capsules ovoid-stipitate, 17 mm. long, 6 mm. wide, 0.75 mm. thick (the solid stipe 7 mm. long and 0.75 mm. thick and 0.5 mm. wide), acute at tip, glabrous; retinacula 3 mm. long, slightly curved, bidentate at tip; seed suborbicular, 5 mm. long, 5.5 mm. broad, barely 0.5 mm. thick, gray or flecked brown, glabrous, the margin thin, lacerate or toothed at tip and base.

*Justicia laevilinguis*, a plant of swampy regions, is widely distributed throughout tropical America. In spite of its great range, specimens are not often collected, probably because it is not abundant in any particular place. The specimens cited were all from below 50 meters altitude.

Its broad strongly flattened capsules and thin orbicular gray or brown flecked, thin-margined seeds are unique.

**BOLÍVAR:** River marsh at Magangué, *Pennell* 3948 (NY); 3958 (GH, NY, US).

61. *Justicia idiogenes* Leonard, sp. nov.  

Suffrutex, caulibus subquadrangularibus, sursum dense hirsutis, pilis patulis, deorsum glabratibus; lamina foliorum oblongo-elliptica, apice acuta vel acuminata (apica ipso obtuso), basi angustata, aliquanto firma, integra, supra glabra, subtus hirtella, pilis praeципue in costa et venis positis, curvatis, ascendentibus, cystolithis minutis, inconspicuis; petioli hirsuti; spicæ axillares, solitarias vel binæ, plus minusve curvatae, floribus secundis, pluribus et densis, rhache et pedunculo gracilibus, hirtellis; bracteæ spathulatae, obtusae vel rotundatae, basi angustatae, aliquanto hirtellæ et ciliatae; bracteolæ
similes sed paulo angustior; calycis sementa lanceolato-subulate, glabra; corolla alba (interdum lilacina), parva, labiis subaequalibus, labio superiore erecto, ovato, apice subobtusus et emarginato, labio inferiore 3-lobato, plus minusve patulo, lobis ovatis, rotundatis; stamina vix exserta, lobis antherarum leviter superpositis, glabris, lobo inferiore calcarato, filamentis planis, subhyalinis; capsulae parvae, clavatae, parce hirtellae; retinacula fere recta, apice tenuia; semina suborbicularia, plana, nigra, glabra.

Shrubs up to 1.5 meters high; stems subquadrangular, up to 5 mm. in diameter, densely hirsute, the hairs coarse, spreading, up to 0.65 mm. long, the lower portions of the stems glabrate; leaf blades oblong-

**Figure 230.** *Justicia idiogenes* Leonard (a, b, Cuatrecasas 10751; c-e, Klug 1813): a, Tip of plant to show inflorescence and leaves; b, calyx, bract and bractlet; c, bract; d, stamen; e, capsule valve. (a, Half natural size; b, 4 times natural size; c, 5½ times natural size; d, 6 times natural size; e, 1½ times natural size.)

elliptic, up to 25.5 cm. long and 9 cm. wide, acute to subacuminate (the tip itself subobtuse), narrowed at base, rather firm, entire, the upper surface glabrous, the lower surface hirtellous, the hairs confined chiefly to costa and lateral veins, curved, ascending, about 0.2 mm. long, the venation rather prominent, more so beneath than above, the cystoliths minute and inconspicuous, blackish; petioles up to 13 mm. long, hirsute; spikes solitary or in pairs, axillary, subsessile, up to 6 cm. long, 5 mm. broad, more or less curved, the flowers secund, numerous, crowded, the rachis slender, hirtellous, the peduncle short; bracts spatulate, 4.25 mm. long, 1.5 mm. wide
near tip, obtuse or rounded, narrowed and slender toward base, rather sparingly hirtellous and ciliolate; bractlets similar but narrower (0.75 mm. wide); calyx 4 mm. long, glabrous, the segments lance-subulate, about 0.25 mm. wide at base; flowers white (lilac and red-brown, Klug 1813), 8 mm. long, glabrous, 1.5 mm. broad at base, 2.5 mm. broad at mouth, the lips subequal, 2.5 mm. long, the upper lip ovate, erect, 2 mm. wide near base, obtusish and emarginate at tip, the lower lip more or less spreading, 3-lobed, the lobes ovate, 1.5 mm. long, 0.5 mm. wide, rounded; stamens slightly exserted beyond the mouth of the corolla tube, the anther lobes slightly superposed, 0.75 mm. long, 0.25 mm. broad, glabrous, the lower cell calcarate, the filaments flat and subhyaline; stigma slightly exceeding the upper lip of the corolla; capsules (Klug 1813) clavate, sparingly hirtellous, 8 mm. long, 3.5 mm. broad, 1.5 mm. thick, the stipitate solid basal portion 1.25 mm. broad; retinacula 1.5 mm. long, nearly straight, the margins and tip thin; seeds suborbicular, flat, black, smooth.

Type in the U. S. National Herbarium, No. 1798533, collected in damp forests along the Río Putumayo at Puerto Porvenir, Comisaría of Putumayo, Colombia, 230 to 250 meters altitude, November 22, 1940, by J. Cuatrecasas (No. 10757).

The following specimens also may be of this species: Klug’s No. 1813, collected in the forests of Umbria, Comisaría of Putumayo, 325 meters altitude, October or November 1930, and Richard Evans Schultes' No. 3538, collected along the Río San Miguel, in the vicinity of Conejo, Putumayo, 300 meters altitude, April 2-5, 1942.

Klug's specimen differs from the type in its lilac and red-brown (not white) flowers and in the slightly wider and more slenderly stipitate bracts. It does not seem expedient, however, to assign specific or varietal rank to this plant until further material can be examined.

Schultes' specimen was taken from a large herb and was called in the Kofán vernacular, “chu-ru-ko-pu.”

The specific epithet is from the Greek ἵσιογεφής, meaning peculiar of its kind, in allusion to the peculiar curved second spikes.

62. Justicia fusagasugana Leonard, sp. nov. Figure 231

Herba ramosa, caulibus subteretibus, dense bifariam hirtellis, pilis retrorse curvatis, nodis tumidis; lamina foliorum oblongo-ovata vel lanceolata, apice obtusa, acuta vel acuminata, basi rotundata vel cuneata, aliquanto firma, integra vel undulata, hirtella, pilis patulis, plus minusve curvatis; petioli dense hirtellis; flores sessiles vel in spicis brevibus dispositi, terminales et axillares, rhachibus hirtellis; bracteae lineari-subulatae, carinatae, parce hirtellae, pilis acutis et pilis glandulosis intermixinis; segmenta calycis lanceolata,
ciliolata, extus parce hirtella, intus papillosa, marginibus albis et subhyalinis; corolla lilacina, minute pubescens, tubo angusto hypocrateriformi, labio superiore anguste ovato, labio inferiore cuneiformi, 3-lobato, lobis rotundatis; stamina vix exserta, lobis antherarum rectis, superpositis, lobo inferiore caudato; ovarium dense puberulum.

Branching herbs up to 1 meter high; stems subterete, rather densely hirtellous, the hairs more or less disposed in two lines, retrorsely curved, up to 0.4 mm. long, the nodes swollen; leaf blades oblong-ovate to lanceolate, up to 8 cm. long and 2.5 cm. wide, obtuse, acute or acuminate, rounded to narrowed at base, moderately firm, entire or undulate, hirtellous, the lower surface sometimes densely so, the hairs up to 0.4 mm. long, mostly spreading and more or less curved; petioles up to 1.5 cm. long, hirtellous, usually densely so; flowers several, borne in close axillary clusters or sometimes in short axillary spikes up to 1.5 cm. long with hirtellous rachises; bracts linear-subulate, up to 8 mm. long, 0.5 mm. wide at base, carinate, sparingly hirtellous, the hairs 0.25 mm. long, some of them gland-tipped; calyx segments lanceolate, 9 mm. long, 1.5 mm. wide at base,
0.5 mm. wide at middle, thence gradually narrowed into a slender tip, ciliolate, the outer surface sparingly hirtellous, the hairs up to 0.25 mm. long, the inner surface papillose, the margins whitish and subhyaline; corolla lilac, sparingly and minutely pubescent, the tube 9 mm. long, the throat about 4 mm. broad, the upper lip narrowly ovate, about 6 mm. long, the lower cuneiform, 11 mm. long, 3-lobed, the lobes 2.5 mm. long, 1.5 mm. wide, rounded; stamens exserted, reaching to middle of lips of the corolla, the anther lobes superposed and vertical, 1.5 mm. long, 0.5 mm. broad, the lower one caudate, the tail 0.75 mm. long; ovary densely puberulent; capsules not seen.

Type in the Kew Herbarium, collected at Fusagasugá, Department of Cundinamarca, Colombia, 1,780 meters altitude, February 4, 1876, Ed. André (No. 1517).

Cundinamarca: Tocaima, 500 meters altitude, January 1858, Triana s. n. (Col).

Justicia fusagasugana is closely related to and superficially resembles the Mexican J. furcata Jacq. The habit of growth, leaf blades, stems, and inflorescences of the two species are very similar. The bracts and calyces are, however, definitely different. In J. furcata, the bracts are thick, narrowly obovate, up to 3 mm. wide and broadest above the middle, acute at tip, the costa prominent, and the calyces are noticeably larger and their segments oblong instead of slenderly acuminate.

63. Justicia scytophylla Leonard, sp. nov. Figure 232

Herbs or suffrutescent plants; stems branching, subquadrangular, the angles rounded, the lower portions shallowly grooved, glabrous,
the upper parts bifariously hirtellous, the hairs white, variously curved, up to 0.45 mm. long; leaf blades lanceolate, up to 6.5 cm. long and 12 mm. wide near base, gradually narrowed to an acute tip, narrowed or obtuse at base and briefly decurrent on the petiole, coriaceous, entire or undulate, glabrous or the costa and marginal regions sparingly hirtellous, the hairs on the costa curved, subapressed, up to 0.24 mm. long, those on and near the margins of the leaf blades rigid, mostly ascending and about 0.08 mm. long, the costa, lateral veins (about 7 pairs) and the coarsely reticulated veinlets prominent on both surfaces of the leaf blade, the cystoliths not apparent; petioles 1 to 3 mm. long, finely puberulous with subappressed hairs; flowers borne in dense spikes 1 to 2.5 cm. long and 5 to 10 mm. broad, these terminating the branches, the rachises minutely puberulous with more or less curved hairs, only a few of which exceed 0.16 mm. in length; peduncles up to 3 cm. long, bifariously puberulous with curved hairs; bracts narrowly lanceolate, 4.5 mm. long, 0.5 mm. wide near the middle, acute, sparingly and minutely hirtellous and ciliate, the costa prominent; bractlets subulate, 5 mm. long, 0.25 mm. wide at base, the hairs and costa similar to those of the bracts; calyx segments 5, lanceolate, 5.5 mm. long, 0.5 mm. wide near base and middle, thence narrowed into a slender tip, sparingly and minutely hirtellous

Figure 232.—Justicia scytophylla Leonard (Schultes & Cabrera 17545): a, Portion of stem 5 cm. below spike; b, spike; c, bract; d, calyx and bractlets; e, upper lip of corolla; f, anther. (a, b, Natural size, c, e, 3½ times natural size; d, 3 times natural size; f, about 9 times natural size.)
and ciliate, the hairs up to 0.08 mm. long; corolla 8 mm. long, the upper part finely and rather sparingly pubescent, the lower part glabrous, the tube 1.5 mm. broad at base, 2 mm. broad at the throat, the upper lip rather narrowly ovate, 6 mm. long, 2 mm. wide at base, narrowed from middle to a minutely bilobed tip 0.5 mm. wide, the lobes 0.25 mm. long, obtuse, the lower lip subovate, about 6 mm. long and 4 mm. wide, rather shallowly 3-lobed at tip; stamens about 3 mm. long, slightly exserted, the filaments slender, glabrous, the anther cells superposed, 0.75 mm. long, 0.25 mm. thick, minutely pilose dorsally, the connective 0.25 mm. wide; capsules clavate, 7 mm. long, the seed-bearing part 4 mm. long, 3 mm. broad and about 2 mm. thick, the surface rather densely pubescent, the hairs spreading near tip, retrorse toward base of capsule; retinacula 1.5 mm. long, the tip thin, oval, cucullate.

Type in the U. S. National Herbarium, No. 2124584, collected along the Río Piraparaná, a tributary of the Río Apaporis, Comisaría of Vaupés, September 18, 1952, by Richard Evans Schultes and Isidoro Cabrera (No. 17545). Isotype: US.

The color of the corolla is not apparent in the dried material. The specific epithet is from the Greek σκότος, leather, and φύλλον, leaf, in allusion to the coriaceous texture of the leaf blades.

64. Justicia killipii Leonard, sp. nov. Figure 233

Herba ascendens, caulibus subquadrangularibus, minute et subttiliter et retrorse strigosis; lamina foliorum ovata, breviter acuminata (apice ipso obtuso), basi acuta vel obtusa, aliquanto firma, integra, utrinque glabra, costa et venis lateralis subtus prominens, strigosis, cystolithis gracilibus et aliquanto obscuris; petioli strigosis vel hirtellis; spicae trifurcatae, terminales, angustae, pedunculo communi longo, quadrangulii, hirsuto, pilis ascendentibus, pedunculis secundaris hirsutis; bracteae spicas subtendentes angustae lanceolatae, carinatae, hirsutae, pinnati-nervatae; bracteae flores subtendentes lanceolatae, subacutae, parce hirtellae, pilis fere marginalibus patulis vel ascendentibus, rectis vel suberectis, costa at nervis prominentibus; bracteolae anguste triangulares, acutae, parce hirtellae, costa et nervis lateralis prominentibus; calycis segmenta hirtella (pilis glandulosis leviter curvatis) et puberula (pilis patulis, glandulosis), costa et nervis prominentibus; corolla alba, minute hirtella, pilis rectis, plus minusve patulis, labio superiore erecto, oblongo-ovato, apice subacuto, labio inferiore plus minusve patulo, cuneiformi, 3-lobato, lobis suborbicularibus; stamina exserta, in labio antico corollae declinata, filamentis sursum glabris, deorsum retrorse hirsutis, lobis anterarum superpositis, verticalibus, lobo inferiore
caudato; capsulae clavatae, hirtellae et puberulae, pilis patulis glandulosis et pilis longioribus acutis, rigidis, patulis vel basi retrorsis vel apice ascendentibus intermixtis; retinacula leviter curvata, apice alba, truncata, erosa.

Herbs up to 25 cm. high, ascending; stems subquadrangular, minutely and finely retrorsely strigose, the hairs up to 0.11 mm. long; leaf blades ovate, up to 9 cm. long and 4.8 cm. wide, short-acuminate (the tip itself blunt), acute to obtuse at base, rather firm, entire, glabrous on both surfaces except the strigose costa and lateral veins (8 or 9 pairs) of the lower surface, the cystoliths slender, up to 0.24 mm. long, rather obscure; petioles up to 1 cm. long, sparingly strigose or hirtellous, the hairs up to 0.16 mm. long; flowers borne in trifurcate spikes up to 7 cm. long and 5 mm. broad, the common peduncle 10.5 cm. long, subquadrangular, 1.5 mm. thick, hirsute, the hairs ascending,
up to 0.32 mm. long, septate, the secondary peduncle of central spike 17 mm. long, those of the lateral ones 15 mm. long, all hirsute, the bracts subtending the 3 spikes lanceolate, 7 mm. long, 2.5 mm. wide, carinate, closely penninerved, hirsute, the hairs mostly marginal and costal; bracts subtending the flowers narrowly ovate, subacute, 4.5 mm. long, 1.25 mm. wide at base, sparingly hirtellous, the hairs mostly marginal, up to 0.19 mm. long, spreading or ascending, straight or nearly so, the costa and lateral nerves (2 or 3 pairs) prominent; bractlets narrowly triangular, 4 mm. long, 0.75 mm. wide at base, sparingly hirtellous, acute, costa and lateral nerves 1 or 2 pairs, prominent; calyx 7 mm. long, hirtellous and puberulous, the longer hairs eglandular, slightly curved, up to 0.19 mm. long, the smaller hairs straight, spreading, up to 0.06 mm. long, tipped by small spherical glands, the costa and the 2 pairs of lateral nerves prominent; corolla 15 mm. long, white, minutely hirtellous, the hairs straight or slightly curved, more or less spreading, the tube 6 mm. long, 2 mm. broad at base, narrowed at 3 mm. above base to 1.5 mm., thence enlarged to 2 mm. at throat, the upper lip erect, oblong, about 9 mm. long, 3 mm. wide near base, acutish at tip, the lower lip more or less spreading, about 7 mm. long, cuneate, 2 mm. wide at base of the lobes, these suborbicular, about 1.25 mm. in diameter, the stamens reaching the tip of and partly lying in the upper lip of the corolla, declinate, the filaments glabrous except at base, here retrorsely hirsute, the hairs about 0.16 mm. long, straight, slender; anthers 2.5 mm. long and 0.5 mm. thick, the cells superposed, vertically attached to the connective, the lower cell terminating in a blunt tail 0.5 mm. long; capsules clavate, about 1 cm. long, 2 mm. broad, 1.75 mm. thick, both hirtellous and puberulous, the longer hairs rigid, eglandular, spreading or retrorse toward base and ascending toward tip, up to 0.13 mm. long, the smaller hairs spreading, up to 0.06 mm. long, glandular; retinacula 4, about 2 mm. long, white, truncate, erose.

Type in the U. S. National Herbarium, No. 1772180, collected in dense forests at Istmina, on the Río San Juan, Intendencia of Chocó, Colombia, about 75 meters altitude, April 29, 1939, by E. P. Killip (No. 35469).

Choco: Río San Juan, vicinity of Palestina, 0–40 meters, May 29, 1946' Cuatrecasas 21428 (Valle).

Justicia killipii is closely related to J. sterea Leonard but can be separated by its smaller size, the more ovate-shaped leaves and the much larger spikes. The plants of J. sterea often exceed 70 cm. in height, thus being at least twice as high as those of J. killipii; their elliptic leaves are up to 13.5 cm. long and 5.5 cm. wide instead of only 9 cm. long and 4.8 cm. wide, and their spikes are only 3 cm. long instead of 7 cm.
65. *Justicia graphophylla* Leonard, sp. nov.  

Large herbs, probably up to 1 meter high or more; stems subquadrangular, glabrous or sparingly puberulous at the nodes, the hairs rigid, upwardly appressed, the cystoliths numerous, subpunctiform; leaf blades oblong-elliptic, up to 17 cm. long and 8 cm. wide, short-acuminate, the tip slender, narrowed at base, firm, undulate, both surfaces glabrous, the costa, lateral veins (usually 8 pairs) and the coarsely reticulated veinlets prominent, the cystoliths of both surfaces numerous and conspicuous, 0.24 mm. long; petioles 2 to 2.5 cm. long, glabrous or sparingly strigose; spikes axillary and terminal, usually about 6 cm. long; peduncles 8 to 13 mm. long, upwardly hirtellous, the hairs rigid, subappressed, mostly about 0.11 mm. long; rachis subquadrangular, about 0.75 mm. in diameter, densely hirtellous with rigid upwardly subappressed hairs, the internodes up to about 8 mm. long, the lowermost pair of bracts subulate, 4 mm. long, 0.5 mm. wide at base, carinate and conduplicate, sparingly hirtellous, the hairs ascending, rigid, about 0.16 mm. long, the cystoliths numerous and conspicuous, the upper bracts subulate or narrowly triangular, about 1.5 to 2.5 mm. long, narrowed from base to a slender tip, carinate, sparingly hirtellous and covered with cystoliths; bractlets similar to the bracts, equaling them or slightly shorter; calyx segments narrowly linear, 8.5 mm. long, about 0.75 mm. wide, sparingly hirtellous, the
hairs rigid and ascending, up to 0.2 mm. long, the cystoliths numerous, parallel and conspicuous; corolla white with the anterior lip spotted with violet (Pennell), 26 mm. long, rather densely hirtellous except at base, the hairs more or less spreading, up to 0.24 mm. long, rigid, the corolla tube narrow, 2 mm. broad at base, narrowed at 5 mm. above base to 1.5 mm., thence gradually enlarged to 2.5 mm. at mouth,

Figure 234.—Justicia graphophylla Leonard (Pennell 4500): a, Section of plant showing node, internode, leaf, peduncle and lowermost pairs of bracts (spikes fragmented); b, portion of leaf blade (under surface) enlarged to show veins and cystoliths; c, lowermost pair of bracts; d, section of spike showing bracts, a bractlet and calyx; e, section of calyx segment enlarged to show nerves, pubescence and cystoliths; f, corolla; g, portion of lower lip of corolla enlarged to show capitate-glandular hairs; h, anther. (a, Half natural size; b, about 14 times natural size; c, d, 4 times natural size; e, 12 times natural size; f, twice natural size; g, about 30 times natural size; h, 7 times natural size.)

the upper lip erect, oblong-ovate, 12 mm. long, 4 mm. wide at base, 0.75 mm. wide at tip, rounded, emarginate, the lower lip spreading or recurved, the inner surface papillose, oblong, 5 mm. wide, 3-lobed at tip, the lobes about 1 mm. long and 1.5 mm. wide, rounded, the middle one cucullate; stamens exserted, equaling or slightly shorter than the corolla lips, the filaments glabrous, the anthers 3.5 mm. long, 0.5 mm. broad, dorsally hirsute, the cells superposed and vertically attached
to the connective, the cells slightly overlapping, the lower one short-caudate, the tail rounded at tip, about 0.32 mm. long; ovary hirtellous.

Type in the herbarium of the New York Botanical Garden, collected in forest of Boca Antizales, on the Río Esmeralda, Department of Bolívar, Colombia, 800 to 1,200 meters altitude, February 26, 1918, by Francis W. Pennell (No. 4500).

*Justicia graphophylla* bears a close relationship to *J. phlebophylla* and resembles it in many respects, especially in the large glabrous or nearly glabrous leaf blades, these densely covered by cystoliths. In *J. phlebophylla*, the rachis of the spike is heavy and the flowers secund; the rachis does not show any tendency to fragmentation as in *J. graphophylla*. The specific epithet is from the Greek γράφω, engrave or draw, and φύλλον, leaf, in allusion to the design formed by the conspicuous cystoliths.

66. *Justicia petraea* Leonard, sp. nov.  

Suffrutex, caulibus ascendentibus, fere simplicibus, sursum subquadrangularibus, basi in nodis radicantibus, hirtellis, pilis subbrunneis, retrorse curvatis, deorsum teretibus, retrorse puberulis; lamina foliorum oblongo-ovata vel oblongo-elliptica, apice breviter acuminata (apice ipso obtuso), basi obtusa vel rotundata, aliquanto firma, integra, utrinque glabra vel parce hirsuta, costa et venis lateralis subtus prominentibus, supra obscuris, cystolithis prominentibus; petioli crassi, hirtelli; spicae terminales, simplices vel furcatae, pedunculis et rhachibus aliquanto hirtellis, pilis brunneis, plus minusve patulis; bracteae parvae, anguste lanceolatae, apice obtusae, firmae, subcarinatae, striatae, hirtellae; bracteolae lineari-lanceolatae, apice obtusae, hirtellae; calycis segmenta anguste lanceolata, apice acuta, parce hirtella, graciliter 3-nervata; corolla alba, labiis purpureo-lineatis, parce puberula, labiiis subaequalibus, labio superiore oblongo-ovato, apice rotundatis; stamina exserta, antherae lobis superpositis, lobo inferiori calcarato, calcare apice cucullato, rotundato, connectivo calcarato, pubescente, filamentis sursum glabris, basi retrorse hirtellis, pilis rigidis, rectis; capsulae clavatae, aliquanto hirtellae, pilis acutis et pilis brevioribus glandulosis intermixtis; semina plana, obscure muricata.

Suffrutescent plants up to 1.15 meters high or more; stems ascending, mostly simple, subquadrangular, hirtellous, the hairs brownish, about 0.28 mm. long, retrorsely curved, the lower portions of the stems subterete, glabrate or sparingly and retrorsely puberulous, the horizontal portions rooting at the nodes; leaf blades oblong-ovate or oblong-elliptic, 14 cm. long, 5.5 cm. wide, short-acuminate (the tip itself obtuse or rounded), obtuse or rounded at base, rather firm, entire, both surfaces glabrous or sparingly hirsute, the hairs brownish,
up to 1.5 mm. long, ascending or subappressed, up to 1.5 mm. long, those of costa and lateral veins (10 to 12 pairs) smaller, up to 0.5 mm. long, the venation prominent beneath, less so above, the cystoliths numerous and conspicuous, up to 0.25 mm. long; petioles stout, 2 to 4 mm. long, hirtellous with brownish ascending hairs up to 0.2 mm. long; spikes terminal, single or forked, up to 12 cm. long, the secondary peduncles about 2.5 cm. long, the lowermost internode of

Figure 235.—\textit{Justicia petraea} Leonard (C. L. Collenette 614): \textit{a}, Tip of plant; \textit{b}, portion of under surface of leaf blade enlarged to show pubescence and cystoliths; \textit{c}, bract; \textit{d}, bractlet; \textit{e}, calyx; \textit{f}, portion of capsule enlarged to show pubescence; \textit{g}, anther (front view); \textit{h}, same (lateral view). (\textit{a}, About half natural size; \textit{b}, 10 times natural size; \textit{c}–\textit{e}, 5 times natural size; \textit{f}, about 20 times natural size; \textit{g}, \textit{h}, 8 times natural size.)

the rachis 1.5 cm. long, the others successively shorter toward tip of spike, these and the peduncles rather densely hirtellous, the hairs brown, more or less spreading, up to 0.3 mm. long; bracts subtending spikes subulate, 4 or 5 mm. long, about 1 mm. wide at base, gradually narrowed to a blunt tip, subcarinate, firm, hirtellous like the rachis; bracts subtending the flowers subulate, the lowermost pair linear-lanceolate, 3.5 mm. long, 0.75 mm. wide, blunt at tip, striate, hirtellous, the others successively smaller toward tip of spike; bractlets
linear, up to 3.5 mm. long and 0.5 mm. wide, blunt at tip, hirtellous; calyx 6 mm. long, the segments narrowly lanceolate, 5 mm. long, 0.5 mm. wide near the base, gradually narrowed to an acute tip, sparingly hirtellous with spreading or ascending hairs up to 0.5 mm. long, delicately 3-nerved; corolla 13 mm. long, white with mauve markings on lip, rather sparingly puberulous, the hairs spreading, up to 0.13 mm. long, the lips subequal, 6 mm. long, the upper one oblong-ovate, about 3 mm. wide, rounded at tip, the lower one cuneate, 7 mm. wide at base of the 3 lobes, these ovate, 3 mm. long, the middle one 3 mm. wide at base, the lateral ones 2 mm. wide, all rounded at tip; stamens slightly exserted, the anthers 2 mm. long, dorsally pubescent, the cells vertical or slightly oblique at maturity, superposed, 1 mm. long, 0.5 mm. wide, the lower one calcarate, the tail 0.5 mm. long, cuculate and rounded at tip, the connective spurred, the filaments glabrous except at base, here retrorsely hirtellous with straight rigid hairs up to 0.24 mm. long; capsules 4-seeded, clavate, 1 cm. long, 2 mm. broad, 1.5 mm. thick, rather sparingly hirtellous, the hairs more or less spreading, up to 0.11 mm. long or a few at the tip of the capsule reaching 0.18 mm. in length, the acute hairs intermixed with shorter gland-tipped ones; retinacula curved or bent at middle, 1.5 mm. long, the tip rounded, thin, obscurely erose; seeds flat, about 2 mm. in diameter, light brown, obscurely tuberculate.

Type in the Kew Herbarium, collected on rocks in narrow gorge near stream, Gorgona Island (off coast of Cauca), Colombia, "200 ft." altitude, October 18, 1924, by C. L. Collenette (No. 614).

*Justicia petraea* may be related to *J. sterea*, a species with a similar inflorescence but with the leaf blades acute at base and the petioles longer. The specific epithet is from the Greek πετραῖος, meaning living on or among rocks, in allusion to its habitat.

67. *Justicia sterea* Leonard, sp. nov.  

Herba recta, rigida, caulibus simplicibus vel parce ramosis, subquadrangularibus, sursum bifarium retrorse strigosis, pilis minutis, deorsum glabris, cystolithis minutis et parallelis; lamina foliorum oblongo-elliptica, apice breviter acuminata et saepe curvata, basi angustata, firma, crassa, integra, supra glabra, subtus glabra, costa et venis prominentibus minute strigosis exceptis, cystolithis conspicuis sed plus minusve raris; petioli crassi, minute strigosi; spicae bifurcatae, pedunculis aliquanto longis, hirtellis, pilis brunneis, recurvatis, rhache hirtella, pilis plus minusve rectis et patulis; bracteae spicas subtendentes subulatae, acutae, carinatae, cystolithis densis conspicuis parallelis; bracteae flores subtendentes anguste triangulares, acutae, hirsutae et ciliatae, cystolithis parallelis, prominentibus; bracteolae similes sed angustiores; calycis segmenta 5, parva, lanceolata, acuta,
3-nervata, costa et marginibus parce ciliolata; corolla alba, aliquanto puberula (pilis eglandulosis et pilis glandulosis internitis), aliquanto parva, tubo subcylindrico, labio superiore erecto, oblongo, apice minute bilobato, lobis rotundatis, labio inferiore patulo, cuneato, trilobato, lobis rotundatis; stamina exserta, in labio antico corollae declinata, lobis antherarum superpositis, rectis, lobo inferiore calcarato; ovarium apice hirsutum.

Stiff erect herbs up to 66 cm. high or more; stems simple or sparingly branched, subquadrangular, the upper portion bifariously and retrorsely strigose (the hairs up to 0.16 mm. long), glabrous below,

Figure 236.—Justicia sterea Leonard (Cuatrecasas 16811): a, Tip of plant to show leaf and inflorescence; b, portion of leaf blade (lower surface) enlarged to show pubescence and cystoliths; c, bract and bractlets; d, margin of bract (near tip) enlarged to show pubescence; e, calyx segment (inner surface); f, tip of calyx segment (outer surface); g, tip of corolla; h, portion of inner surface of upper lip enlarged to show glandular pubescence; i, anther. (a, Half natural size; b, g, 3 times natural size; c, 5 times natural size; d, 18 times natural size; e, f, 4½ times natural size; h, 30 times natural size; i, 15 times natural size.)

the cystoliths minute and parallel; leaf blades oblong-elliptic, up to 13.5 cm. long and 5.5 cm. wide, short-acuminate, the tips often curved (the tip itself blunt), narrowed at base, firm and fleshy, entire, the upper surface glabrous, the lower surface glabrous except the costa and lateral veins (8 or 9 pairs), these minutely strigose, the venation prominent beneath, obscure above, the cystoliths conspicuous under lens but more or less scattered; petioles up to 2 cm. long and 1.75 mm. thick, minutely strigose; flowers borne in terminal forked spikes up to 3 cm. long and 6 mm. broad, the peduncle up to
6 cm. long, hirtellous, the hairs brownish, recurved, up to 0.16 mm. long, the rachis hirsute, the hairs similar to those of the peduncle but straighter and more spreading, the bracts subtending the spikes subulate, 6 mm. long, 1.5 mm. wide at base, acute, carinate, hirsute, the cystoliths dense, parallel, conspicuous where not obscured by the hairs; bracts subtending the flowers narrowly triangular, 3 mm. long, 1 mm. wide at base, acute and ciliate, densely covered by parallel cystoliths; bractlets similar to the bracts but slightly narrower; calyx segments 5, about 5 mm. long, lanceolate, acute, 3-nerved, the costa and margins sparsely ciliolate; corolla white, rather sparingly puberulous, some of the hairs glandular, the upper lip erect, oblong, 6.5 mm. long, 1.5 mm. wide at base, gradually narrowed to a minutely bilobed tip 0.5 mm. wide, the lower lips spreading, cuneate, about 3 mm. wide at the base of the lobes, these 3, rounded, about 1.5 mm. long and wide; stamens barely reaching the tip of the upper corolla lip and partly enfolded by it, the anther lobes superposed, vertically attached to the connective, each lobe about 0.75 mm. long, the lower one spurred, the style slightly longer than the stamens; ovary hirsute at the tip.

Type in the herbarium of the Facultad de Agronomía del Valle, Palmira, Colombia, collected at La Trojita, on the Río Calima, Department of El Valle, Colombia, 5 to 50 meters altitude, February 19 to March 10, 1944, by J. Cuatrecasas (No. 16811).

The label on the type sheet bears the following notes by J. Cuatrecasas: “Hierba erguida, rigida. Hoja herbacea, crasisuscula, verde grisacea; bracteas y calices verde pálidas. Corola blanca.” Justicia sterea has apparently no close relatives, except perhaps J. petrea or J. hodgei. The specific epithet is from the Greek στερεός, meaning stiff or rigid, in allusion to the habit of the plant.

68. Justicia sciera Leonard, sp. nov.

Herba parva ascendens, caulibus in nolis radicantibus, sursum glabris vel retrorise puberulis; lamina foliorum oblonga, apice obtusa, basi rotundata, aliquanto firma, integra, glabra vel subitus costa minute hirtella, pilis curvatis, costa et venis prominentibus, cystolithis prominentibus; petioli longi, graciles, glabri vel minute hirtelli; spicae terminales, pedunculo longo et rachise puberulis; bracteae spathulatae, minute et parce puberulae et ciliolatae, obtusae, basi anguste cuneatae; bracteolae oblongae, apice rotundatae, basi angustatae, parce puberulae et ciliolatae; calycis segmenta lanceolata, acuminata, parce puberula et ciliolata; corolla ignota; capsulae clavatae, aliquanto parvae, glabrae vel apice pilis paucis minutis praeditae; retinacula leviter curvata, marginibus graciliter striata, apice plana, obtusa, erosa; semina subbrunnea, cordata, muricata.

Figure 237
Ascending herbs up to 20 cm. high; stems rooting at the lower nodes, subquadrangular, glabrous or retrorsely puberulous, the hairs up to 0.38 mm. long; leaf blades oblong, up to 7 cm. long and 28 mm. wide, obtuse at tip, rounded at base, moderately firm, entire, glabrous or the costa of the lower surface roughened by minute curved hairs, the venation rather prominent beneath (the lateral veins 6 or 7 pairs) obscure above, the cystoliths rather prominent under a lens; petioles slender, up to 4 cm. long, glabrous or roughened by minute curved hairs; flowers borne in terminal spikes up to 4 cm. long and 2 cm.
broad, the peduncle 1.5 cm. long, this and the rachis puberulous; bracts spatulate, 12 mm. long, 3 to 3.5 mm. wide near tip, obtuse, gradually narrowed to base; bractlets oblong-lanceolate, 1 cm. long, 1.5 mm. wide, rounded at tip, gradually narrowed to base, both bracts and bractlets sparingly puberulous and ciliolate, the costa moderately prominent; calyx segments lanceolate, 7 mm. long, 0.75 mm. wide near base, gradually narrowed to a slender tip, sparingly puberulous and ciliolate; corolla not seen; capsules clavate, 12 mm. long, 2.5 mm. broad, about 1 mm. thick, glabrous or bearing a few minute subappressed hairs toward tip, these about 0.06 mm. long; retinacula 2.5 mm. long, slightly curved, the margins finely striate, the tip flattened, obtuse, erose; seed brownish, cordate, flattened, about 2.5 mm. long and 2 mm. broad, muricate, the projections low and rounded.

Type in the herbarium of the Facultad de Agronomía, Universidad Nacional, Medellín, Colombia, collected in a damp shady place on the bank of the Río Verde de los Montes, in the Municipio de Sonsón, Department of Antioquia, Colombia, January 31, 1947, by Gabriel Gutiérrez-V. (No. 1300).

The flowers, according to label notes, are lilac. Apparently there are no close relatives. The specific epithet is from the Greek σκυθρός, meaning "in the shade."

69. Justicia stereostachya Leonard, sp. nov. Figure 238

Herba, caulibus rectis vel ascendentibus, subquadrangularibus, deorsum glabris, sursum bifariam hirsutis, pilis curvatis; lamina foliorum oblongo-elliptica, acuta vel breviter acuminata (apice ipso obtuso), basi angustata, in petiolum decurrens, aliquanto firma et subcoriacea, integra vel undulata, supra glabra, obscure viridis (sicca), cystolithis sub lente conspicuis, subtus olivacea, glabra, costa et venis conspicuis, aliquanto puberulis, pilis subappressis; petioli breves, strigillosi; spicae terminales, solitariae vel ternae, rigidae, pedunculis gracilibus, acute quadrangularibus, hirsutis, pilis curvatis, patulis vel ascendentibus, septatis, rhache plana, hirsuta; bracteae ovatae, firmae, ciliatae, hirsutae, pilis rectis, septatis, acutis vel cyathiformibus, costa et venis lateralis prominetibus, cystolithis conspicuis (sub lente); bracteolae ovatae, parvae, hirsutae, plus minusve hirsutae; calycis segmenta rigida, lanceolata, acuta, glabra vel pilos cyathiformibus ferentes, costa prominetente; corolla lilacina, puberula, pilis patulis, glandulosus, labiis subaequalibus, labio superiore triangulato-ovato, apice obtuso et apiculado, labio inferiore cuneiforme, plicato, 3-lobato, lobis orbicularibus, rotundatis; stamina exserta, lobis superpositis et contiguis, verticalibus, lobo inferiore calcarato; capsuleae graciliter clavatae, puberulae, pilis appressis; semina (immatura) plana, apice rotundata, basi oblique subcordata, glabra.
Erect or ascending herbs up to 40 cm. high or more; stems subquadrangular, glabrous below, the upper portions bifariously hirsute, the hairs about 0.3 mm. long, curved; leaf blades oblong-elliptical, up to 13 cm. long and 5.2 cm. wide, acute or short-acuminate (the tip itself obtuse), narrowed at base and decurrent on the petiole, rather firm and leathery, entire or undulate, the upper surface glabrous, drying dull green, minutely alveolar, the costa and lateral veins (6 to 8 pairs) obscure, the cystoliths conspicuous under a lens, up to

**Figure 238.**—*Justicia stereostachya* Leonard (*Cuatrecasas 13061*): a, Tip of plant showing leaf blades and spike; b, calyx, bracts and bractlets; c, hairs from dorsal region of bract; d, corolla; e, pubescence of corolla; f, anther; g, capsule valve; h, seed. (a, Natural size; b, about 3 times natural size; c, 30 times natural size; d, twice natural size; e, 4 times natural size; f, 7½ times natural size; g, 1½ times natural size; h, 6 times natural size.)
0.24 mm. long, the lower surface drying light olive-green, glabrous except costa and lateral veins, these conspicuous, moderately puberulous, the hairs curved, up to 0.11 mm. long, subappressed; petioles 5 mm. long, appressed-puberulous; spikes solitary or in 3’s, rigid, up to 5 cm. long and 4 mm. broad, the peduncles slender, up to 2.4 cm. long, sharply quadrangular, 0.75 mm. thick gradually increased to 1.75 mm. at base of first pair of bracts, there somewhat flattened, hirsute, the hairs straight or curved, spreading or ascending, sejate, the rachis flattened, the lower internodes about 6 mm. long, the others successively shorter toward tip of the spike, the hairs similar to those of the peduncles; bracts ovate, 3 mm. long, 1.5 mm. wide, acute, firm, hirsute, the hairs about 0.2 mm. long, erect, sejate, some of them cyathiform, the margins ciliate, the costa prominent, the cystoliths conspicuous; bractlets ovate, 1.75 mm. long, 0.75 mm. wide, acute, the pubescence that of the bracts; calyx 6 mm. long, the segments rigid, lanceolate, 4 mm. long, 1 mm. wide slightly above middle, acute, glabrous or bearing a few cyathiform hairs, sparingly ciliate, the costa and a pair of lateral nerves prominent; corolla lilac, densely puberulous with spreading glandular hairs about 0.8 mm. long, except the lower portion, this glabrous, the tube 6 mm. long, the basal portion 2.5 mm. broad, narrowed at middle to 2 mm., thence enlarged to 2.5 mm. at throat, the lips subequal, about 6 mm. long, the upper lip triangular-ovate, 3 mm. broad at base, obtuse and apiculate at tip, the lower lip cuneiform, 5 mm. wide near tip, 3-lobed, the lobes orbicular, the middle one 2.5 mm. wide, the lateral ones 1.75 mm. wide, all rounded, the throat swollen and plaited; stamens exserted 5 mm. beyond the mouth of the corolla, the lobes 1 mm. long, superposed and contiguous, attached vertically to the connective, the lower cell spurred, the spur ligulate, curved, flattened, rounded at tip, the filaments flattened, their ventral surface densely glandular-puberulous; style about as long as the stamens; ovary glabrous; capsules slenderly clavate, 1 cm. long, 2 mm. broad, 1.5 mm. thick, puberulous, the hairs appressed, about 0.1 mm. long, the retinacula 1.5 mm. long; seed (immature) flattened, 2.5 mm. long, 1.5 mm. wide, rounded at tip, obliquely subcordate at base, glabrous.

Type in the U. S. National Herbarium, No. 1850311, collected in the valley of the Río Cubugón, between El Caraño and El Indio, in the vicinity of Sarare, Department of Norte de Santander, Colombia, 470 to 600 meters altitude, November 12, 1941, by J. Cuatrecasas (No. 13061).

Justicia stereostachya can be easily recognized by its rigid spikes, densely glandular corollas with swollen plaited throat, and by the leathery leaf blades. The specific epithet is from the greek στερεός, rigid, and στάχυς, spike.
Suffrutex; caulibus quadrangularibus vel deorum subteretibus, glabris vel in nodis hirtellis, pilis rigidis fere patulis; lamina foliorum oblongo-ovata vel oblongo-elliptica, breviter acuminata, apice saepe curvata, basi angustata, in petiolum decurrens, aliquanto firma, integra vel undulata, glabra vel costa et venis prominentibus parce et minute hirtellis, pilis rigidis, cystolithis obscuris; petioli aliquanto crassi, glabri vel minute hirtelli; spicae solitariae, terminales, densae vel basi in maturitate laxae, pedunculis quadrangularibus, minute et parce hirtellis, rhachibus minute hirtellis, pilis rigidis fere patulis; bracteae ovatae, acutae (apice ipso obtuso), glabrae, marginibus ciliolatis, pilis rigidis, patulis vel ascendentibus; bracteolae lanceolatae, parvae, acutae, glabrae, marginibus ciliolatis, ambis bracteis et bracteolis cystolithis crassis conspicuis praeditis; calycis segmenta lanceolata, graciliter acuminata, glabrae vel subglabrae, marginibus ciliolatis, cystolithis paucis gracilibus; corolla aliquanto parva, lilacina, dense hirtella, pilis rigidis, patulis, tubo subcylindrico, labio superiore erecto, oblongo-ovato, apice emarginato, labio inferiore trilobato, lobis oblongo-ovatis, apice rotundatis, marginibus ciliolatis; stamina vix exserta, lobis antherarum superpositis, lobo superiore oblique, inferiore verticali, obscure caudato; capsulae clavatae, minute hirtellae, pilis rigidis, patulis.

Suffrutescent plants up to 1 meter high; stems quadrangular or the lower parts suberete, glabrous or hirtellous at the nodes, the hairs rigid, up to 0.13 mm. long, mostly spreading; leaf blades oblong-ovate or oblong-elliptic, up to 21 cm. long and 9 cm. wide, short-acuminate, the tip often curved, narrowed at base and decurrent on the petiole, rather firm, entire or undulate, glabrous or the costa and veins sparingly and minutely hirtellous, the hairs rigid, up to 0.08 mm. long, the venation prominent beneath, less so above, the cystoliths obscure; petioles up to 1 cm. long, 1.5 mm. thick, glabrous or sparingly and minutely hirtellous; spikes solitary, terminal, dense or, at maturity, lax toward base, up to 5 cm. long and 15 mm. broad, the peduncles up to 2 cm. long, quadrangular, minutely and sparingly hirtellous, the rhachis minutely hirtellous, the hairs rigid, for the most part about 0.13 mm. long, or a few at the nodes as much as 0.32 mm. long, mostly spreading; bracts ovate, 4 mm. long, 2.5 mm. wide near base, acute (the tip itself blunt), glabrous except the margins, these ciliolate with rigid spreading or ascending hairs up to 0.16 mm. long; bractlets lanceolate, 2.25 mm. long, 0.75 mm. wide, acute, glabrous except the ciliolate margins, both bracts and bractlets densely covered with thick conspicuous parallel cystoliths up to 0.13 mm. long; calyx 7–8 mm. long, the segments lanceolate, 6 mm. long, 1.75 mm. wide near base, gradually narrowed to a slender acute tip, obscurely
and delicately 3-nerved at base, glabrous except the margins, these ciliolate, the cystoliths few, slender, rarely over 0.06 mm. long; corolla about 12 mm. long, lavender, densely hirtellous, the hairs rigid, spreading, up to 0.13 mm. long, the tube subcylindric, 2 mm. broad at mouth, the upper lip erect, oblong-ovate, emarginate at tip, the lower lip 3-lobed, the lobes oblong-ovate, rounded at tip, ciliolate; stamens slightly exserted but not extending beyond the corolla lips,

Figure 239.—Justicia hodgei Leonard (Hodge 6504): a, Tip of plant; b, bract; c, portion of bract enlarged to show marginal hairs and cystoliths; d, bractlet; e, calyx segment; f, upper lip of corolla (immature); g, lower lip of corolla (immature); h, anther. (a, Natural size; b, d, 7½ times natural size; c, 25 times natural size; e, 5 times natural size; f, g, 2½ times natural size; h, 8 times natural size.)

the anther lobes superposed, 1.25 mm. long and 0.75 mm. broad, the upper lobe obliquely, the lower vertically attached to the connective and obscurely subcaudate at base; capsules clavate, 18 mm. long, about 3 mm. broad and 2 mm. thick, minutely hirtellous, the hairs mostly spreading, rigid, up to 0.03 mm. long, some of them gland-tipped.

Type in the Gray Herbarium, collected on floor of rain forest along
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the Río Carare, Department of Santander, Colombia, 300 to 400 meters altitude, September 28, 1945, by W. H. Hodge (No. 6504). Isotype: Med.

*Justicia hodgei* resembles and may be related to *J. sterea*. The latter species has, however, a forked spike and white corollas, these rather sparingly pubescent with slender hairs. In *J. hodgei* the spikes are simple and the corollas are lavender and densely clothed with minute spreading rigid hairs. Because of the scarcity of material it was not desirable to dissect the single immature corolla and capsule.

71. *Justicia hygrobia* Leonard, sp. nov. Figure 240

Herbs up to 40 cm. high or more; stems erect or ascending, subquadrangular, glabrous, the lower portions 5.5 mm. in diameter or more; leaf blades oblong-elliptic, up to 18 cm. long and 6.8 cm. wide, shortly but rather slenderly acuminate (the tip itself blunt), narrowed at base, firm, undulate, glabrous or inconspicuously puberulous along costa on the lower surface, the venation prominent, more so beneath than above, the lateral veins usually 6 pairs, the cystoliths rather prominent, up to 0.38 mm. long; petioles up to 1.5 cm. long, glabrous or sparingly puberulous, 1.75 mm. thick; flowers borne in terminal spikes, these often branched at or near base to form a loose panicle; peduncles up to 3 cm. long, subquadrangular, minutely and inconspicuously rústigose; rachis hirtellous, the hairs retrorsely curved, up to 0.16 mm. long, the lowermost internode of the rachis 8 mm. long, the others successively shorter toward the tip of the inflorescence;
bracts narrowly ovate, 5.5 mm. long, 1.75 mm. wide near base, acute, 3-nerved, sparingly hirtellous, the hairs slightly curved, ascending, up to 0.2 mm. long; bractlets lanceolate, 5 mm. long, about 1 mm. wide at base, conduplicate, hirtellous with minute ascending straight or slightly curved hairs; calyx 11 mm. long, deeply segmented, the segments 5, linear-lanceolate, 0.75 mm. wide, narrowed to a slender tip, rather thin, hirtellous, the hairs spreading or ascending, up to 0.13 mm. long, some of spreading ones gland-tipped; corollas lilac, about 12 mm. long, hirtellous, the hairs up to 0.16 mm. long, slightly and retrorsely curved, some of them gland-tipped, the tube about 2 mm. broad at base, 4 mm. broad at mouth, the lips subequal, 7 mm. long, the upper lip oblong-ovate, about 3 mm. wide, subcucullate,
enfolding the stamens, the lower lip spreading, about 3.5 mm. wide, 3-lobed, the lobes ovate, rounded; stamens reaching the tip of the upper lip, the filaments glabrous or bearing a few hairs near base, the anthers 2.5 mm. long, the lobes superposed one above the other, subvertically attached to the connective, the lower lobe terminating in a blunt white spur 0.5 mm. long; pistil equalling the stamens, hirtellous; capsules clavate, 12 mm. long, 3 mm. broad, 1.5 mm. thick, 4-seeded, puberulous, the hairs up to 0.06 mm. long, spreading or retrorse; retinacula 1.5 mm. long, curved or bent, the tip flat, rounded, erose.

Type in the U. S. National Herbarium, No. 1798535, collected in wet forests along the Río Putumayo at Puerto Ospina, Comisaría of Putumayo, Colombia, 230 meters altitude, November 29, 1940, by J. Cuatrecasas (No. 10848).

The holotype specimen is forked at the tip, the two branches about 20 cm. long and each bearing at the tip of the single internode (about 12 cm. long) a pair of leaves and an inflorescence. This mode of forking may or may not be normal for the species. The lobation of the lips was not discernible in the immature corollas of the type material. The species apparently has no close relatives and is probably confined to the Putumayo region. The specific epithet is from the Greek word ὑπάτειος, meaning "living in wet places."

*Justicia sanctae-martae* Lindau

*Justicia sanctae-martae* Lindau, Bot. Jahrb. Engler 21: 377. 1895. Type collected in the vicinity of Santa Marta, Department of Magdalena, Colombia, by Dr. Alfons Stuebel.

Suffrutescent, branches green-striate, the cystoliths punctiform; leaf blades oblong, abruptly acuminate at tip, narrowed at base and decurrent on the petiole, the costa of the upper surface puberulous, otherwise glabrous, the cystoliths prominent; spikes dense, terminal and axillary; bracts obovate, stipitate, those of the middle part of the spike 1 cm. long and 5 mm. wide, glandular-pubescent; bractlets lanceolate, glandular-pilose at tip; calyx segments equal, puberulous, 6 mm. long, 1 mm. wide; corolla tube 12 mm. long, 3 mm. broad at base, 4 mm. broad at tip, the upper lip 10 mm. long, 3 mm. wide, the lower 12 mm. long, the segments 5 mm. long and wide; filaments 19 mm. long, the anthers 2 mm. long, the upper lobe minutely spurred; capsules 13 mm. long, 5 mm. wide, puberulous, the stipe 5 mm. long and 3 mm. wide; seeds subglobose, nitid, black, 12.5 mm. in diameter.

Dr. C. E. B. Bremekamp treats this species as a synonym of *Justicia carthaginensis* (Flora of Suriname 4: 241. 1938).
Justicia sp.  
E. P. Killip & Hernando Garcia's No. 33571 undoubtedly represents an undescribed species of Justicia. Their specimens were collected in dense forest along the Quebrada Jillita, Department of Chocó, 50-100 meters altitude, February 1939. The plant from which the specimens were taken was about 50 cm. high and bore white flowers. Colloquially called "yerbabuenilla," it was used as a remedy for snake bites.

The specimen deposited in the National Herbarium is an ascending branched herb about 40 cm. high, the stems subquadrangular, bifariously hirtellous with retrorsely curved white septate hairs up to 0.22 mm. long; the internodes of the stem are short and rather numerous, not exceeding 2 cm. in length. The leaf blades are ovate, up to 23 mm. long and 14 mm. wide, obtuse or rounded at tip and narrowed at base, rather firm, entire or undulate, nitid, glabrous or the margins and the costa and lateral nerves (these moderately conspicuous) bearing a few rigid ascending hairs about 0.2 mm. long; petioles thick, about 1.5 mm. long, sparingly hirtellous. The specimen examined was definitely sterile without the faintest vestige of a flower.

Leptostachya crinita Nees

Leptostachya crinita Nees in Benth. Voy. Sulphur 147. 1844. Type locality: Colombia. Type collected by Sinclair.

Stems repent at base, glabrous; leaf blades oval-oblong, obtuse at the tip, long-decurrent on the petiole at base; spikes more or less umbellate, half as long as the leaves, forming a panicle at the tip of the stem; rachis pilose with spreading hairs; anther cells blunt.

No specimen seen. Description compiled from the original.

The brief description suggests a close relationship with Justicia comata.

Rhytiglossa oblonga Nees

Orthotaxis oblongus Nees in Benth. Voy. Sulphur 147. 1844. Type collected in Colombia by Sinclair.

Rhytiglossa oblonga Nees in DC. Prodr. 11: 343. 1847.

Herb; stems geniculate and rooting at the lower nodes, hoary towards tip; leaf blades oblong, the lower 7 to 8 inches long and 2 inches wide, the upper 4 to 5 inches long and 1.5 inches wide, all gradually narrowed to a blunt tip, acute at base, glabrous, thin, flaccid; spikes in the axils of the upper leaves and shorter than the blades; bracts rhombic-ovate, acuminate, ciliate, veiny; corolla 2-lipped, the upper lip bifid, the lower one 3-lobed, the lobes oval, obtuse, puberulous.

No specimens seen. Description compiled from the original.
37. PELECOSTEMON Leonard, gen. nov.

Suffrutex, caulibus subquadranularibus; laminae foliorum aliquanto magnae, apice acuminatae, basi cuneatae, integrae, cystolithis parvis sed conspicuis; paniculae terminales, angustae, puberulae, pilis acuti et pilis glandulosis intermixtis; bracteae parvae, subulate; calycis segmenta 4, linearia; corolla hypocriteriformis, labis duobus, labio superiore apice rotundato, labio inferiore trilobato, lobis rotundis; stamina 2, lobo uno antherarum normali, lobo altero in ala triangulari apice acuta incurva reducto; stigma parvum, bilobatum; ovarium glabrum.

Pelecostemon differs from Justicia in its peculiar anthers. The name, of Greek origin and derived from πέλαγος, halberd, and στήμων, stamen, was suggested by a fancied resemblance of the anther to a certain type of ancient battle-ax.

1. Pelecostemon triane Leonard, sp. nov. Figure 241

Suffrutex, caulibus glabris vel in nodis parce pilosis; lamina foliorum oblongo-obovata, breviter acuminata, basi angustata, in petiolum decurrens, aliquanto firma, integra vel undulata, utrinque glabra, nitida, costa et venis lateralis et venulis crasse reticulatis subtus prominentibus, supra plus minusve obscuris; spicae erectae, laxae, paniculam terminalem formantes, pedunculis subquadranularibus, glabris, nitidis vel sursum parce puberulis, pilis glandulosis et eglandulosis intermixtis, rhachibus aliquanto dense puberulis, pilis glandulosis et eglandulosis intermixtis; bracteae glabrae vel basi puberulae, ciliatae; calycis segmenta linearia, ciliata, intus hisruta, pilis subappressis, extus pubera, pilis glandulosis et eglandulosis intermixtis; corolla (immatura) parce hisruta; stamina inclusa (?) ; ovarium glabrum.

Pelecostemon; stems subquadranular, glabrous or sparingly pilose; leaf blades oblong-obovate, up to 24 cm. long and 6.5 cm. wide, short-acuminate, narrowed at base and decurrent on the petiole, moderately firm, entire or undulate, both surfaces glabrous and nitid, the costa and lateral veins (7 or 8 pairs) prominent beneath, less so above, the cystoliths rather loosely scattered but prominent under a
lens, averaging 0.11 mm. in length; flowers borne in loose spikes up to about 9 cm. long, these several, erect, forming a loose panicle about 16 cm. long, the peduncle 4 cm. long, subquadrangular, glabrous, nitid or the upper portion minutely and sparingly puberulous with glandular and eglandular hairs up to 0.64 mm. long, the lowermost internodes of the panicle 3 cm. long, the others successively shorter toward the tip of the inflorescence, the pubescence that of the peduncle.
but somewhat denser; lowermost pair of bracts subulate, 7 mm. long, 0.75 mm. wide at base, gradually narrowed to a slender tip, carinate, glabrous or bearing a few small hairs near the tip; bracts subtending the flowers subulate, 4 to 5 mm. long, about 1 mm. wide at base, glabrous or puberulous near the base like the rachis, ciliate with rigid ascending hairs about 0.8 mm. long; bractlets similar to the bracts but smaller, 3 mm. long and 0.5 mm. wide at base; calyx 11 to 12 mm. long, the segments 4, linear, 0.75 mm. wide, ciliate, the inner surface hirtellous with ascending or subappressed hairs up to 0.13 mm. long, the outer surface puberulent with more or less spreading glandular and eglandular hairs mostly less than 0.5 mm. long; corolla (immature) 4 mm. long, sparingly hirsute, the upper lip 1.5 mm. long, 0.75 mm. wide, rounded at tip, the lower lip 3-lobed, the lobes 1.5 mm. long and 1 mm. wide, rounded; stamens 3 mm. long, the fertile cell 2.5 mm. long and 1.5 mm. broad, blunt at base, the sterile cell represented by a membranous triangular wing incurved at base, the filaments glabrous; style glabrous toward tip, hirtellous toward base; stigma bilobed, minute; capsules not seen.

Type in the Kew Herbarium, collected at Villavicencio, Intendencia of Meta, Colombia, December 1855, by J. Triana.

38. JACOBINIA Nees ex Moric.


*Cyrtanthera* Nees in Mart. Fl. Bras. 9: 99. 1847. Derivation: κυρτός, curved, and ἀνθήρος, anther. The first of the species described, and the one illustrated, *C. magnífica* Nees, may be the lectotype.

*Sericographis* Nees in Mart. Fl. Bras. 9: 107. 1847. Derivation: σηκωξί, silken, and γραφί, style, probably in allusion to the conspicuous cystoliths. The first of the 12 species described, and the one illustrated, *S. rigida* Nees, may be the lectotype.

Herbs or shrubs; leaf blades usually oblong or ovate, entire, petioled; flowers sessile or short-pedicellate in the axils of bracts, solitary, cymose, spicate or paniculate; calyx 5-parted, the segments usually narrow; corolla usually red or yellow, the tube usually elongate, straight or curved, the limb 2-lipped, the upper lip narrow, erect, entire or shallowly 2-lobed, the lower lip 3-lobed; stamens 2, the anther cells more or less unequal, muticous, the connective narrow, ovules 2 in each cell.

About 120 authentic species have been described, all from tropical America.
KEY TO THE SPECIES

Bracts large and conspicuous, orbicular or oblong, 1.5 to 2 cm. long.
Flowers borne in a dense terminal thyrses up to 8 cm. broad; corollas lilac, red or pink. 1. J. carnea

Bracts small and inconspicuous, spatulate, or triangular, up to 5 mm. long.
Calyx segments up to 16 mm. long; flowers yellow. 3. J. amphibola
Calyx segments up to 3 mm. long; flowers red or orange, the spicate branches up to 7 cm. long.


Herbs or suffrutescent plants up to 2 meters high; stems subquadrangular, grooved (the angles rounded), glabrous or minutely puberulous with curved hairs; leaf blades oblong-ovate, up to 25 cm. long and 7 cm. wide, acuminate (the tip itself blunt), acute to rounded at base and decurrent on the petiole, moderately firm, undulate or entire, both surfaces sparingly and inconspicuously hirtellous or puberulous, the hairs up to 0.2 mm. long, subappressed, the venation rather prominent, the cystoliths obscure to conspicuous; petioles up to 5 cm. long, puberulous; thyrsi sessile or sub sessile, solitary, terminal, dense, up to 19 cm. long and 8 cm. broad, the rachis puberulous, the lowermost thyrsulas subtended often by small leaf blades, the upper thyrsulas by elliptic bracts 2 cm. long and 1 cm. wide (these reduced in size towards tip of thyrses), obtuse or rounded, moderately firm, glabrous or sparingly hirtellous, sparingly ciliate, the hairs up to 0.8 mm. long; bracts subtending the flowers oblong, 2 cm. long, 1.5 cm. wide, rounded at tip, glabrous and ciliate; bractlets lanceolate, 15 mm. long, 1.5 mm. wide, narrowed to an obtuse tip, glabrous and ciliate, the venation of both bracts and bractlets obscure; calyx 11 mm. long, the segments lanceolate, 10 mm. long, 2 mm. wide, acute, subhyaline, glabrous or sparingly hirtellous and ciliate near tip, the costa and lateral nerves delicate; corolla lilac, red or pink, sparingly glandular-puberulous (the hairs spreading, up to 0.2 mm. long), up to 6.5 cm. long, 4 mm. broad at base, abruptly narrowed to 2.5 mm. at 4 mm. above base, thence gradually expanded to 5 mm. at throat, the upper lip erect, arched and bilobed at tip, the lobes about 1 mm. long and 0.75 mm. wide, rounded, the lower lip spreading or recurved,
3-lobed, cuneate, 8 mm. wide at base of lobes, these ovate, about 3 mm. long and 2 mm. wide, rounded; stamens barely reaching the tip of the upper corolla lip, the anther lobes slightly superposed, 3 mm. long and 1.25 mm. broad, the filaments flattened, 0.75 mm. wide; pistil slightly longer than the stamens, the stigma bilobed, minute and rounded; capsules not seen.

Vernacular names: "Tango rojizo" and "Isopo rojizo" (Duque 1570A).

The specimens in the U. S. National Herbarium are from Brazil, Argentina, Colombia and Ecuador. Cultivated plants of this species are often found in parks and gardens.

**CAUCA:** La Hermita on the road to Puracé, vicinity of Popayán, 1,760 to 1,820 meters altitude, July 17, 1948, García-Barriga & Hawkes 12685 (US).

**EL VALLE:** Cultivated in Cali, 1,000 meters, Duque 1570A (US).

2. **Jacobinia axiologa** Leonard, sp. nov.

Suffrutex, caulibus quadrangularibus, deorsum glabris, sursum bifariam pilosis, pilis patulis, brunneis, septatis; lamina foliorum ovato-lanceolata vel oblongo-elliptica, graciliter acuminata, basi acuta vel obtusa vel rotundata vel subcordata, aliquidus firma, integra vel leviter crenata, glabra, vel juventute pilosa; petioli crassi, brunneo-pilos, pilis septatis; spicae terminales et aliquando laterales solitariae, vel 2 vel 3, pedunculis et rhachibus hirtellis; bracteae infimae foliosae; bracteae flores subtendentes orbiculares apice abrupte acuminatae, apice ipso gracili, basi unciferae, supra glabrae, subtus puberulae, pilis glandulosis et pilis paucis longioribus eglandulosis intermixtes, marginibus ciliatis; bracteolae lanceolatae, subhyalinae, glabrae vel apice pilosi rigidiores; calycis segmenta 4, anguste triangularia, acuminata, glabra vel apice pilosi paucis rigidioris; corolla flavida, apice hirtella, pilos patulis, deorsum glabra, tubo subcylindrico, labiis aequalibus; labio superiore oblongo, apice 2-lobato, lobis parvis, rotundatis, labio inferiore patulo, 3-lobato, lobis angusto ovatis, apice rotundatis; stamina vix exserta, antheris angustis, lobis parcellis, basi obtusis; capsulae clavatae, planae, glabrae; retinacula recta vel leviter curvata, acuta; semina suborbiculata, plana, pallida, leviter rugosa, papillosa.

Suffrutescent plants up to 2 meters high; stems quadrangular, glabrous or the upper portions bifariously pilose with spreading hairs, sometimes densely so, the hairs 1.5 mm. long, brown, septate; leaf blades ovate-lanceolate or oblong-elliptic, up to 32 cm. long and 11 cm. wide, acuminate, often slightly so, gradually narrowed
from about the middle to an acute, obtuse or often a narrow rounded or subcordate base, moderately firm, entire or shallowly crenate, the upper surface glabrous or bearing on the younger leaves a few scattered ascending hairs 0.75 mm. long, the lower surface rather densely hirsute, the hairs spreading or ascending, up to 1.5 mm. long, densest on the costa and lateral veins (9 or 10 pairs), the venation prominent beneath, less so above, the cystoliths minute, many of them punctiform; petioles rather stout, up to 7 cm. long and 3 mm. in diameter,
brown-pilose, often densely so, the hairs spreading, up to 1.5 mm. long, septate; flowers borne in terminal and sometimes axillary spikes, these solitary, paired or in threes and up to 20 cm. long and 3 cm. broad, the peduncles (up to 3 cm. long) and rhachis hirtellous; bracts subtending the spikes and lowermost flowers lanceolate, leaflike, up to 3 cm. long and 1 cm. wide; typical bracts subtending the flowers orbicular, 1.5 cm. long, 1 cm. wide, abruptly and slenderly acuminate, the slender tip about 3 mm. long, abruptly narrowed at middle to a slender claw, the upper surface glabrous, the lower puberulous with minute erect papular hairs and a few longer curved eglandular ones intermixed, the margins ciliate with spreading hairs up to 1 mm. long; bractlets lanceolate, 3.25 mm. long, 1 mm. wide near base, slenderly acuminate, subhyaline, glabrous or bearing a few curved stiff hairs about 0.18 mm. long, sparingly ciliolate; calyx 4-parted, 5 mm. long, deeply segmented, the segments narrowly triangular, about 0.5 mm. wide at base, gradually narrowed from base to a slender tip, thin, glabrous except at tip, here bearing a few stiff curved ascending hairs about 0.18 mm. long, sparingly ciliolate toward base; corolla pale yellow, 2.5 to 3 cm. long, sparingly hirtellous at tip, otherwise glabrous, the tube about 2 mm. broad at base, slightly constricted above base, the mouth 4.5 mm. broad, the lips subequal, 7 mm. long, the upper lip suberect, oblong, about 3 mm. wide at base, gradually narrowed to 1 mm. near tip, 2-lobed, the lobes about 0.5 mm. long and broad, rounded, the lower lip somewhat spreading, 3-lobed, narrowly ovate, about 5 mm. long, rounded at tip; stamens reaching within about 2 mm. of the tip of the upper lip and lying in it, glabrous, the anthers 2.5 mm. long, the lobes narrow and parallel and rounded at base, the connective very narrow; pistil about as long as the stamens, sparingly hirtellous; capsules 13 to 15 mm. long, 5 mm. wide and 2.5 mm. thick, 4-seeded, glabrous, the solid stipitate portion about 6 mm. long and 2 mm. broad; retinacula straight or slightly curved, about 2.5 mm. long, acute; seed suborbicular, 5 mm. long and 4 mm. broad, 0.75 mm. thick, whitish, faintly wrinkled, papillose.

Type in the U. S. National Herbarium, No. 1742247, collected about 20 km. south of El Centro, in the vicinity of Barranca Bermeja, Magdalena Valley, between the Ríos Sogamoso and Carare, Department of Santander, Colombia, 100 meters altitude, September 29, 1936, by Oscar Haught (No. 1986).

Also of this species are Haught's No. 1672, collected at Camp Carare IV in the vicinity of Puerto Berrio, between the Río Carare and Río Magdalena, Department of Santander, 100 to 700 meters altitude, April 25, 1935 (US), and Hodge's No. 6511, collected in rain
forest along the Río Carare, Department of Santander, 300 to 400 meters altitude, September 28, 1945 (GH, Med).

*Jacobiina axiologa* apparently has no close relative in Colombia. It is readily recognizable by its peculiar orbicular apiculate clawed bracts. Hodge states that the flowers of his No. 6511 were creamy white. The specific epithet is from the Greek ἄξιολογος, meaning remarkable or worthy of mention.

3. *Jacobiina amphibola* Leonard, sp. nov.  

_Suffrutex, caulibus subquadrangularibus, glabris; lamina foliorum oblongo-ovata, breviter acuminata (apice ipso obtuso), basi acuta, obtusa vel rotundata, aliquanto firma, undulata vel leviter serrata, supra glabra vel subglabra, subtus puberula, costa et venis lateralibus prominentibus, venulis crasse reticulatis; petioli aliquanto gracies, glabri vel parce puberuli; paniculae terminales, glabrae, ramis subquadrangularibus; bracteae ramos ultimos panicularum subtendentes lineares, parvae, glabrae, acuta, obtusa vel rotundatae; bracteae calyces segmenta 5, lanceolata, acuta, graciliter nervata; corolla flavissima, glabra, tubo subcylindrico, labio superiore erecto, oblongo, apice bilobato, lobis trianguli-ovatis, obtusis, incurvatis, labio inferiore patulo, cuneato, 3-lobato, lobis trianguli-ovatis, apice rotundatis, erosis, lobo medio plus minusve emarginato; stamina exserta, glabra, lobis antherarum paralleli, basi subapiculatis, connectivo angusto; ovarium glabrum;.

_Suffruticose plants up to 1 meter high; stems subquadrangular, glabrous, the internodes up to 12 cm. long or more; leaf blades oblong-ovate, up to 13 cm. long and 6 cm. wide, short-acuminate (the tip itself blunt), acute, obtuse or rounded at base, rather firm, undulate or shallowly serrate, the teeth low (0.5 mm. long) and broad, the upper surface glabrous or nearly so, the lower surface puberulous, the hairs (up to 0.16 mm. long) confined more or less to the veins, the costa and lateral veins (about 6 pairs) prominent beneath, less so above, the veinlets coarsely reticulate, cystoliths not apparent; petioles rather slender, up to 3 cm. long, glabrous or sparingly puberulous; flowers borne in terminal panicles about 10 cm. long and 6 cm. broad, the lowermost internodes of the panicle about 2 cm. long, the others successively shorter toward the tip of the inflorescence, all glabrous and subquadrangular; bracts subtending the ultimate branches of the inflorescence linear, about 3 mm. long and 0.75 mm. wide, obtuse or rounded, glabrous, those subtending the flowers spathulate, 5 mm. long, 1.5 mm. wide near tip, narrowed to 1 mm. at 1.5 mm. below tip, obtuse, glabrous; bractlets lacking; calyx 2 cm. long, glabrous, the segments 5, lanceolate, up to 16 mm. long and 3.5 mm.
wide, acute, the costa and 2 pairs of lateral nerves slender but rather prominent; corolla yellow, glabrous, up to 4.8 cm. long, the tube subcylindric, 7 mm. broad at base, narrowed to 3 mm. at 5 mm. above base, 6 mm. broad at mouth, the upper lip suberect, oblong, 1.8 cm. long, 5.5 mm. wide, bilobed at tip, the lobes triangular-ovate,

3 mm. long, 1.5 mm. wide at base, obtuse, incurved, the lower lip cuneate, about 12 mm. long, 11 mm. wide at base of lobes, the lobes triangular-ovate, 2.5 mm. long, the middle lobe 4.5 mm. wide, the lateral ones 3.25 mm. wide, all rounded and erose at tip, the middle one more or less emarginate; stamens exserted about 2 cm. above the mouth of the corolla tube, glabrous, the anthers 4 mm. long, the lobes

Figure 243.—Jacobinia amphiroma Leonard (Cuatrecasas 23467): a, Leaf; b, branch of panicle; c, bract; d, tip of corolla to show lips, stamens and style; e, anther; f, ovary. a, b, Natural size; c, 5 times natural size; d, 1½ times natural size; e, 4 times natural size; f, 6 times natural size.)
1 mm. broad, parallel (the connective narrow), subapiculate at base; style about as long as the stamens, glabrous; ovary glabrous, 4-ovuled; capsules not seen.

Type in the U. S. National Herbarium, No. 1950034, collected at Aguabonita, valley of the Rio San José, in the vicinity of Moscopán, Department of Cauca, Colombia, 2,280 meters altitude, January 30, 1947, by J. Cuatrecasas (No. 23467).

Fosberg’s No. 20115 (US), collected in a wet forest on a flat ridge-top northwest of Quebrada la Candela, Río Naranjo, 20 km. southwest of San Agustín, Department of Huila, Colombia, 2,100 to 2,300 meters altitude, February 13, 1943, is also of this species.

Cuatrecasas gives on his label the following notes: “Suffrutex 1 met. Hoja verde brillante, haz verde grisaceo envés, peciolo y nervios violáceos. Caliz amarillo con márgenes verdosos. Corola amarilla. Anteras violetas.”

Fosberg’s collection was from an herb less than a meter tall with a yellow-green calyx and yellow corolla.

This species is doubtfully placed in the family Acanthaceae. Should it belong in the genus Jacobinia, the shallowly toothed leaves and the lack of cystoliths and bractlets would be unique. The specific name is from the Greek μύμπισαμος meaning ambiguous or doubtful.

4. Jacobinia spicigera (Schlecht.) L. H. Bailey


Shrub up to 2 meters high; stems subquadrangular, bifariously pubescent (the hairs curved) or glabrate; leaf blades lance-oblong to ovate, up to 17 cm. long and 7 cm. wide, acute to acuminate (the tip itself blunt), narrowed or rounded at the base and decurrent on the petiole, glabrous or sparingly hirtellous, the hairs curved, up to 0.5 mm. long; petioles up to 2 cm. long, glabrous or the channels hirtellous; flowers secund on the branches of axillary or terminal cymose panicles usually up to 7 cm. long, the branches of the inflorescence glabrous or bifariously hirtellous, the peduncles usually up to 2 cm. long; bracts and bractlets triangular, about 1.5 mm. long, acute; calyx segments lanceolate, up to 3 mm. long, acute, glabrous; corollas glabrous, red or orange, 3 to 4.5 cm. long, the tube 2 mm. broad at base, slightly narrowed above base, thence gradually enlarged to 5 mm. at mouth, the lips about 1.5 mm. long, the upper lip narrowly ovate, erect, acute, the lower lip erect or somewhat spreading, 3-lobed, the lobes 2 to 3 mm. long, rounded; stamens barely reaching the tip of the upper lip of the corolla, the lobes slightly superposed, nearly parallel, about 2 mm. long; mature capsules not seen.
The Lehmann notes relating to the cited specimens are as follows:
"Up to 2 m. high, soft-wooded shrub with squarrose irregular ramification. Leaves yellow-green. Flowers scarlet. Grows in dense, luxuriant forests around Dabeiba, western slopes of the West Andes of Antioquia, 300-500 m."

The species is common in México and Central America and has been found in Trinidad, where it is probably only in cultivation.

**ANTIOQUIA:** Dabeiba, Lehmann 4740 (K).

5. *Jacobinia tinctoria* (Oerst.) Hemsl.

1854. Type locality: Woods in the vicinity of Cartago, Costa Rica.


Glabrous shrubs or suffrutescent plants up to 2 meters high; stems subquadrangular, the angles rounded; leaf blades lanceolate to oblanceolate, up to 10.5 cm. long and 3 cm. wide, short-acuminate (the tip itself blunt), narrowed at base, firm, entire, glabrous, the cystoliths minute and obscure; petioles up to 1 cm. long, glabrous; flowers secund, born in lax axillary spikes up to 7 cm. long, the peduncles up to 2 cm. long, glabrous; the rachis quadrangular, glabrous, its internodes for the most part about 5 mm. long; bracts and bractlets triangular-subulate, up to 2 mm. long, and 0.75 mm. wide near base, glabrous; calyx segments triangular-subulate, 1.5 to 2.5 mm. long and about 1 mm. wide near base, ciliate, the hairs spreading, up to about 0.2 mm. long; corollas 3 to 3.5 cm. long, red, glabrous, nitid, the tube rather slender, 2 mm. wide near base, reduced to 1.5 mm. at 3 mm. above base, thence gradually enlarged to 5 mm. at throat, the lips subequal, the posterior lip ovate, 12 mm. long, 5 to 6 mm. wide at base, subobtuse at tip, the lower lip oblong, erect or somewhat spreading, 5 mm. wide near tip, 3-lobed, the lobes about 1 mm. long and 1.25 mm. wide, rounded; stamens barely reaching the tip of the lips, the anther lobes slightly superposed and obliquely attached to the connective, 2.5 mm. long and 0.75 mm. broad, the filaments flattened, glabrous; capsules not seen.

Vernacular names: Azul (Idrobo & Fernández 243; Lehmann B. T. 428, B. T. 438, 7851) and pánegra (Duque 1701)

*Jacobinia tinctoria* is a cultivated plant in Colombia often planted in parks, gardens, or patios. The leaves and young branches macerated in water yield a deep blue dye which in a diluted solution can be used as a substitute for indigo for washing white clothes. The species occurs more frequently in Central America, where it may have originated.

According to Lehmann’s notes, his No. 7851 was taken from “Densely bushy and erect shrubs 2 m. in height. Leaves seagreen. Flowers
dark vermilion, yellow at base." The plants from which his No. B. T. 428 was taken were propagating by slender underground rooting branches.


**DOUBTFUL SPECIES**

*Jacobinia lindaviana* Rusby


The type has not been available for study. Following is the original description:

"A glabrous shrub, the branchlets short, stout and leafy. Petioles 3 mm. long, slender; blades 15-30 mm. long, 10-20 mm. wide, ovate, rounded at the base, obtuse at summit, dark-green, thickish, the veins dark, strongly ascending. Flowers few, in the upper axils, subsessile, 2-bracteolate at the base of the calyx, the bracts minute, subulate. Calyx 10 mm. long, the lobes lanceolate, acuminate, acutish. Corolla-tube 15 mm. long, nearly straight, dilating very near the summit, the lobes partially destroyed by insects in my specimen. The short stamens equaling the corolla tube, the longer ones exserted, the lower anther cell with about two-thirds of its length below the base of the upper, which is short mucronate. Style not equalling the longer stamens, stout, sharply declined, above.

"Species dedicated to Dr. Lindau who has kindly confirmed my determination.

"Collected at Playa Brava on the northern coast of Colombia, on a dry, rocky hillside on June 6, 1899, by Herbert H. Smith, who reports it as a foot high, and having crimson Flowers. (No. 2821)."

**39. CHAETOCHLAMYS Lindau**

*Chaetochlamys* Lindau in Bull. Herb. Boiss. 3: 490. 1895. From the Greek χάιρη, hair, and χαλμός, bract. The name was probably suggested by the rather conspicuous filiform bracts and bractlets. The genus is based on 3 species, *C. macrosiphon* (Kuntze s. n., Bolivia), *C. marginata* (Kuntze s. n., Paraguay), and *C. rusbyi* (Kuntze s. n., Bolivia). The first of these can be considered as the type species.

Herbs or suffrutescent plants; leaf blades ovate to lanceolate; flowers borne in short spikes, these crowded in a terminal congested head; bracts and bractlets narrow; calyx segments 5, narrow; corolla hypocrateriform, the limb 2-lipped, the upper lip 2-lobed, the lower lip 3-lobed; stamens 2, exserted, the anther lobes affixed at different heights, the lower lobe spurred; stigma capitate; capsules clavate, 4-seeded.

Some 14 species have been described in this genus, all from tropical America.
1. Chaetochlamys columbiensis Leonard, sp. nov. 

Suffrutex, caulibus subteretibus, sursum bifariam retrorse puberulis, pilis curvatis, deorsum lignosis, glabris, cortice cinereo; lamina foliorum ovata, apice obtusa vel subacuta, basi acuta vel obtusa, aliquanto firma, integra vel undulata, supra glabra vel in costa strigosa vel hirsuta, pilis appressis vel curvatis et ascendentibus, cystolithis pluribus et conspicuis, subtus glabra vel in costa et venis parce hirtella, cystolithis pluribus densis et conspicuis; petioli breves, glabri vel in canale parce hireruli; capitula terminalia, foliis ovatis suffulta; bracteae lanceolatae, virides et foliaceae, acutae, venosae, glabrae vel intus basi puberulae, marginibus ciliatis, pilis ascendentibus; bracteolae anguste lanceolatae, apice graciles (apice ipso obtuso), glabrae vel intus basi puberulae, marginibus ciliatis; calycis segmenta lanceolata, acuminata, apice curvata, costa prominent, marginibus ciliatis, pilis conspicuis, albis, patulis vel ascendentes; corollae purpurea, hirtella vel in costa glabra, pilis patulis, tubo subcylindrico, labio superiore erecto, anguste ovato, apice bilobato, lobis oblongis, rotundatis, labio inferiore plus minusve patulo, 3-lobato, lobis ovatis, rotundatis; stamina exserta, lobis antherarum superpositis, obliquis, lobo inferiore calcarato; capsule ovoideae, abrupte acutae, glabrae; retinacula fere recta, apice tenuia, erosa; semina subsphaerica, subbrunnea, glabra.

Suffrutescent herbs up to 50 cm. high; stems simple or moderately branched, subterete, bifariously puberulous, the hairs retrorsely curved, up to about 0.16 mm. long, the internodes 2 to 5 cm. long, the lower woody portions of the stems glabrous, the bark gray; leaf blades ovate, up to 6 cm. long and 2.5 cm. wide, obtuse to subacute at tip, acute to obtuse at base, moderately firm, entire or undulate, the upper surface glabrous or the costa stigmatic or hirsute, the hairs about 0.16 mm. long, appressed or curved and ascending, the cystoliths numerous and conspicuous, up to 0.1 cm. long, the lower surface glabrous or the costa bearing a few scattered hairs, the cystoliths conspicuous, crowded and numerous; petioles up to 4 mm. long, glabrous or the channels sparingly puberulous; flowers borne in green terminal sessile heads about 2 cm. long and 2 to 3 cm. broad, these subtended by a pair of ovate leaves up to 5 cm. long and 2 cm. wide; bracts lanceolate, green and leaflike, up to 1.8 cm. long and 3.5 mm. wide, acute, veiny, the surfaces glabrous except the puberulous lower inner surface, the margins ciliate, the hairs ascending, up to 1 mm. long; bractlets narrowly lanceolate, up to 15 mm. long and 1.75 mm. wide near base, gradually narrowed to a slender tip (the tip itself blunt), glabrous except a small puberulous area at base of inner surface and the ciliate margins; calyx segments lanceolate, up to 12.5 mm. long and 2 mm. wide near base, acuminate, the tip curved,
the costa prominent, bearing dorsally a few ascending hairs up to 1 mm. long, the margins ciliate, the hairs white, spreading or ascending, up to 1.5 mm. long; corollas purplish-red, rather copiously hirtellous except the glabrous basal portion, the hairs spreading, up to 0.16 mm. long, the tube 3 mm. broad at base, enlarged to 4 mm. immediately above base, thence gradually narrowed to 3 mm. at mouth, the upper lip erect, narrowly ovate, 1 cm. long, 3 mm. wide at base, narrowed to a slender bilobed tip, the lobes oblong, 2 mm. long, 0.75 mm. wide, rounded, the lower lip more or less spreading, about 10 mm. long, 3-lobed, the lobes ovate, about 7 mm. long and 6.5 mm. wide, rounded; stamens exserted about 4 mm. beyond the mouth of the corolla, the

Figure 244.—*Chaetochlamys columbiensis* Leonard (Haught 2414): a, Tip of plant to show inflorescence and leaves; b, portion of leaf blade (medial area and lower surface) to show cystoliths; c, bract; d, bractlet; e, a calyx segment; f, corolla; g, anther; h, a capsule valve (dorsal surface); i, retinaculum. (a, Natural size; b–e, twice natural size; f, 1 1/2 natural size; g, 7 times natural size; h, 1 1/2 times natural size; i, 4 times natural size.)

anther lobes superposed and obliquely attached to the connective, about 2 mm. long and 0.5 mm. broad, the lower lobe bluntly spurred, the spur 0.26 mm. long and broad; capsules ovoid, 14 mm. long, 6 mm. wide, 3 to 4 mm. thick, abruptly acute, glabrous, 4-seeded; retinacula nearly straight, 2.25 mm. long, the tip 1 mm. wide, thin, erose; seeds subspherical, light brown, glabrous.

Type in the U. S. National Herbarium, No. 1707050, collected near Guataquicito, Department of Tolima, Colombia, 500 meters altitude, November 3, 1938, by Oscar Haught (No. 2414).

Pérez Arbeláez's No. 3105 (US), collected at Purificación, Department of Tolima, July 3, 1934, and Killip, Dugand and Jaramillo's
No. 38289 (US), collected at the Hacienda El Cucharo between Tocaima and Pubenza, Department of Cundinamarca, 350 meters altitude, May 7, 1944, are also of this species.

*Chaetochlamys columbiensis* has the general appearance of *C. ciliata* Lindau from the State of Pará, Brazil, but that species has larger flowers (the tube 25 mm. long instead of 18 to 20 mm. and its upper lip entire instead of bilobed) and larger leaf blades (10 to 12 cm. long and 4 cm. wide).

40. **CHAETOTHYLAX** Nees

*Chaetothylax* Nees in Mart. Fl. Bras. 9: 153, pl. 26. 1847. Type species *C. tocantinus* Nees. Type collected on the Rio Tocantins, Province of Goiás, Brazil, by Pohl. Derivation of epithet: χαίτη, hair, and θόλαξ, sack, in allusion to the vestigial lower anther lobe. In plate 26 this is pictured as a short hair, although in most species the lower lobe is shaped much like the upper but much smaller and evidently sterile.

Herbs; leaf blades ovate to oblong; flowers more or less secund, borne in short dense terminal and axillary spikes, these often forming panicles; bracts narrow, ending in filiform tips, hirtellous and ciliate; calyx segments 4, resembling the bracts; corollas white or some shade of purple, finely pubescent, the tube narrow, the lips subequal, the upper lip narrowly ovate, the lower deeply 3-lobed, the lobes rounded; stamens, slightly exserted but not exceeding the corolla lips, the upper anther lobe oblong, 1-celled, the lower lobe reduced or vestigial, or, as in the type species, hairlike, the lobes separated by a slender filiform connective; capsule clavate, 4-seeded; seed papillose or otherwise roughened.

About a dozen species are now recognized, these all confined to tropical America.

**KEY TO THE SPECIES**

Spikes relatively narrow, up to 5 mm. broad-------------------- 1. *C. umbrosus*

Spikes 8 mm. or more broad.

Corollas white----------------------------------------------- 2. *C. leucanthus*

Corollas violet or magenta.

Leaf blades up to 12 cm. long; corollas magenta, up to 2.8 cm. long-------------------- 3. *C. haughtii*

Leaf blades up to 6 cm. long; corollas violet, up to 1.4 cm. long.

4. *C. kuilensis*

1. **Chaetothylax umbrosus** Nees

*Chaetothylax umbrosus* Nees in DC. Prodr. 11: 313. 1847. Two syntypes are cited: Nova Granada [Colombia], Goudot, and St. Xaver [Argentina], Tweedie 1262.

Herbs up to 80 cm. high; stems branched, subquadrangular, bifariaously pilose, the hairs variously curved, ca. 0.5 mm. long, the cystoliths numerous, conspicuous, parallel, in some plants arranged in striae; leaf blades ovate to oblong, up to 9 cm. long and 3.5 cm.
wide, subacute and aristate at tip, the seta about 1 mm. long, narrowed at base and decurrent on the petiole, moderately firm, entire, hirsute, the upper surface usually sparingly so, the hairs of the lower surface often rather dense and evenly distributed, straight or slightly curved, spreading or ascending, up to 1 mm. long, the cystoliths numerous and prominent; flowers borne in numerous terminal and axillary spikes, these frequently forming large panicles, the spikes oblong, usually up to 1.5 cm. long, although at times as much as 3 cm. long, mostly 3 to 5 mm. broad (the flowers secund), sessile or short-pedunculate (1 mm.), the rachis puberulous; bracts lanceolate, 3.5 mm. long, 0.75 mm. wide, ciliate, the hairs ascending, up to 0.5 mm. long, the flat surfaces glabrous, the costa prominent; calyx segments linear, 7 mm. long, 0.75 mm. wide, narrowed to a slender tip, ciliate, the hairs up to 0.25 mm. long, the dorsal surface hirtellous with straight gland-tipped hairs ca. 0.06 mm. long; corollas violet to white, about 1.5 cm. long, finely pubescent except at base, the hairs up to 0.16 mm. long, mostly retrorsely curved, the tube 1.25 mm. broad at base, narrowed just above ovary to 1 mm., the throat 1.5 mm. broad, the upper lip erect, narrowly ovate, 4.5 mm. long, 2 mm. wide at base, obtuse or rounded at lip, the lower lip 4 mm. long, deeply 3-lobed, the lobes obovate, 1.5 mm. wide, rounded; stamens exerted 2 mm. beyond the mouth of the corolla tube, the upper lobe 0.75 mm. long and 0.25 mm. thick, the lower lobe affixed about 0.5 mm. below the upper, vestigial; capsule clavate, 7 mm. long, 1.5 mm. broad and thick, minutely and rather sparingly puberulous; retinacula truncate or irregular at tip; mature seed not seen.

No Colombian specimens examined. The description is based on material from Argentina.

2. Chaetothylax leucanthus Leonard, sp. nov.  

Herba, caulibus erectis vel ascenditibus, plus minusve ramosis, hirtellis, pilis albidis, plus minusve retrorse curvatis; lamina foliorum oblonga vel elliptica, apice acuta et cuspidata, basi cuneata et in petiolum decurrens, aliquanto firma, integra, hirtella, cystolithis obscuris; petioli hirtelli; paniculæ terminales et axillares, densæ, ex spicis densis floribus secundis compositæ; bracteæ lineari-subulatae, apice aristatae, ciliatae et aliquanto hirtellæ, pilis leviter curvatis, ascenditibus; calycis segmenta lineari-subulata, ciliata et parce hirtella; corolla alba, tenuiter pubescens, basi glabra excepta, pilis retrorse curvatis, tubo anguste cylindrico, labiis subaequalibus, labio superiore anguste ovato, apice emarginato, labio inferiore trilobato, lobis obovatis, obtusiis; stamina vix exserta, glabra, lobis antherarum superpositis, lobo superiore fertili, lobo inferiore sterilis, parvo; capsulae
Herbs up to 30 cm. high, erect or ascending; stems more or less branched, subquadrangular, up to 1.75 mm. thick, hirtellous, the hairs fine, more or less retrorsely curved, whitish, up to 0.38 mm. long; leaf blades ovate, oblong or elliptic, up to 5 cm. long and 2 cm. wide, acute and cuspidate at tip, the cusp up to 1 mm. long, narrowed at base and decurrent on the petiole, moderately firm, entire, both surfaces moderately and evenly hirtellous, the hairs on the costa and lateral veins (5 or 6 pairs) up to 0.67 mm. long, straight or slightly curved, spreading or ascending, the cystoliths obscure; petioles up to 0.5 cm. long, hirtellous, the hairs ca. 0.38 mm. long, curved; flowers borne in terminal and axillary panicles of dense straight or slightly curved, more or less 1-sided spikes, these up to 2 cm. long and 8 mm. broad, the lowermost internodes about 1.5 mm. long, hirtellous, the others successively shorter toward tip of spike, the panicles subtended by small leaves, the bracts linear-subulate, 7 mm. long, 0.4 mm. wide, gradually narrowed to a whitish aristate tip 1 mm. long, ciliate and rather sparingly hirtellous, the hairs up to 0.67 mm. long, slightly curved and ascending; calyx segments 1 cm. long, in other respects similar to the bracts; corolla 13 mm. long, finely pubescent except at base, the hairs retrorsely curved, up to 0.28 mm. long, the tube nar-
rowly cylindric, 0.75 mm. broad, the throat 1 mm. broad, the upper lip narrowly ovate, 2.5 mm. long, 1 mm. wide at base, emarginate at tip, the lower lip 3-parted nearly to base, the lobes obovate, about 3 mm. long, the middle lobe 2 mm. wide, the lateral lobes 1.5 mm. wide, all obtuse; stamens glabrous, exserted 2.5 mm. beyond the mouth of the corolla, the upper anther lobe 0.75 mm. long, 0.5 mm. broad, the lower anther lobe affixed 0.5 mm. below the upper, sterile and reduced; capsule clavate, 5 mm. long, about 2 mm. broad and 1 mm. thick, minutely pubescent, the hairs up to 0.08 mm. long, retrorsely ascending; seed (immature) papillose.

Type in the herbarium of the New York Botanical Garden, collected at edge of thicket in Buenavista, east of Sincé, Department of Bolivar, Colombia, 100 to 200 meters altitude, January 24, 1918, by Francis W. Pennell (No. 3985). Isotype in the Gray Herbarium.

Pennell's No. 4236 (NY), collected in a forest at Boca Verde, on the Río Sinú, Department of Bolivar, Colombia, 100 to 300 meters altitude, February 13–14, 1918, is also of this species.

The specific epithet is from the Greek λευκός, white, and ἄνθος, flower.

3. Chaetothylax haughtii Leonard, sp. nov. *Figure 246

Herba gracilis, caulibus bifariam pilosis, pilis patulis vel retrorse curvatis; lamina foliorum oblonga, apice acuta vel subacuminata, interdum curvata, basi cuneata et in petiolum decurrens, aliquanto firma, integra, supra glabra vel subglabra, costa parce hirtella, cystolithis pluribus, subtus aequaliter hirtella, pilis patulis vel ascendentibus, costa et venis lateralibus prominentibus; petioli hirtelli; spicae terminales et axillares, leviter curvatae, densae, floribus secundis, pedunculis brevibus, hirtellis, pilis curvatis; bracteae lanceolatae, hirtellae, costa prominente; calycis segmenta lanceolato-subulata, aliquanto et parce hirtella, costa prominente; corolla purpureo-rubra, parce hirtella, tubo anguste cylindrico, labiis subaequalibus, labio superiore suberecto, anguste ovato, apice minute bilobato, labio inferiore patulo, trilobato, lobis obovatis, obtusis; stamina vix exserta, lobis antherarum superpositis, lobo superiore fertili, lobo inferiore sterili, parvo; ovarium glabrum.

Slender herbs up to 1 meter high; stems subquadrangular, pilose, the hairs spreading or retrorsely curved, up to 0.68 mm. long, more or less bifariously arranged; leaf blades oblong, up to 12 cm. long and 3.5 cm. wide, acute or subacuminate and sometimes curved at tip, cuneate at base and decurrent on the petiole, rather firm, entire, the upper surface glabrous or nearly so, except the costa, this sparingly hirtellous, the cystoliths numerous, the lower surface evenly hirtellous, the hairs straight or slightly curved, spreading or ascending, up to 0.28 mm. long except those of the costa and lateral veins (6
or 7 pairs), these up to 0.96 mm. long, the venation of the lower surface prominent, that of the upper obscure, the margins ciliolate; petioles (unwinged portion) up to 2 cm. long, hirtellous; flowers secund, borne in dense slightly curved terminal and axillary spikes up to 2 cm. long and about 8 mm. broad; peduncles up to 5 mm. long, hirtellous with curved hairs, the lowermost pair of bracts leaflike, oblong-lanceolate, up to 12 mm. long and 3 mm. wide, acute, hirtellous, the succeeding bracts linear-lanceolate, up to 6 mm. long and 0.5 mm. wide, hirtellous, the costa prominent; calyx segments narrowly lance-subulate, up to 1 cm. long and 0.75 mm. wide, moderately to sparingly hirtellous, some of the hairs minute and gland-tipped, the costa prominent, this and the basal portion and marginal area of the segments whitish; corolla magenta, 28 mm. long, rather sparingly hirtellous, glabrous at base, the hairs more or less spreading, up to 0.18 mm. long, the tube narrowly cylindric, 1 mm. broad, enlarged at base and mouth to 1.5 mm., the lips about 4 mm. long,
the upper one suberect, narrowly ovate, minutely bilobed at tip, the lower lip spreading, 3-lobed nearly to base, the lobes obovate, 3.5 mm. long, the middle one 3 mm. wide above middle, the lateral ones 2 mm. wide, all obtuse; stamens barely exerted, glabrous, the anthers 2-lobed, the lobes 1-celled, superposed, the upper lobe fertile, 0.75 mm. long and 0.25 mm. broad, the lower lobe affixed about 0.25 mm. below the upper, vestigial and sterile, about 0.25 mm. long; style about as long as the stamens; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 1709430, collected on trail from Codazzi to Sierra, Department of Magdalena, Colombia, 500 meters altitude, October 23, 1943, by Oscar Haught (No. 3775).

4. Chaetothy lax huilensis Leonard, sp. nov. Figure 247

Herba, caulibus quadrangularibus, plus minusve ramosis, erectis vel ascendentibus, bifariam hirsutis, pilis rectis et patulis vel retrorsive curvatis; lamina foliorum ovata, apice obtusa vel acuta et aristata, basi cuneata, aliquanto firma, integra, supra parce hirtella, pilis ascendentibus, subtus aequaliter hirtella, pilis rectis et patulis vel curvatis et ascendentibus, cystolithis pluribus sed obscuris; petioli hirtelli; paniculae terminales et axillares, densae, foliatae, ex spicis parvis densis formatae; bracteae lineares, ciliatae, hirsutae, pilis albis, plus minusve patulis, costis prominentibus; calycis segmenta linearia, apice filiformia, conspicue ciliata et pilosa, pilis fere patulis et rectis, costa obscura; corolla violacea, tubo subcylindrico, basi glabro, sursum aliquanto dense hirtello, pilis rectis et patulis vel retrorsive curvato, labiis subaequalibus, labio superiore anguste ovato, pilis minute bilobato, labio inferiore plus minusve patulo, 3-lobato, lobis obovatis, rotundatis; stamina vix exserta, lobi antherarum superpositis, lobo superiore fertili, lobo inferiore steril, parvo; capsulae clavatae, minute et parce pubescentes, pilis retrorsive curvatis; semina papillosa.

Herbs up to 30 cm. high or more; stems more or less branched, subquadrangular, erect or ascending, hirsute, the hairs straight and spreading or retrorsely curved, up to 1 mm. long, more or less arranged in 2 rows; leaf blades ovate, up to 6 cm. long and 3 cm. wide, obtuse to acute and often aristate (the awn up to 3 mm. long), cuneate at base, rather firm, entire, the upper surface sparingly hirtellous, the hairs ascending, 0.67 mm. long, the lower surface more densely and evenly hirtellous, the hairs on costa and veins (5 or 6 pairs) mostly straight and spreading, up to 0.67 mm. long, the others curved and ascending and usually less than 0.5 mm. long, the cystoliths rather numerous but obscure; petioles (unwinged portion) up to 1 cm. long, hirtellous; flowers borne in dense terminal and axillary subsessile panicles up to 2.5 cm. long and broad, these composed of dense spikes 1.5 cm. long and 8 to 10 mm. broad and intermixed with small leaves,
the lowermost internodes of the spikes 1 mm. long, the others successively shorter, sparingly hirtellous; bracts linear, up to 12 mm. long and 0.5 mm. wide, ciliate and hirsute, the hairs white, straight, mostly spreading, up to 0.75 mm. long, the costa prominent; calyx segments narrowly linear, up to 11 mm. long and 0.5 mm. wide, gradually narrowed into a filiform tip, conspicuously ciliate and pilose, the hairs white, mostly straight and spreading, up to 1 cm. long, the costa obscure, apparent only toward base; corollas violet, 1.5 cm. long, the tube subcylindric, 1 mm. broad at base, enlarged to 1.5 mm. just above the ovary, thence narrowed to 0.75 mm., 1.5 mm. wide at throat, glabrous at base, otherwise rather densely hirtellous with white straight spreading or retrorsely curved hairs up to 0.25 mm. long, the upper lip narrowly ovate, about 3.5 mm. long and 1 mm. wide at base, the tip minutely bilobed, the lower lip 3.5 mm. long, 3-lobed nearly to base, the lobes obovate, the middle one 1.5 mm. wide, the lateral ones slightly narrower, all rounded; stamens exserted 1 mm. beyond the mouth of the corolla, glabrous, the upper anther lobe 0.75 mm. long and 0.5 mm. broad, the lower lobe affixed 0.75 mm. below the upper, about 0.5 mm. long, sterile, the connective between the 2 lobes slender: capsules clavate, whitish, 7 mm. long, about 2 mm. broad and 1.25

Figure 247.—Chaetothyax huiensis Leonard (a, b, S. Galen Smith 1164; c-f, Rusby & Pennell 486): a, Stem node and leaf; b, tip of plant showing inflorescence; c, bract; d, calyx; e, corolla; f, anther. (a, b, Natural size; c, d, 3 times natural size; e, twice natural size; f, 8 times natural size.)
mm. thick, minutely and sparingly pubescent, the hairs up to 0.08 mm. long and retrorsely recurved, the retinacula 1.5 mm. long, the tips up to 0.25 mm. broad and suberose, the seed flattened, about 2 mm. in diameter, papillose.

Type in the U. S. National Herbarium, No. 1041358, collected in a quebrada thicket in the Cordillera Oriental, east of Neiva, Colombia, 700 to 1,500 meters altitude, July 31, 1917, by H. H. Rusby and Francis W. Pennell (No. 486). Isotypes: GH, NY.

S. Galen Smith's No. 1164 (US), collected on a dissected plateau at Cabrera Lajas, about 11 km. east of Villavieja, on the road to Baraya, Department of Huila, 460 meters altitude, July 7, 1950, is also of this species.
SUPPLEMENT

The specimens cited or described in this supplement were received after the publication of Parts I and II.

The page number in parentheses after the species heading indicates where the entry would occur in Parts I or II.

PART I

1. STAurogyNE Wall.

2. Staurogyne leptocaulis Leonard, sp. nov.  (Page 7.)  Figure 248

Herba gracilis, caulibus decumbentibus, subteretibus, pilosis, pilis debilibus, albis, appressis vel subappressis; lamina foliorum oblongo-elliptica, apice obtusa, basi cuneata, firma, integra, puberula et pilosa, pilis minutis, acutis, rigidis, ascendentibus et pilis alteris longis, albis, gracilibus, ascendentibus; petioli breves, pilosi; spicae terminales et laterales, graciles, apice interdum curvatae, rhache pilosa; bracteae oblongae, foliis similis sed minores; bracteolae oblongo-lineares, obtusae, pilosae, ciliatae; pedicelli breves, pilosi; calycis segmenta anguste lanceolata, acuminata, segmentum posterius quam 4 anteriora angustius, dense pilosa, pilis gracilibus, albis, ascendentibus; corolla alba, puberula, basi glabra, labio superiore brevi, erecto, bilabiate, lobis rotundatis, labio inferiore patulo, trilobato, lobis rotundatis, plus minusve emarginatis; stamina inclusa; capsulae parvae, oblongae, glabrae vel apice parce puberulae; semina minuta, brunnea, globosa, verrucosa.

Delicate herbs up to 13 cm. high; stems decumbent, producing erect branches from the nodes, 0.5 to 0.75 mm. in diameter, subterete, reddish brown, pilose, the hairs white, appressed to subappressed, up to 0.6 mm. long; leaf blades oblong-elliptic, up to 25 mm. long and 4 mm. wide, obtuse at tip and cuneate at base, firm, entire, both surfaces puberulous and pilose, the minute hairs rigid, acute, up to 0.03 mm. long, the long hairs weak, white, up to 2 mm. long, both long and short hairs ascending, the mature blades becoming more or less glabrate at maturity, the lower surface more densely pilose than the upper; petioles up to 2 mm. long, pilose; spikes both terminal and lateral, up to 4 cm. long and 5 to 10 mm. broad, the rachis pilose, the hairs similar to those of the stem; bracts at tip of spike about 5 mm. long and 1 mm. wide, becoming, toward base, larger and intergrading
into the stem leaves; bractlets oblong-linear, 2.5 mm. long and 0.5 mm. wide, obtuse and ciliate; pedicels 0.5 mm. long, pilose; calyx 5 mm. long, the segments narrowly lanceolate, acuminate (tip itself blunt), the posterior segment 0.5 to 0.75 mm. wide, the anterior segments 4, about 0.25 mm. wide, all densely white-pilose, the hairs similar to those of the stem; corolla white, puberulous above, glabrous at base, 5 to 6 mm. long, the tube 2.5 mm. long and 0.75 mm. in diam-

Figure 248.—Staurogyne leptocaulis Leonard (Sprague 27): a, Branch; b, node of stem enlarged to show leaf in detail; c, portion of leaf blade (upper surface) enlarged to show pubescence; d, bractlet; e, calyx; f, lower lip of corolla; g, upper lip of same. (a, Natural size; b, twice natural size; c, 10 times natural size; d, 8 times natural size; e, 5 times natural size; f, g, 4½ times natural size.)

eter at base and 1.25 mm. at mouth, the upper lip about 1 mm. long, bilobed, the lobes rounded, the lower lip 2.5 mm. long, 3-lobed, the middle lobe obovate, 2 mm. long, 1.4 mm. wide, rounded and shallowly emarginate, the lateral lobes oblong, 1.25 mm. long and 0.75 mm. wide, rounded; stamens included, the shorter pair reaching about the middle of the corolla tube, the longer pair reaching the mouth of the corolla; style about 2 mm. long, glabrous, the stigma bilobed, the lobes minute; capsules 4 mm. long, 0.75 mm. wide and 0.5 mm. thick,
glabrous below, puberulous at tip; seed spherical, brown, about 0.25 mm. in diameter, verrucose.

Type in the Kew Herbarium, collected on llano at edge of woods at Cabuyaro, on the Río Meta, Meta, Colombia, January 7, 1899, by T. A. Sprague (No. 27). Isotype: K.

_Stanrogyne leptocaulis_ is readily distinguishable from _S. lepidagathoides_ Leonard (described from the Department of Bolívar) by its slenderer spikes and narrower leaf blades. In _S. lepidagathoides_ the latter are as much as 7.5 cm. long and 2.5 cm. wide. The specific name is from the Greek _λεπίδα_, slender, and _κάλυξ_, calyx.

### 2. ELYTRARIA Michx.

1. **Elytraria imbricata** (Vahl) Pers. (Page 7.)

_Atlántico_: Thin dry woods in the vicinity of Puerto Colombia, Barkley & Gutiérrez 1836 (US). Thin shrubby woods south of Barranquilla, Torreyrosa, Araque-M. & Barkley 18At.521 (US).

_Bolívar_: Southwest of Montería, Araque-M. & Barkley 19Bol.83 (US).

_Magdalena_: Open forests of Cerrejón, Haught 6711 (US). Wet sandy soil on the bank of the Río Manzanares near Santa Marta, Giacometto 1049 (US).

### 4. MENDONCIA Vell.

1. **Mendoncia aspera** (Ruiz & Pav.) Nees. (Page 14.)

_Vaufs_: Soratama, on the Río Apaporis between Río Pacoa and Río Kananarí, Schultes & Cabrera 13710 (US).

3. **Mendoncia lindavii** Rusby. (Page 15.)


3a. **Mendoncia lasiophyta** Leonard. (Page 16.)


_Mendoncia lasiophyta_ is a rampant liana, clambering over grasses and low shrubs. The leaf blades are large, orbicular or suborbicular, and firm, but somewhat papery, and the lanceolate bracts, up to 4 cm. long are, like the stout peduncles, clothed with a dense yellowish brown tomentum. The corollas, exserted for about half their length beyond the bracts, are red. The specific epithet, derived from _λάσιος_,


shaggy, and \( \phi v \), plant, alludes to the densely fulvous-tomentose inflorescence, leaves, and stems. Its closest relative is *M. gigas* Lindau, of Peru.

4. **Mendoncia pedunculata** Leonard. (Page 16.)

**VAUPÉS:** Caño Churrucú, highland above the Río Apaporis in the vicinity of Soratama (above mouth of Río Kananari), about “900 feet” altitude, January 31, 1952, Schulter & Cabrera 15113 (US).

9. **Mendoncia hirsuta** (Poepp. & Endl.) Nees. (Page 21.)

**VICHADA:** Amanavén, November 22, 1948, Romero 1225 (US). Dense woods along the Río Guaviare in the región de Amasebel, 250 meters altitude, November 23, 1948, Araque-M & Barkley 18 Vi. 128 (US).

9a. **Mendoncia trichota** Leonard, sp. nov. (Page 21.)

*Suffrutex volubilis*, caulibus sulcatis, subteretibus, pilosis et puberulis, pilis longis patulis brunneis et parvis albidis intermixtis;

![Diagram of Mendoncia trichota](image.png)

**Figure 248a.** —**Mendoncia trichota** Leonard (*Koie 5043*): *a*, Lower portion of leaf; *b*, upper portion of leaf; *c*, portion of stem; *d*, bract. (*a, b*, Half natural size; *c, d*, natural size.)

*lamina foliorum grandis, ovata, apice acuminata, basi cordata, tenuis, integra, ciliata, utrinque pilosa, pilis ascendentibus, longis, brunneis, e basi stellata orientibus, costa et venis lateralis prominentibus, venulis crasse reticulatis; petioli pilosi; flores axillares, fasciculati;*
pedicelli pilosi; bracteae ellipticae, utrinque obtusae vel rotundatae, apice mucronulatae, recurvatae, extus dense brunneo-pilosae, intus puberulae; drupa ellipsoidalis, leviter compressa, puberula.

Large vines; stems grooved, subterete, 5 mm. in diameter (near flowering node), pilose and puberulous, the long hairs mostly spreading, up to 7 mm. long, brown, the small hairs up to 0.2 mm. long, whitish, spreading; leaf blades ovate, up to 25 cm. long and 18 cm. wide, acuminate at tip, cordate at base, rather thin, entire, ciliate, both surfaces pilose, the hairs ascending, mostly 3 to 6 mm. long, brownish, arising from stellate bases, these bases larger and more conspicuous on the upper surface than on the lower, the costa and lateral veins (4 pairs) rather prominent, the veinlets coarsely reticulate; petioles up to 8 cm. long, 2.5 mm. in diameter, the pubescence that of the stems; flowers axillary, in threes, at least the lowermost; pedicels 4 cm. long, 1.25 mm. in diameter, the pubescence that of the stems; bracts elliptic, 3 cm. long, 11 to 17 mm. wide, obtuse or rounded at both ends, mucronate at tip, the mucro 5 to 8 mm. long, rigid, densely brown pilose, the hairs similar to those of the stems, the inner surface puberulous, the hairs up to 0.3 mm. long, mostly spreading; corollas not seen; drupe (mature?) ellipsoidal, slightly flattened, 22 mm. long, 9 mm. broad, 6.25 mm. thick, puberulous, the hairs up to 0.5 mm. long.

Type in the Botanical Museum of the University of Copenhagen, collected at Tres Esquinas, on the Río Caquetá, Intendencia de Amazonas, Colombia, 200 meters altitude, August 1952 by M. Køie (No. 5043).

Mendoncia trichoia is well marked by its large thinnish cordate leaves and its dense brownish pilosity. Its nearest relative is Mendoncia cordata Leonard, based on a specimen collected in the forest along the Río Anchicayá, Department of El Valle, Colombia, by J. Cuatrecasas (No. 15216). From this M. trichoia differs in its predominantly longer hairs, the dense (under lens) understory of minute hairs on the stems, the larger leaf blades, and the smaller bracts. The leaf blades of M. cordata are up to 20 cm. long and 14 cm. wide and the hairs of the under surface are denser, giving it a velvety touch that is lacking in M. trichoia, with its more scattered hairs. The bracts of M. cordata are as much as 3.5 cm. long and 2.5 cm. wide, but in M. trichota do not exceed 3 cm. in length and 1.7 cm. in width.

The specific epithet is from the Greek word ῥυχώτας, meaning provided with hairs.
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Meta: Río Güejar, north of La Macarena, Sabanas de San Juan de Arama, 500 meters altitude, August 23, 1950, *Idrobo* 566 (US).

12. **Mendoncia sprucei** Lindau. (Page 23.)

**Norte de Santander:** Tall forest east of Río Valegra, Municipal de Chitagi, Cordillera Oriental, 2,000 meters altitude, November 16, 1942, *Fosberg* 19129 (US).

12a. **Mendoncia phalacra** Leonard, sp. nov. (Page 23.) Figure 248b

Planta volubilis, caulibus subteretibus, leviter sulcatis, glabris; lamina foliorum oblongo-elliptica, breviter acuminata et apiculata, basi acuta vel obtusa vel rotundata, firma, subcoriacea, integra, utrinque glabra, costa et venis lateralibus modicriter prominentibus; petioli plus minusve sulcati, glabri; flores solitarii vel gemini, axillares; pedicelli sulcati, glabri, apice subquadrangulares, deorsum teretes; bracteae oblongo-ellipticae, apice rotundatae et mucronulatae, plus

![Figure 248b](image)

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Vine; stems shallowly grooved, subterete, glabrous, 3 mm. in diameter near the fruiting nodes; leaf blades oblong-elliptic, up to 12.5 cm. long and 7.5 cm. wide, short-acuminate and bluntly apiculate, entire, both surfaces glabrous, the costa and lateral veins (4 pairs) moderately prominent; petioles 1.5 to 2.5 cm. long, more or less sulcate, glabrous; flowers solitary or in pairs in the axils of the upper leaves; peduncles up to 4 cm. long, toward base terete and 1 mm. in diameter, gradually enlarged to 3 mm. at the subquadrangular tip,
sulcate, glabrous; bracts oblong-elliptic, up to 3 cm. long and 1.5 cm. wide, rounded and mucronulate, the tip of the bract and the mucro more or less recurved, rounded at the base, green, glabrous, the costa faint; mature corollas not seen; drupe 17 mm. long, 1 cm. broad, 7 mm. thick, obtuse, flattened and oblique at tip, yellow, glabrous.

Type in the U. S. National Herbarium, No. 2173522, collected at Jino-Gojé, between the Ríos Piraparaná and Popeyaká, in the Río Apaporis valley, Vaupés, Colombia, 250 meters altitude, September 3 to 11, 1952, by H. García-Barriga (No. 14403).

**Mendoncia phalaera** is unique in being strictly glabrous and in the rounded, more or less recurved, mucronulate tips of the bracts, which are very noticeable. The species has no close relatives among those known to grow in Colombia. The specific epithet is from the Greek word ϕαλακρός, meaning smooth or glabrous.

**17a. Mendoncia garcae Leonard, sp. nov.** (Page 31.)

Frutex volubilis, caulibus leviter sulcatis, subteretibus, basi glabratis, apice dense pilosis, pilis arcte appressis, brunneis; lamina foliorum elliptica, apice acuta vel abrupte acuminata, basi rotundata,

![Figure 248c](image_url)

**Figure 248c.—Mendoncia garcae Leonard (Garcia-Barriga 14399): a, Node showing leaves, both upper and lower surface, and portion of stem; b, bracts and pedicel; c, drupe (a, Half natural size; b, c, natural size.)**

firma, supra parce puberula, integra, subtus dense et molliter tomentosa, pilis flavescentibus, costa et venis lateralibus prominentibus, supra arcte impressis; petioli dense pilosi, pilis appressis, subbrunneis; flores axillares; pedicelli teretes, dense tomentosi, pilis mollibus, subtilibus, subbrunneis; bracteae oblongo-ovatae, apice rotundatae et mucronatae, basi rotundatae, externe dense tomentosae, pilis mollibus,
subflavi-brunneis, costa obscura, intus glabrae; drupa subobovoidea, leviter compressa, apice obtusa et obliqua, glabra.

Shrubby vine up to 3 meters high; stems subterete, shallowly sulcate, 4.5 mm. in diameter toward tip, densely and upwardly pilose, the hairs brown, up to 2.5 mm. long, closely appressed, the older portions of the stems glabrate; leaf blades elliptic, up to 10 cm. long and 7.5 cm. wide, abruptly acute to short-acuminate, rounded at base, firm, entire, the upper surface sparingly puberulous, the hairs up to 0.16 mm. long, more or less curved, the lower surface yellowish and densely and softly tomentose, the hairs up to 0.75 mm. long, the costa and lateral veins (4 pairs) very prominent, the veinlets coarsely reticulate, the venation of the upper surface conspicuously impressed; petioles 1.5 cm. long, 2 mm. in diameter, densely appressed-pilose with brownish hairs; corollas not seen (yellow, Garcia-Barriga); flowers axillary, one or more (?) in each axil; pedicels 2.5 cm. long, 1.5 mm. in diameter, terete, densely tomentose with soft fine brownish hairs up to 2 mm. long; bracts oblong-ovate, 2 cm. long, 1 cm. wide, rounded and mucronate, the mucro about 1 mm. long but obscured by the dense tomentose pubescence covering the outer surface of the bracts, the hairs soft, yellowish brown, about 2 mm. long, the costa obscure, the inner surface of the bracts glabrous; drupes 1.5 cm. long, 8 mm. broad, 6 mm. thick, obtuse and oblique at tip, somewhat flattened, glabrous.

Type in the U. S. National Herbarium, No. 2173519, collected at Jino-Gojé, between the Ríos Piraparand and Popeyaká, in the valley of the Río Apaporis, Vaupés, Colombia, 250 meters altitude, September 3 to 11, 1952, by H. García-Barriga (No. 14399).

Mendoncia garciae is easily recognized by its thick, elliptic, almost suborbicular leaf blades, with yellowish brown-tomentose lower surfaces and subglabrous, veiny upper surfaces. There are apparently no close relatives.

19. Mendoncia gracilis Turrill. (Page 33.)

      CAUCA: Quindío, Triana (K).

5. THUNBERGIA Retz.

1. Thunbergia alata Bojer. (Page 41.)


2. Thunbergia fragrans Roxb. (Page 43.)

      ANTIOQUIA: Thin woods in the vicinity of Antioquia, Barkley & Arboleda-R. 3 (US).

3. Thunbergia grandiflora Roxb. (Page 44.)

      ATLÁNTICO: Barranquilla, Bro. Elias 1408 (Ch).

      CHOCÓ: Along the Río Atrato, in the vicinity of Quibdó, Araque-M. & Barkley 19Ch.034 (US).
3a. Thunbergia grandiflora Roxb. forma alba Leonard, f. nov. (Page 44.)

A forma typica corolla alba recedit.

Type in the U. S. National Herbarium, No. 1443113, collected at Barranquilla, Department of Atlántico, Colombia, December 1929, by Brother Elias (No. 794).

3b. Thunbergia grandiflora Roxb. forma citrina Leonard, f. nov. (Page 44.)

A forma typica corolla citrina recedit.

Type in the U. S. National Herbarium, No. 2105913, collected at Pato, in the drainage of Río Nechi, Department of Antioquia, Colombia, June 23–25, 1944, by Joseph A. Ewan (No. 15833).

Label note: “Cultivated vine in garden; fls. showy, lemon yellow, leaves glossy green.” The leaf blades of the type are rather narrowly ovate, 12 cm. long and 5.5 cm. wide, slenderly acuminate, subcordate at base, coarsely and bluntly toothed and some of them obscurely lobed. In other respects it resembles the typical form.

6. BRAVAISIA DC.

1. Bravaisia integerrima (Spreng.) Standl. (Page 47.)

The citation for Bravaisia floribunda DC. given on page 46 is erroneous. At the time of the publication of the genus Bravaisia, DeCandolle provided a combined generic and specific description. The citation should be:

Bravaisia floribunda DC. Bibl. Univ. Genève n. ser. 17: 132. 1838. The type was collected near Caracas, Venezuela, by Vargas. The other synonyms and specimens mentioned above on page 46 under B. floribunda should be deleted.


7. TRICHANTHERA H. B. K.

1. Trichanthera gigantea ( Humb. & Bonpl.) Nees. (Page 49.)

Antioquia: Rain forest near Villa Arteaga, Lópéz & Sanchez 61 (US).

Cauca: In field along the Río San Juan, Core 1501 (US). El Tambo, Kjell von Sneidern 2652 (US), 2653 (US).

Huila: East of San Antonio Fortalescas, Little 7930 (US).

Meta: Dense forest on bank of the Río Guapaya, Sierra de la Macarena, Philipson, Idrobo & Fernández 1639 (US).

2. Trichanthera corymbosa Leonard. (Page 50.)

Santander: In open, more or less dry forests north of Bucaramanga, Araque-M. & Barkley 188.212 (US).
8. SANCHEZIA Ruiz & Pav.

On page 51 above, a mention of the type was omitted. There were two species described by Ruiz and Pavon, of which I chose S. ovata as lectotype (Journ. Washington Acad. Sci. 16: 484. 1926).

1. Sanchezia pennelli Leonard. (Page 52.)

**Amazonas**: Lowland along the Río Caquetá, at La Pedrera, Schultes & Cabrera 17714 (US).

**Caldas**: Near Salamina, on the Río Pozo, Bro. Tomás 2452 (US).

**Cundinamarca**: Villetta, André 512 (K). Chipaque to Coqueza, André 513 (K).

**Meta**: On river bank in dense humid forests of Plaza Bonita, Sierra de la Macarena, Philipson, Idrobo & Fernández 1722 (US).

**Santander**: Tagual, André 266 (K).

**Vaupés**: Mesa La Lindosa, 15-20 km. south of San José de Guaviare, Idrobo & Schultes 682 (US). Río Guaviare, near San Fernando, 250 m. alt., Araque M. & Barkley 18Va.068 (US).

2a. Sanchezia thinophila Leonard. (Page 53.)


Schultes states that the type was taken from a plant growing on a sandy beach at the mouth of the Río Loretoyacu. This suggested the specific epithet, thinophila, from the Greek θῦς, beach, and φιλός, loving.

2b. Sanchezia thinophila Leonard forma glabra Leonard, f. nov. (Page 53.)

A forma typica folia glabra recedit.

A shrub with yellow flowers and red bracts collected in the same general locality as the type of the typical form.

Type in the U. S. National Herbarium, No. 1989366, collected along the Río Loretoyacu, Trapecio Amazónico, Intendencia de Amazonas, Colombia, altitude about 100 meters, November 1945, by Richard Evans Schultes (No. 6937).

3. Sanchezia lutea Leonard. (Page 53.)

**Cauca**: Marshy jungle on bank of stream near sea level, Gorgona Island, Collenette 557 (K).

9. HYGROPHILA R. Br.

1. Hygrophila guianensis Nees. (Page 58.)

**Antioquia**: Wet places at Copacabana, Bro. Daniel 3965 (US).

**Meta**: Wet rocky forest along the Río Guatiquia, in the vicinity of Villa-vicecio, Araque-M. & Barkley 18M.041 (US).

**Putumayo**: Wet forest on steep slope of ridge above Sachamates and opposite
the mouth of Quebrada Patoyaco, on the Río Susunga (upper Río Mocoa), 17 km. west of Mocoa, Foosber 20386 (US).

SANTANDER: Pailas, 5 km. from Pie de Cuesta, Araque-M. & Barkley 188.247 (US).

2. Hygrophila tyttha Leonard, sp. nov. (Page 60.)

Herba gracilis, caulibus erectis vel ascendentibus, simplicibus vel parce ramosis, acute quadrangularibus vel angulis anguste alatis, glabris vel in nodis tumidis parce hirtellis; lamina foliorum linearis-

lanceolata, apice obtusa, basi perspicue angustata, in superficie glabra, costa et venis lateralis obscuris parce hirtellis, marginibus aliquando parce ciliolatis, cystolithis parvis, raribus, inconstis; flores axillares, pedicellis planis, anguste alatis; bracteae lanceolatae, acutae vel obtusae, glabrae vel in costa parce hirtellae et in marginibus albidis
parce ciliolatae; pili interpetiolares plani, albidi, septati; calyx parvus
tubo glabro, segmentis linearibus, subcarinatis, glabris vel parce
hirtellis et ciliatis, pilis ascendentibus; corolla alba vel lilacina,
puberula, lobis ovatis, rotundatis; stamina inclusa, antheris linearibus;
capsulae lineares, obtusae et apiculateae, glabrae; retinacula brevia,
acuta; semina brunnea, plana, apice rotundata, basi obliqua (sicca),
marginibus madefacta mucoso-pilosis.

Slender herbs up to 30 cm. high; stems erect or ascending, simple
or sparingly branched forming dense clumps, sharply quadrangular or
the angles narrowly winged, glabrous or sparingly hirtellous at the
nodes, these more or less swollen, the basal portion of the stems 1 to
1.5 mm. in diameter; leaf blades linear-lanceolate, up to 5 cm. long
and 1.5 to 4.5 mm. wide, gradually narrowed to an obtuse tip and into
a slender base, glabrous except the costa (prominent) and lateral
veins (4 or 5 pairs, obscure), these sparingly hirtellous, the margins
of the leaves sometimes sparingly ciliate, the cystoliths usually
small, scattered and inconspicuous; interpetiolar hairs whitish, up to
0.64 mm. long, flattened, septate; flowers axillary, solitary or several
in a cluster, the pedicels up to 3 cm. long, flattened, narrowly winged;
bracts subtending the pedicels lanceolate, 5 mm. long, 0.5 mm. wide,
acute to obtuse, glabrous, the costa and margins whitish, the costa
sparingly hirtellous and the margins sparingly ciliate with hairs
about 0.2 mm. long; calyx 5 mm. long, the tube glabrous, the segments
linear, about 5 mm. long, subcarinate, glabrous or sparingly hirtellous
and ciliate, the hairs ascending, about 0.2 mm. long; corolla white or
lilac, 7 mm. long, puberulous, the lobes ovate, 1.5 mm. long and 1.25
mm. wide, rounded at tip; stamens included, the longer pair 3.5 mm.
long, the shorter 1.5 mm. long, the anthers linear, 1 mm. long, 0.25 mm.
broad; capsules linear, 10 mm. long, 1.25 mm. broad, 0.75 mm. thick,
obtuse and apiculate, glabrous; retinacula 0.35 mm. long, acute; seed
usually 16 in each capsule, brown, flattened, ca. 1 mm. long, 0.6
mm. wide, 0.25 mm. thick, rounded at tip, oblique at base, glabrous
when dry but mucilaginous-pilose when moistened.

Type in the U. S. National Herbarium, No. 1772097, collected on
the sandy and gravelly bank of Río San Juan, near Andagoya, Inten-
dencia of Chocó, Colombia, 60 meters altitude, April 27, 1939,
by E. P. Killip (No. 35383). Also represented by:

El Valle: Río Cajambre, at Barco, Cuatrecasas 17101 (US). Río Calima,
between La Herradura de Ordóñez and Peña de Campotriste, Cuatrecasas 16672
(US). Río Calima, between Palión and El Coco, Cuatrecasas 21246 (US). Río
The specimens cited were all collected at low altitudes (5 to 80 meters). The plants, often forming dense clumps, are of a bright green color. Killip states that it is a characteristic plant along the Rio San Juan. The species is unique in the genus *Hygrophila* because of its small size, hence its name from the Greek *τυρός*.

10. **BLECHUM** P. Br.


   **Atlántico**: Hacienda El Paraliso, on the bank of Rio Magdalena between Palmar de Varela and Ponedera, Dugand 4420 (US).


   **El Valle**: La Paila, Holton s.n. (NY). Near Queremal, Core 1482 (US).

   **Huila**: Wet silt near river and rice fields, Rio Cabrera, 18 km. northeast of Villavicía, S. Galen Smith 1203 (US).

   **Magdalena**: Santa Marta, Bertero s.n. (Mo).

11. **PHAULOPSIS** Willd.

1. **Phaulopsis oppositifolia** (Wendl.) Lindau. (p. 65).


   *Phaulopsis parviflora* Willd. Sp. Pl. 3: 342. 1800 (nom. illegit.).

   *Phaulopsis oppositifolia* Lindau in Engler & Prantl, Nat. Pflanzenfam. Nachtr. II–IV, Teil 1: 305. 1897 (as *oppositifolia*).

   On page 64 above, I adopted the original spelling "Phaylopsis"; however, when this genus was added to the list of *nomina conservanda* the etymologically correct spelling *Phaulopsis* was adopted. The specific epithet *parviflora* was superfluous when published, and must be replaced by the earlier *oppositifolia*. The fact that the genus *Micranthus* Wendland has been rejected in favor of *Phaulopsis* does not render specific names published under *Micranthus* illegitimate.

12. RUCELLA Plum. ex L.


*Stemonacanthus*. The species *S. salviifolius* is a lectotype, the fourth of five original species; it was chosen because it is the one illustrated by Nees.

*Arrhostaxylum*. On page 66, I stated that the type of this genus is *A. laxum* Nees, but this was an error. There were 18 original species in the genus, of which the third, *A. glabrum* Nees, was chosen as lectotype by Breemekamp (*loc. cit.*) because it is the species illustrated by Nees. Breemekamp’s choice must be followed.

1. *Ruellia fulgida* Andr. var. angustissima (Hochr.) Leonard. (Page 69.)
   - **Cundinamarca**: Santanderito, *Uribe-Uribe* 2207 (US).
   - **Cauca**: Open forests about Popayán, *Lehmann* 7850 (K). *La Paila, Hollon* 23 (NY).
   - **Norte de Santander**: Ocana, *Schlim* 136 (K).

   - **Cundinamarca**: Fusagasugá, *André* 1445 (K).

   - **El Valle**: Forest at Cisneros, 300 to 500 meters altitude, Sept. 21, 1922, *Killip* 11477 (GH, NY).

6. *Ruellia paniculata* L. (Page 76.)
   - **Bolivar**: Desert scrub savanna, Caribbean coast, 7 km. east of Cartagena, *Grant* 10706 (US).
   - **Magdalena**: Pantano, Río Hacha, *Schlim* 894 (K).

   - **Atlántico**: Hacienda El Paraíso on the banks of the Río Magdalena between Palmar de Varela and Ponedera, *Dugand* 4427 (US).

8. *Ruellia tuberosa* L. (Page 79.)
   - **Antioquia**: Damp woods 2 km. north of Antioquia, *Gutiérrez-V. & Barkley* 17C.041 (US).
   - **Bolívar**: Desert scrub savanna, Caribbean coast, 7 km. east of Cartagena, *Grant* 10706 (US).
   - **Magdalena**: Pantano, Río Hacha, *Schlim* 894 (K).

8. *Ruellia tuberosa* L. (Page 79.)
   - **Antioquia**: Damp woods 2 km. north of Antioquia, *Gutiérrez-V. & Barkley* 17C.041 (US).
     - **Bolívar**: Damp place 3 km. west of Santa Fé de Antioquia, *Scolnik, Rios-C.* & *Betancourt-O.* 624 (US).
     - **Bolívar**: Hacienda El Covao, Montería, on the banks of the Río Sínú, *Garcia-Barriga* 13415 (US); *Cervantes, Araque-M. & Barkley* 19Bo.066 (US).
     - **Cundinamarca**: Viotá to Toacima, *André* 1713 (K).
Huila: Sand bar at Cabrera Lajas, about 11 km. east of Villavieja, on the road to Baraya, upper Río Magdalena basin, S. Galen Smith 1137 (US). Road from Villavieja to Colombia, upper Río Magdalena basin, Mason 13978 (UC).

Magdalena: Along weedy roadside in cultivated grounds of Prado de Magdalena, Santa Marta, Fosberg 22126 (US).


Tolima: Open bushwoods above Prado and near La Unión, Lehmann 6410 (K).

9. Ruellia macrophylla Vahl. (Page 80.)

Magdalena: Tucurinca, Romero 597 (Ch). Temperate forests 8 km. east-northeast of Manau and 44 km. east of Valledupar, Sierra de Perijá, Grant 10764 (US). Subtropical forest in the Espíritu Santo Valley, Sierra de Perijá, Grant 151000 (US).

Department?: Valle de Caetar, Dawe 616 (K).

11. Ruellia ischnopoda Leonard. (Page 84.)

Antioquia: Loreto, Toro 859 (NY). El Boquerón, along road to sea in vicinity of Medellín, Uribe-Uribé 2273 (US).

Cundinamarca: Barroblanco, near Fusagasugá, André 1439 (K). On bank of the Río Magdalena at Guataquil, André 1881 (K).

Nariño: La Unión, in the Río Cauca valley, André 2916 (K).

Tolima: Dry heaps of rubble around Guadelupe and Suaza, Lehmann 8692 (NY, K). Río Saldaña, Haught 6382 (US).

13. Ruellia rusbyi Leonard. (Page 88.)

Cauca: La Vibora, Lehmann 4478 (K). Los Arboles, in the Río Cauca Valley, André 2848 (K).

Tolima: Pitalito, Sprague 246 (K).

15. Ruellia humboldtiana (Nees) Lindau. (Page 89.)


The above citation is the first publication, two years earlier than that cited above on page 89, i.e. Nees in DC. Prodr. 11: 206. 1847. This brings up a peculiar nomenclatural difficulty. Bentham was preparing his list of the British Guiana collections of Schomburgk, and Nees contributed a description of his proposed new species in advance of its intended publication in the Prodromus. The Bentham publication came out earlier, but it does not cite the intended type (a Humboldt collection from the Aragua Valley, Venezuela), but only a Schomburgk collection from British Guiana, which Nees was considering a new variety—S. humboldtianus var. β. The short specific description is however based on the Humboldt specimen, even though this is not cited, and consequently it must be considered the type. The Schomburgk specimen has not been examined; it very probably represents a different species.
In DC. Prodromus, Nees lists under the typical variety (called var. a) a Linden collection (Linden 1526) from Cuba. This was an error; Nees very likely intended to list this specimen under his var. b. In any case, this collection, as shown by a photograph of a specimen, does not represent R. humboldtiana. On page 89 above, I stated that it might be an undescribed species, but further study indicates that it is R. macrophylla Vahl, a species rather common in Cuba.

**Cundinamarca:** Subtropical forest in the Gazeunta Valley, 9 km. northwest of Medina, Cordillera Oriental, Grant 10388 (US).

**Meta:** Between Quetame and Villavicencio, Lehmann 8822 (K). Rain forest, Río Ocoa, 9 km. southeast of Villavicencio, Fosberg 20160 (US). Moist forest just west of Servita in the canyon of Río Negro, 10 km. west-northwest of Villavicencio, Fosberg 21445 (US). Between Servita and Villavicencio, 300-900 meters, Triana 4043-3 (K).

16. **Ruellia tubiflora** H. B. K. (Page 91.)

**Cundinamarca:** Between Río Seco and Parada, Province of Tequendama, Triana 4043-1 (Col, K). Guaduas, Uribe-Uribe 2335 (US). San Antonio, Haught 6256 (US).

**Norte de Santander:** Aguachica, Ocaña, Schlim 779 (K).

**Santander:** Consuelo, Kalbreyer 2019 (K).

**Tolima:** Shaded forest near watercourse, Chicoral, Haught 6335 (US), 6429 (US). Mariquita, Uribe-Uribe 2567 (US).

16a. **Ruellia tubiflora** H. B. K. var. tetrastichantha (Lindau) Leonard. (Page 92.)

**Bolívar:** Forests between Las Dantes and Puerto Canoa, Pennell 4542 (NY).

**Cundinamarca:** Cordillera de Viota, on the road to Fúsagasugá, Triana 4043-5 (K).

**Meta:** Susumuco, Andrés 900 (K). Villavicencio, Paul H. & Dorothy O. Allen 3229 (Mo); Pérez-Arbeláez 5343 (Herbarium of Pérez-Arbeláez). Between Susumuco and Villavicencio, 300-1000 meters, Triana 32-4 (K).

16b. **Ruellia tubiflora** H. B. K. var. tetrastichantha (Lindau) Leonard f. bicolor Leonard. (Page 92.)

**Cauca:** La Costa, El Tambo, von Sneidern 864 (S).

**Meta:** In rich soil in damp rocky woods on the bank of Río Guatiquía, in the vicinity of Villavicencio, Arague-M. & Barkley 18M.058 (US). Guapayita, on trail between the Río Güejar and Caño Guapayita, Cordillera de Macarena, Idrobo & Schultes 916 (US). Dense humid forests on the Río Güejar south of the El Mico Airstrip of Camp 1, Cordillera de Macarena, Philpston, Idrobo & Fernández 1364 (US). Los Micos, along the Río Güejar, Sabanas de San Juan de Arama, Cordillera de Macarena, Idrobo & Schultes 503 (US). Moist shady place along stream, Villavicencio, Sandeman 5821 (K). Villavicencio, Andrés 1014 (K); Sprague s.n. (K); Pennell 1478 (NY).

16c. **Ruellia tubiflora** H. B. K. var. tetrastichantha (Lindau) Leonard forma caesiolineata Leonard, f. nov. (Page 93.)

A forma typica corolla labio inferiore caesiolineato recedit.

A shrub 8 feet high; corolla white with lavender lines on the lower lip, 7 cm. long, the tube 5 mm. broad at base, narrowed at 2 cm.

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1 The Kew specimen is erroneously numbered “4041-1,” according to a copy of the Triana catalog in the possession of Dr. Cuatrecasas.
above base to about 3 mm., thence rather abruptly enlarged to a cylindrical throat 1.5 cm. broad, the limb about 4 cm. broad.

Type in the U. S. National Herbarium, No. 2045436, collected in tropical forest at San Mateo, Gazaguan Valley, 6 kilometers northwest of Medina, Department of Cundinamarca, Colombia, 800 meters altitude, October 6, 1944, by Martin L. Grant (No. 10431). Iso-type: US.

16f. Ruellia tubiflora H. B. K. var. parviflora Leonard forma alba Leonard. (Page 94.)

Leaf blades lanceolate, 2.5 to 6 cm. long and 0.8 to 2 cm. wide.

AMAZONAS: Soratama, on the Río Apaporis between Río Pacoa and Río Kananáí, Schultes & Cabrera 13570 (US).

17. Ruellia lorentziana Griseb. (Page 94.)

TOLIMA: Piedras, on the Río Chipalo, André 1865 (K).

17a. Ruellia aurantiaca Leonard, sp. nov. (Page 95.) Figure 249a

Suffrutex, caulibus subquadrangularibus, subtomentosis; lamina foliorum ovato-lanceolata, apice acuminata (apice ipso subobtuso), basi rotundata vel acuta, aliquanto firma, crenata, supra glabra, subtus puberula, pilis praecipue in costa et venis positis, venis utrinque obscuris, cystolithis prominentibus; petioli puberuli, pilis fere appressis; spicæ terminales et subterminales, floribus in fasciculis basi interruptis apice confluentibus; bracteæ fasciculas subtendentæ foliaceæ; bracteæ flores subtendentæ oblongæ, apice rotundatae, ciliatae et utrinque parce pilosæ, pilis patulis vel ascendentibus; calycis segmenta linearia pilosa et ciliata, pilis patulis vel ascendentibus; corolla pallide aurantiaca hypocrateriformis, pubescens, lobis orbicularibus, emarginatis; stamina vix exserta, antheris oblongis, utrinque rotundatis, filamentis glabris; capsulae clavatae, puberulae, pilis retrorsis apice ascendentibus; retinacula gracilia linearia recta et leviter curvata, apice plana et fimbriata.

Suffrutescent, probably up to 1 meter high; stems quadrangular, subtomentose, the hairs up to 1 mm. long; leaf blades ovate-lanceolate, 16 cm. long and 6 cm. wide, rounded to acute at base, acuminate at tip (the tip itself subobtuse), moderately firm, crenate, the upper surface glabrous, the lower puberulous, the hairs confined chiefly to the costa and veins (10 to 12 pairs), subappressed, up to 0.25 mm. long, the venation rather obscure, the cystoliths prominent, up to 0.16 mm. long; petioles up to 4 cm. long, puberulous, the hairs up to 0.16 mm. long, mostly appressed; flowers borne in fascicles, these sessile, forming up to three terminal and subterminal spikes, the longer 9 cm. long and all about 2 cm. broad, the fascicles interrupted
toward base of spikes and confluent toward tip; bracts subtending the fascicles leaflike, mostly up to 2.5 cm. long and up to 8 mm. wide; bracts subtending the flowers oblong, 8 to 10 mm. long and 2.5 to 4 mm. wide, rounded at tip, ciliate and loosely pilose, the hairs spreading or ascending, up to 1.5 mm. long, dorsally the costa sub-tomentose with appressed, curved hairs up to 0.25 mm. long; calyx parted nearly to base, the segments linear, 12 mm. long, gradually narrowed from 1 mm. wide at base to a slender obtuse tip, pilose and ciliate with spreading or ascending hairs up to 1.5 mm. long, the dorsal surface bearing additional appressed hairs up to 0.25 mm. long; corolla light orange, pubescent (the hairs variously curved, up to 0.5 mm. long), up to 3 cm. long, the tube 2 mm. broad at base, gradually en-

**Figure 249a.—Ruellia aurantiaca Leonard (André 1203): a, Leaf; b, tip of inflorescence; c, floral bract; d, calyx segment; e, corolla; f, capsule valve. (a, Half natural size; b, c, natural size; e, 2½ times natural size; d, 2½ times natural size; f, twice natural size.)**
larged to 2.5 at 2 cm. above base, thence expanded into a funnelliform throat 7 mm. broad at mouth, the lobes orbicular, about 7 mm. in diameter, emarginate, the limb about 2 cm. broad, the longer pair of stamens slightly exserted beyond the mouth of the corolla, the shorter pair more or less included, the anthers oblong, 4 mm. long, 1 mm. broad, rounded at both ends, the filaments glabrous, the style about 2 cm. long, glabrous toward tip, minutely and sparingly puberulous toward base; capsules clavate, about 12 mm. long, 5 mm. broad, 1.5 mm. thick, puberulous, the hairs ascending at tip, retrorse toward base, up to 0.3 mm. long; retinacula slender, linear, slightly curved, thin and fimbriate at tip, about 0.5 mm. wide; seeds not seen.

Type in the Kew Herbarium, collected in the woods about Salitre, Department of Cundinamarca, Colombia, 400 meters altitude, January 5, 1876, by Edouard André (No. 1203).

There seem to be no close relatives of this species in Colombia. The specific epithet was suggested by the color of the corolla.

18. *Ruellia geminiflora* H. B. K. (Page 95.)

In the discussion on page 95 above regarding the various varieties of *Ruellia geminiflora* proposed by Nees under the name *Diptera-canthus geminiflorus*, I stated that none of these have been validly published except β and ε. Of course, they were validly published; I intended to say that they had not been validly transferred to the genus *Ruellia*, except for the two varieties mentioned.

Cundinamarca: Hacienda Tobia, Nocaima, Garcia-Barriga s.n. (Col).
Cauca: Woods in the District of Saladito, 15 km. west of Cali, Alma Moldenke, Willard & Barkley 18VC.000 (US).
El Valle: Upper Río Dagua, 1400–1600 meters, Lehmann 5505 (K).
Huila: Flats along stream in dissected plateau in the upper basin of the Río Magdalena about 5 km. north of Villavicencio, Mason 13817 (US).
Magdalena: Poponté, Cyril Allen 934 (K).
Meta: La Poyata, García-Barriga 5196 (Col).
Norte de Santander: Ocaña, Kalbreyer 1257 (K).
Tolima: Wooded bank of stream west of Chaparral, S. Galen Smith 1272 (UC). Near Piedras, André 1859bis (K).

18a. *Ruellia geminiflora* H. B. K. var. angustifolia (Nees) Griseb. (Page 96.)

Meta: Cabuyaro, Sprague 52 (K).

19a. *Ruellia obtusa* Nees f. albiflora Leonard f. nov. (Page 97.)

A forma typica corolla alba recedit.

Type in the U. S. National Herbarium, No. 2025721, collected near Sahagún, on the road to Cereté, Department of Bolívar, Colombia, 120 meters altitude, June 1, 1950, by H. García-Barriga (No. 13454).

*Ruellia obtusa* f. *albiflora* is an herb up to 1 meter high. It resembles the typical form except for its white flowers.
20. Ruellia colorata Baill. (Page 98.)
    **Cauca:** Popayán, Lehmann 3164 (K).

22. Ruellia pennellii Leonard. (Page 101.)
    **Antioquia:** Woods in the Quebrada de Barigamo, between Pavarandocito and Mutatá, in the vicinity of Urabá, *Uribe-Uribé 2029* (US).
    **Bolívar:** Forest at Tierra Alta, on the bank of the Río Sinú, *Pennell 4178* (in part) (GH).
    **Caquetá:** Without locality, C. Uribe-P. (US).
    **Magdalena:** Isla Brava, *André 402* (K).

22a. Ruellia grantii Leonard, sp. nov. (Page 102.)
    **Herba,** caulibus quadrangularibus, angulis acutis, pilosis vel subtomentosis, pilis appressis, albidis; lamina foliorum ovata vel oblongo-ovata, breviter acuminata (apice ipso obtuso), basi cuneata, aliquanto firma, undulata vel crenato-serrata, supra glabra vel pilos paucos fereens, subtus parce vel aliquanto dense pilosa, pilis praecipue in costa et venis positis, appressis vel ascendentibus, costa et venis et venulis prominentibus, cystolithis aliquanto obscuris; petioli pilosi, pilis appressis; spicae terminales, bracteis et bracteolis prominentibus, lance-

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**Figure 250.** — *Ruellia grantii* Leonard (*Grant* 10013): *a,* Inflorescence; *b,* stem node and leaf; *c,* portion of under surface of leaf blade enlarged to show venation and cystoliths; *d,* bract and bractlets; *e,* calyx; *f,* portion of capsule near its base enlarged to show pubescence; *g,* tip of lowermost retinaculum; *h,* same of upper retinaculum. (*a, b, g,* Natural size; *c, d,* twice natural size; *e,* 2½ times natural size; *f,* 10 times natural size; *g, h,* 8 times natural size.)
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olatis, pilosis et ciliolatis, apice subacutis vel subobtusis; calycis segmenta linearia (apice ipso obtuso), ciliata et parce pilosa, pilis patulis vel ascendentibus, costa prominentes; corolla alba, minute pubescens, tubo hypocrateriformi, lobis suborbicularibus; stamina plus minusve inclusa, filamentis sursum glabris, basi puberulis, antheris linearibus; capsulae clavatae, dense puberulae, apice pilis patulis vel ascendenti-bus, basi pilis retrorsis; retinacula suberecta, inferiora apice rotundata, laciniata, superiora apice acuminata, minute laciniata; semina brunnea, madefacta dense mucoso-tomentosa.

Herb up to 0.5 meter high; stems quadrangular, the angles sharp or the lower portions subquadrangular, pilose to subtomentose, the hairs appressed, whitish, up to 0.5 mm. long; leaf blades ovate to oblong-ovate, up to 13 cm. long and 6 cm. wide, short-acuminate (the tip itself obtuse), cuneate at base, rather firm, undulate or crenate-serrate, the upper surface glabrous or bearing a few scattered hairs, the lower surface sparingly to rather densely pilose, especially the costa and lateral veins (about 10 pairs), the hairs appressed to ascending, up to 0.16 mm. long, the venation prominent beneath, less so above, the cystoliths rather obscure, up to 0.112 mm. long; petioles up to 4 cm. long, appressed-pilose, the hairs similar to those on the stems; flowers borne in terminal spikes up to 7 cm. long and 3 cm. broad, the bracts and bractlets conspicuous, lanceolate, moderately pilose and ciliate, the hairs up to 1.25 mm. long, ascending, the bracts 2 cm. long and 0.5 mm. wide or the lowermost larger, the bractlets 1.5 cm. long and 2.25 mm. wide, both bracts and bractlets subacute to subobtuse; calyx about 14 mm. long, the segments linear, about 12 mm. long and 0.75 mm. wide, gradually narrowed to a blunt tip, ciliate and sparingly pilose, the hairs spreading or ascending, up to 1.25 mm. long, the costa prominent; corolla 3.5 cm. long, white, minutely pubescent, the tube 2.5 mm. in diameter, expanding from about the middle to 8 mm. at throat, the lobes suborbicular, about 7 mm. in diameter; stamens reaching or slightly exceeding the mouth of the corolla, the filaments glabrous except toward the puberulous base, the anthers linear, 3 mm. long, 0.5 mm. wide; capsules 14 mm. long, clavate, 4 to 5 mm. broad, 3 mm. thick, rather densely pubescent, the hairs up to 0.16 mm. long, ascending or spreading at and near tip, retrorse toward base, the retinacula nearly straight, 4 mm. long and 0.5 mm. wide near base, acute to rounded and more or less fimbriate at tip; seed brown, about 3 mm. long and 2.5 mm. wide and 0.5 mm. thick, mucilaginous-tomentose when moistened.

Type in the U. S. National Herbarium, No. 2045435, collected on creek bank in subtropical forest in the Quebrada Playón, in the Río Manzanares Valley, 20 km. west of La Esperanza and 42 km. west of Villavicencio, Cordillera Oriental, Intendencia of Meta, Colombia,
1,200 meters altitude, August 29, 1944, by Martin L. Grant (No. 10013). Isotype: US, 2107000.

*HtieUia grantii* should be easy to recognize in the field by its stiff habit, square stems and largish spikes with conspicuous narrow bracts and bractlets, and by the white, puberulous corollas.

22b. *Ruellia macarenensis* Leonard, sp. nov. (Page 102.) Figure 251

Decumbent herbs up to 1.5 meters long; stems sparingly branched, subquadrangular, glabrous or sparingly pilose in two lines, the hairs up to 0.38 mm. long, the stipular lines between the bases of the petioles densely pilose, the hairs white, straight, ascending, up to 0.7 mm. long, the cystoliths numerous, parallel, up to 0.16 mm. long, obscure; leaf blades oblong-ovate, up to 14 cm. long and 4 cm. wide, slenderly falcate-acuminate (the tip itself blunt), narrowed and cuneate at base and decurrent on the petiole, both surfaces minutely strigose, the hairs confined to costa and lateral veins (6 or 7 pairs), up to 0.7 mm. long, the venation moderately prominent, the cystoliths conspicuous, up to 0.16 mm. long; petioles 5 to 10 mm. long, glabrous or sparingly pilose beneath, the channels and margins densely pilose; flowers solitary in the axils of the upper leaves, each subtended by a pair of leaflike bracts, these oblong-lanceolate, up to 2 cm. long and 5 mm. wide, acute; pedicels 1 mm. long, stout; calyx segments narrowly lanceolate, subequal, 16 to 20 mm. long, 1.75 mm. wide, gradually narrowed to a slender tip, the margins densely ciliate with white spreading or ascending hairs up to 1.5 mm. long, the inner surface glabrous, the outer rather sparingly pilose toward tip; corolla 6 cm. long, white (?), sparingly pubescent, the hairs confined to the nerves, spreading, up to 0.75 mm. long, the tube 3 mm. broad at base, gradually narrowed to 2 mm. at 2 cm. above base, thence abruptly enlarged to 16 mm. at throat, the enlarged portion about 2.5 cm. long and
somewhat ventricose, the lobes suborbicular, about 12 mm. in diameter; stamens included, the longer pair 2 cm. long, the shorter 1.5 cm. long, the filaments glabrous except at base, here minutely puberulous, the anthers 4.5 mm. long, 1.5 mm. broad; style slightly exceeding the stamens in length, glabrous except at base, here puberulous, the stigma lobes very unequal, one linear, 2.25 mm. long and 0.3 mm. wide, the other ovate, rounded, about 0.75 mm. long and wide; capsule not seen.

Type in the Herbarium of the University of California, No. 941780, collected in dense forest on north bank of the Río Güejar near its junction with the Río Zanza, at the northern end of the Cordillera Marcarena, Intendencia of Meta, 500 meters altitude, August 20, 1950, by S. Galen Smith and Jesús M. Idrobo (No. 1486). Isotype: US.
Ruellia macarenensis resembles in a general way R. puri Mart. of Brazil, but that species has longer corollas with a much more slender tube (lower narrow portion 1 mm. broad and as much as 5 cm. long and the expanded upper portion about 1 cm. long and 5 mm. wide at mouth) and its leaf blades are less slenderly acuminate and falcate.

The plants from which the type specimens were obtained were hanging from the steep river bank. They were sparingly branched and were from 0.5 to 1.5 meters long.

25. Ruellia lasiostachya Leonard. (Page 106.)

Caldas: Piedra de Moler, on the banks of the Río de la Vieja, André 2406 (K). Meta: Servita, 900 meters, Triana 32-2 (K).

26a. Ruellia gorgonensis Leonard, sp. nov. (Page 107). Figure 252

Simple or sparingly branched herbs up to 1.6 meters high; stems erect or ascending, subquadrangular, densely pilose, the hairs rigid, brownish, vitreous, more or less spreading, up to 3.5 mm. long; leaf blades ovate to oblong-ovate, up to 14 cm. long and 5.5 cm. wide, subacute to short-acuminate, acute to obtuse at base and decurrent on the petiole, moderately firm, entire or shallowly and obscurely dentate, both surfaces rather densely pilose with rigid brownish ascending hairs up to 2.5 mm. long, the costa and lateral veins (5 or 6 pairs) of the upper surface obscure, those of the lower surface prominent and in addition to the long rigid spreading hairs mostly bearing numerous small (about 0.16 mm. long) appressed ones, the cystoliths prominent, up to 0.2 mm. long; petioles 5 to 10 cm. long, bearing both long rigid spreading hairs and smaller closely appressed ones; flowers borne in small clusters, the calyces and bractlets hidden by the terminal leaves or, in mature plants, the flower clusters arranged in
terminal spikes usually about 6 cm. long, the clusters subtended by small subsessile lanceolate leaves, these mostly 1.5 to 5 cm. long and 0.5 to 1.5 cm. wide, acuminate to acute (the tips often curved), the pubescence that of the main stem leaves, each flower subtended by a pair of linear or spatulate pilose bractlets up to 1 cm. long and

**Figure 252.—Ruellia gorgorensis** Leonard (a–d, Cheesman 533; e–g, Longfield 381): a, Tip of plant; b, trichome from stem; c, portion of under surface of leaf blade enlarged to show pubescence and cystoliths; d, same for marginal portion of leaf blade; e, bractlets; f, calyx; g, tip of calyx segment. (a, Natural size; b, 12 times natural size; c, d, e, twice natural size; f, 4 times natural size; g, 7 times natural size.)

2 mm. wide; mature calyx 6.5 mm. long, the segments lanceolate, 5 mm. long, 0.75 mm. wide near base, thence gradually narrowed into a slender tip, sparingly hirtellous, the hairs about 0.16 mm. long, subappressed or ascending, confined mostly to the costa and tips of the segments; corolla pale pink or lavender, minutely pubescent, the narrow portion of the corolla tube (except at base) densely so with
more or less spreading hairs up to 0.16 mm. long, the lower half of the corolla tube narrowly cylindrical, 1.5 mm. in diameter, the upper portion funnelform, slightly ventricose, 12 mm. broad at mouth, the limb 2 cm. broad, the lobes suborbicular, about 7 mm. in diameter; stamens included, attached near the summit of the narrow portion of the corolla tube, the filaments of the longer pair about 7 mm. in length, those of the shorter pair 5 mm., all glabrous, the anthers 2.5 mm. long, 0.5 mm. broad; stigma reaching the tip of the shorter pair of stamens, the developed lobe flat, oblong, rounded; ovary and style hirtellous with minute spreading or ascending hairs; capsules not seen.

Type in the Kew Herbarium, collected in a dense jungle near shore of Gorgona Island (west of Cauca), Colombia, Oct. 8, 1942, by L. E. Cheesman (No. 533).

C. Longfield’s No. 381, collected in a clearing formed by fallen trees in an old wet jungle near seashore of Gorgona Island, “11–7–24,” is also of this species.

_Ruellia gorgonensis_ is probably related to _R. putumayensis_, which it rather closely resembles. The leaf blades of _R. putumayensis_, however, are elliptic rather than ovate and the corolla white and striped with lilac.

**DOUBTFUL SPECIES**

_Dipteracanthus leucanthus_ Nees in Benth. _Pl. Hartweg._ 236. 1846. Type collected at Guaduas, Province of Cundinamarca, Colombia. Represented in the U. S. National Herbarium by a photograph (Field Mus. No. 26597). This appears to be _Ruellia tubiflora_ H. B. K.

**14. TELIOSTACHYA Nees**

The synonym _Lepidagathis_ Willd., given on page 112, is to be deleted. It is a valid genus. The intention above was _Lepidagathis sensu auctt. plur., non Willd._

2. _Teliostachya lanceolata_ Nees. (Page 114.)

_{Meta:} Rich soil of damp rocky woods on the banks of the Rio Guatiquia in the vicinity of Villavicencio, _Araque-M. & Barkley 18M.054 (US)._

2a. _Teliostachya lanceolata_ Nees var. _crispa_ Nees. (Page 114.)

_{Meta:} On stones on the bank of the Rio Guapaya, Sierra de la Macarena, _Philipson, Idrobo & Fernández 1627a (BM)._  

3. _Teliostachya petraea_ Leonard, sp. nov. (Page 114.) **Figure 253**

_Herba, caulibus erectis, basi decumbentibus, in nodis radicantibus, quadrangularibus, glabris vel aliquanto parce strigosis, internodiis summo glandulosos-puberulis, pilis patulis; lamina foliorum lanceolata, apice fere obtusa, basi cuneata, in petiolum decurrent, aliquanto firma, integra, glabra vel pilis paucis praedita, supra obscure squamosa,
cystolithis obscuris; spicae terminales cylindricae vel anguste ovoideae, densae; bracteae lanceolatae vel oblanceolatae, acutae, glabrae vel parce puberulae, pilis aliquis glandulosis; bracteolae lineari-lanceolatae, parce puberulae, pilis glandulosis, costa prominentem; calycis segmenta inaequalia, segmentum posterius anguste oblongo-ovatum, aristatum, parce puberulum, pilis glandulosis, costa et nervis lateralis prominentibus, segmenta anteriora et lateralia lineari-oblonga, costa et nervis prominentibus, parce puberulis, pilis paucis glandulosis; rhachis hirtella, pilis acutis et glandulosis intermixtis; corolla parva, alba, glabra, labio superiore oblongo, apice emarginato, labio inferiore

3-lobata, lobis suborbicularibus; stamina inclusa; capsulae cylindricae, acutae, apice puberulae; semina plana, subbrunnea, glabra.

Herbs up to 20 cm. high; stems erect from procumbent rooting bases, quadrangular, up to 1.25 mm. in diameter, glabrous or sparingly strigose (the hairs up to 0.4 mm. long and upwardly appressed) except the internode immediately below the spike, this, in addition to the appressed acute hairs, more or less densely glandular-puberulent, the glandular hairs spreading and up to 0.13 mm. long; leaf blades lanceolate, up to 15 mm. long and 8 mm. wide (averaging 5 mm. in width), obtuse at tip, cuneate at the base and decurrent on the petiole, rather firm, entire, glabrous or bearing a few scattered ascending hairs, the upper surface obscurely squamose, the costa and lateral

Figure 253.—Teliostachya petraea Leonard (Schultes & Cabrera 15342): a, Tip of plant; b, portion of uppermost internode enlarged to show glandular pubescence; c, calyx; d, bract; e, bractlet. (a, Natural size; b, 40 times natural size; c-e, 4 times natural size.)
veins (4 or 6 pairs) barely prominent, the cystoliths obscure; spikes
terminal, up to 3.5 cm. long and 1 cm. broad, cylindric or narrowly
ovoid, usually rounded at tip, dense, the flowers solitary or in pairs,
the lowermost 1 or 2 nodes subtended by leaves, the others by bracts,
these lanceolate or oblanceolate, about 5 mm. long and 0.75 mm.
wide, firm, acute, glabrous or sparingly puberulous, the costa and
lateral pair of nerves prominent; bractlets linear-lanceolate, 3.5 mm.
long, 0.25 mm. wide, acute, sparingly glandular-puberulent, the hairs
spreading or ascending, up to 0.11 mm. long; calyx segments unequal,
the posterior segment narrowly oblong-ovate, 6 mm. long, 1.5 mm.
wide, aristate, the awns about 1 mm. long, sparingly glandular-
puberulent, the hairs similar to those of the bracts and bractlets, the
costa and 2 pairs of lateral nerves prominent, the anterior and lateral
segments (the anterior segments connate at base) linear-oblong, 5 mm.
long, 0.5 to 0.75 mm. wide, acute and minutely aristate, the costa and
a pair of lateral nerves prominent, the pubescence similar to that of
the posterior segment, the rachis hirtellous with a mixture of glandular
and acute spreading or ascending hairs up to 0.16 mm. long; corolla
white, glabrous, 6 to 7 mm. long, the upper lip oblone, 4.5 mm. long,
1.25 mm. wide at base, minutely bilobed at tip, the lower lip 3.5 mm.
long, 2 mm. wide, 3-lobed, the lobes suborbicular, the middle lobe
1.5 mm. in diameter, the lateral pair about 1 mm.; capsules cylindric,
acute, puberulous at tip, otherwise glabrous, 4 mm. long, 1 mm.
broad, about 0.5 mm. thick; retinacula 0.5 mm. long; seed lenticular,
light brown, glabrous, about 1 mm. broad and long.

Type in the U. S. National Herbarium, No. 2124583, collected on
quartzite rocks of falls at Raudal Yayacopi (La Playa), Río Apaporis,
Amazonas-Vaupés, “800 feet” altitude, February 15, 1952, by Richard
Evans Schultes and Isidore Cabrera (No. 15342).

_Teliostachya petraea,_ when compared with other species of the
genus, can be easily separated by its glandular pubescence. The
specific epithet is from the Greek _πέτρας_, living on rocks.

PART II

15. NERIACANTHUS Benth.

S. Moore (Journ. Bot. Brit. & For. 65: 221. 1927) reduced the genus
_Neriacanthus_ to _Salpinxantha_ Hooker (Bot. Mag. Curtis pl. 4158. 1845),
but I am inclined to regard the two as distinct. _Neriacanthus_ has
dense spikes with large, closely imbricated, ascending bracts, and
corollas with narrow tubes abruptly expanding into a rather con-
spicuous limb. These characters contrast strongly with those of
_Salpinxantha_, which has loose spikes with distant spreading flowers.
subtended by minute bracts, and corollas with gradually expanded tubes and relatively small lobes, which do not form a sharply differentiated limb.

2. Neriacanthus lehmannianus (Lindau) Lindau. (Page 124.)

In the note on page 123 regarding the type of Neriacanthus lehmannianus Lindau, I quoted Lindau in saying that Lehmann 7852 came from Ecuador; this type collection was actually from Colombia, from the Andes west of Cali, in the Department of El Valle, as cited below.

**Cauca:** Headwaters of the Rio Pinche, west of Argelia, Core 1324 (US). Timbiqui, upper Rio Mangui, Lehmann B. T. 449 (K). In dense forest, no further data, Core 1322.

**El Valle:** Forest above La Cumbre, Pennell & Killip 5789 (K). San Antonio, Lehmann 2966 (K). Dense damp forest on the watershed of the west Andes of Cali, Lehmann 7852 (K). Semishade in rainforest above Cali, Sandeman 140 (K).

**Without locality:** Langlassé 44 (K).

16. STENANDRIUM Nees

3. Stenandrium dulce (Cav.) Ness. (Page 127.)

**Cundinamarca:** La Boca del Monte, on the western edge of the highland of Bogotá, Lehmann 6442 (K). Facatativá, André 665 (K).

4. Stenandrium humboldtianum Nees. (Page 127.)

**Stenandrium humboldtianum** Nees, DC. Prodr. 11: 284. 1847. Type collected at "Atures, Maypures" by Humboldt. Atures is on the east bank of the Rio Orinoco and in Territorio Federal of Amazonas, Venezuela, but Maypures is located on the west bank several miles south of Atures in the Comisaria of Vichada in Colombia. Thus the exact type locality is uncertain.

**Emended description:** Suffrutescent herbs up to 30 cm. high; stems woody at base, 5 mm. in diameter (the internodes 1 to 2.5 cm. long), decumbent, pilose, the upper part densely so, the hairs spreading, about 1.5 mm. long; leaf blades oblong, up to 20 cm. long and 6.6 cm. wide, acute or short-acuminate (the tip itself subacute), long-cuneate at base and decurrent on the petiole, moderately firm, both surfaces rather densely pilose, the hairs ascending, up to 1.25 mm. long, the costa and lateral veins (about 12 pairs) moderately prominent beneath, less so above, the cystoliths not apparent; petioles (unwinged portion) up to 3 cm. long, pilose; flowers borne in axillary spikes 3 to 4 cm. long, becoming 6 to 8 cm. long at maturity, the spikes solitary or in 3's, the lateral pair branching from the lowermost node of the spike and shorter than the central spike, the peduncles up to 25 cm. long, somewhat flattened toward tip, the pubescence moderately dense, consisting of a mixture of long acute hairs up to 1 mm. long, minute acute hairs up to 0.13 mm. long and slender gland-tipped ones up to 0.32 mm. long, all more or less spreading, the pubescence of the rachis similar to that of the peduncles, the lowermost internode of the spike
up to 14 mm. long, the others successively shorter toward the tip of the spike, the lowermost pair of bracts lanceolate, 6 mm. long, 1.5 mm. wide, the others similar in size but progressively smaller toward tip of spike, all entire, acute (the tip itself blunt), the pubescence similar to that of the peduncle, but with a predominance of the longer acute hairs on the costa of the lower surface, the costa flanked by several pairs of prominent parallel nerves, the bractlets lanceolate, 2.5 mm. long, 0.75 mm. wide, acute, entire, puberulous; calyx regular, about 4 mm. long, the segments lance-subulate, about 1.5 mm. wide near base, gradually narrowed to a sharp apex, rigid, erect, strongly ciliolate near tip, conspicuously parallel-nerved dorsally; corolla glabrous, bright pink (Ewan), up to 18 mm. long, the tube narrowly cylindrical, 15 mm. long, 2.25 mm. broad at base, rather abruptly narrowed to 1 mm. just above base, expanding at throat to about 2 mm., the lobes subequal, obcordate, 6 mm. long, 5.5 mm. wide,
rounded and emarginate at tip; stamens included; capsules ovoid, 8 mm. long, 4 mm. broad, 2 mm. thick, glabrous, yellowish, nitid, bearing several irregular purple spots near tip of each valve; retinacula about 2 mm. long, slender and cucullate at tip; seeds reddish-brown, ovoid, oblique at base, 3 mm. long, 2.5 mm. wide, 0.75 mm. thick, obscurely and minutely papillose.

*Stenandrium humboldtianum* Nees is definitely caulescent, even though Nees starts his description with the word "acaule." The photograph of Humboldt's specimen in the Berlin Herbarium, the specimen cited by Nees, shows, in addition to a flowering tip of a plant, a section of stem (about 6 cm. long) with a pair of attached leaves.

**CUNDINAMARCA:** On moist shaded slope beneath trees in the valley of Quebrada Chiniata, 7 km. east of Hilo, 2,430 meters altitude, May 1, 1944, *Ewan 15622* (Tulane University Herb., US). La Maria, between the Quebradas La Maria and La Victoria, *Garcia-Barriga 12595* (Col).

17. **APHELANDRA R. Br.**

1. *Aphelandra runcinata* Klotzsch. (Page 135.)


**CUNDINAMARCA:** Rocky massif east of Santanderito, *Uribe-Urbe 2115* (US).

**WITHOUT LOCALITY:** Purdie (K).

3a. *Aphelandra grangeri* Leonard, Bp. nov. (Page 139.)

**Suffrutex spinosus,** caulibus subteretibus, deorsum glabris, sursum puberulis, pilis plus minus appressis; lamina foliorum oblongo-elliptica vel oblongo-lanceolata, apice acuta vel subacuta, basi obtusa vel rotundata, glabra, supra nitida, coriacea, serrato-dentata, dentibus triangularibus, spina acuta terminatis, subitus costa et venis prominentibus, supra obscuris; petioli breves, parce puberuli; bracteae interpetiolares parvae, rhombicae, integrae vel dentatae, spinosae; spicae terminales sessiles, rhace dense puberula; bracteae folii similis sed minores; bracteolae lanceolatae, acuminatae, costa spina terminata, glabrae vel parce puberulae, ciliatae; calycis segmenta lanceolata, acuminata, apice spina terminata, glabra vel parce puberula, conspicue ciliata, costa prominente, nervis lateralisibus pluribus; corolla dense pubescens, tubo anguste hypocrateriformi, leviter ventricoso, labio superiore erecto, lineari, apice bilobato, lobis oblongis, rotundatis et emarginatis, labio inferiore trilobato, lobis suborbiculatis; stamina vix exserta, antheris glabris, apice arachnoideis, filamentis basi minute pilosis, sursum glabris; ovarium glabrum.
Shrubs; stems glabrous, subterete, their tips puberulous, the hairs more or less appressed, up to 0.25 mm. long; leaf blades oblong-elliptic to oblong-lanceolate, up to 9 cm. long and 3 cm. wide, acute or subacute, rounded or obtuse at base, glabrous, nitid above, coriaceous, the margins serrate-dentate, the teeth triangular, 2 to 5 mm. high, terminating in sharp spines up to 3 mm. long, the costa and lateral veins (8 to 10 pairs) prominent beneath, obscure above; petioles up to 3 mm. long, glabrous or sparingly puberulous, the hairs similar to those of the stems; interpetiolar bracts small, rhombic or suborbicular, up to 2 mm. long and 1.5 mm. wide, tipped by a spine about 1.25 mm. long, sometimes bearing a pair of lateral spines about 0.5 mm. long; flowers borne in terminal spikes up to 3.5 cm. long and 1.5 cm. broad (the corollas excluded), sessile, the rachis densely puberulous, the hairs similar to those of the stems, the lowermost internode up to 8 mm. long, the others successively shorter toward the tip of the spike; bracts resembling the leaf blades but

Figure 255.—Apheandra grangeri Leonard (Granger & Rodríguez-A 10): a, Leaf; b, spike; c, bract; d, bractlet; e, one of the calyx segments; f, anther. (a, Natural size; b, two-thirds natural size; c, 1¼ times natural size; d, e, twice natural size; f, 5½ times natural size.)
smaller, the lowermost about 3 cm. long and 10 mm. wide, the other successively smaller toward tip of spike; bractlets lanceolate, up to 9 mm. long and 1.5 mm. wide near the base, slenderly acuminate, terminating in a spine about 1.5 mm. long, glabrous or sparingly puberulous, except the margins, these ciliate, the hairs more or less spreading, up to 0.5 mm. long; calyx segments lanceolate, 9 mm. long, 3 mm. wide near base, acuminate, terminated by a sharp spine about 0.5 to 1 mm. long, glabrous or bearing a few minute dorsal hairs, the margins densely ciliate, the hairs more or less spreading, about 0.5 mm. long, the costa prominent, the lateral nerves numerous and rather prominent; corolla 4 cm. long, rather densely pubescent, the hairs spreading, up to 0.25 mm. long, the corolla tube 3 mm. broad at base, enlarged to 4 mm. just above the base, then narrowed to 3 mm. at 1 cm. above base, thence enlarged to 7.5 mm. at throat, the upper lip becoming erect, linear, about 1 cm. long, 3 mm. wide, bilobed at tip, the lobes oblong, about 3 mm. long and 1.5 mm. wide, rounded and emarginate at tip, the lower lip divided to base into 3 suborbicular lobes, these 4 mm. long and 3.5 mm. wide, rounded; stamens reaching the throat of the corolla, the anthers 4.5 mm. long, 1.5 mm. broad, glabrous, the filaments minutely pilose at base, glabrous above; style 3.5 cm. long, glabrous, the stigma cupular and fimbriate; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045423, collected on the Finca Las Mercedes, near Silvia, Department of Cauca, Colombia, 3,300 meters altitude, 1943, by J. S. Granger and C. Rodriguez-A. (No. 10). Isotype: US.

Aphelandra grangeri is related to A. euopla, which it closely resembles, but from which it can, however, be readily separated by its strongly ciliated calyx segments and bractlets. In A. euopla these are at most only very sparingly ciliate. The color of the corolla is not apparent in the dried material.

4. Aphelandra porphyrocarpa Leonard. (Page 140.)

Emended description: Corolla yellow, densely pubescent (the hairs up to 0.5 mm. long, more or less spreading), up to 5.5 cm. long from base to tip of upper lip, the tube funnelform, slightly ventricose, 6 mm. broad at base, narrowed gradually to about 4 mm. near the middle, thence enlarged to 1 cm. at mouth, the upper lip erect, 2 to 2.5 cm. long, 6 mm. wide at base, 1 cm. wide at base of the 2 lobes, these obovate, about 8 mm. long, 7 to 8 mm. wide near tip, rounded, the lower lip more or less spreading, divided nearly to base into 3 obovate lobes 8 to 9 mm. long and 7 mm. wide, rounded, the longer pair of stamens reaching nearly to tip of the upper lip, the anthers
of both pairs linear, about 7 mm. long and 2 mm. broad, these and the filaments glabrous.

Huila: Ravine in temperate forest, between Hacienda Balsillitas, Meta, and El Cedral, "9000 ft." altitude, June 16, 1944, Elbert L. Little 8030 (US). Moist wet soil of temperate forest at Hacienda Pensilvdnica, 15 km. east of Baraya, Cordillera Oriental, "8100 ft." altitude, June 24, 1944, Elbert L. Little No. 8135 (US)

4a. Aphelandra gilva Leonard, sp. nov. (Page 142.) Figure 256.

Shrubs; stems subquadrangular, glabrous or the upper portions hirtellous, the hairs for the most part closely appressed, up to 0.7 mm. long; leaf blades broadly oblong-lanceolate in outline, up to 30 cm. long and 10 cm. wide (from tip to tip of lobes), acute at apex, terminating in a yellowish spine 1.5 mm. long, gradually narrowed from middle to a cuneate base, deeply incised, the lobes triangular, ascending, up to 4 cm. long and 3.5 cm. wide at base, acute and terminated by spines up to 5 mm. long, the entire margin irregularly serrate, the teeth triangular, the larger ones about 4 mm. long and 6 mm. wide, all terminated by sharp yellowish spines 1 to 4 mm. long, the upper surface glabrous or sparingly hirtellous, the hairs up to 0.5 mm. long, confined chiefly to the costa and lateral veins (about 12 pairs), the lower surface drying light brownish, more densely
hirtellous, the hairs about 0.5 mm. long, confined mostly to the costa, veins and veinlets, the latter coarsely reticulate, the hairs interspersed with scattered small glandular particles, the venation rather prominent beneath, less so above; petioles up to 2.5 cm. long and 3 mm. thick, sparingly hirtellous; interpetiolar bracts flabelliform, armed with 4 to 7 sharp ascending yellowish spines, the lowermost 1.5 mm. long, the others increasing in length to 13 mm. for the middle one, the surface of the bracts sparingly hirtellous except the glabrous varnished tip of the spines; spikes terminal, solitary, up to 30 cm. long at maturity, about 3 cm. broad, more or less lax toward base, the rachis hirtellous with ascending or appressed hairs up to 0.5 mm. long; bracts (mature) lanceolate, 2 cm. long, 4 mm. wide, slenderly acute, terminated by a spine about 1 mm. long, the tip recurved at
maturity, glabrous or sparingly hirtellous, the margins armed with spine-tipped teeth, the spines from 1 to 3 mm. long; bractlets lanceolate, 8 mm. long, 2.5 mm. wide near base, gradually narrowed to a slender tip, terminated by a spine 0.5 mm. long, the margins entire and minutely ciliolate, the surface glabrous or sparingly hirtellous; calyx segments lanceolate, 1 cm. long, 3.5 mm. wide, acute, finely puberulous and ciliolate, chartaceous; corolla pale cream-yellow (Ewan), about 3 cm. long, the tube densely yellowish-tomentose except the basal portion, this glabrous or sparingly hirtellous with appressed hairs, the base 5 mm. broad, the mouth 6 mm. broad, the upper lip erect or slightly recurved, obovate, 1 cm. long, 5 mm. wide at base, 8 mm. wide near tip, bilobed, the lobes ovate, rounded, the lower lip ascending, or recurved at maturity, 5 mm. long, 3-lobed, the lateral lobes 4 mm. long and broad, the middle one somewhat smaller, all rounded; stamens reaching or slightly exceeding the upper lip of the corolla, the anthers 7.5 mm. long, 2 mm. broad, rounded at each end, glabrous; filaments glabrous except a few small hairs at base; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045402, collected in a heavy thicket near Río Tellez, in the vicinity of Funes, Cordillera Oriental, Department of Nariño, Colombia, 2,600 meters altitude, December 1, 1944, by Joseph A. Ewan (No. 16501). Isotype: US 2144296.

* Aphelandra gilva * is close to * A. porphyrocarpa *, but distinct from this species in its acute calyx segments and incised leaf blades. In * A. porphyrocarpa * the calyx segments are rounded, mucronate and dentate at tip, and the leaf blades are shallowly incised. The specific epithet * gilva *, pale yellow, alludes to the color of the corolla.

5. * Aphelandra acanthus * Nees. (Page 143.)

- **Cauca**: Forests of El Tambo, von Sneidern 1512 (S).
- **Nariño**: Sparsely wooded brushy ravine, Quebrada Panaequal, 8 kilometers south of Piedranchea, Río Guabo drainage, Fosberg 21113 (US).
- **Tolima**: Quindío, Holton 592 (K, NY); Purdie (K). Rosalito to Murillo, in forest, Pennell 3132 (NY).
- **Without locality**: Purdie (K).

7. * Aphelandra huilensis * Leonard. (Page 147.)

- **Tolima**: Río Hereje, near Albania, 2,000 meters altitude, November 20, 1944, Core 1619 (US).

11. * Aphelandra crispata * Leonard. (Page 152.)

- **Putumayo**: Mocoa and vicinity, Schultes & Cabrera 19093 bis.


The type can be identified a little more definitely; it bears the annotation "N. g. post 80 Lagochilium, no. 5," which refers to the Triana catalog, a typescript of which is in the possession of Dr.
Cuatrecasas. This annotation indicates that Triana considered this plant to belong to a new genus to be inserted after Acanthaceae genus No. 80 [Lagochilium]; the “no. 5” indicates the species, which is actually in the catalog No. 5 of Lagochilium. The Triana specimen from San Pablo cited above as possibly the same species is Lagochilium No. 6 of the catalog.

15a. Aphelandra andrei Leonard, sp. nov. (Page 157.) Figure 257

Herbs up to 30 cm. high, the stems ascending, rooting at the lower nodes, rather densely hirsute, the hairs close and upwardly appressed or on the upper portions of the stem ascending, 0.5 to 0.75 mm. long; leaf blades oblong, up to 8 cm. long and 2.5 cm. wide, short-acuminate (the tip itself obtuse), narrowed at base, rather thin, entire, both surfaces moderately pilose, the hairs ascending to subappressed, about 0.75 mm. long; petioles slender, up to 4 cm. long, more or less pilose; spikes in 3’s terminating a slender peduncle 7 cm. long, this rather densely pilose with hairs 0.75 mm. long, some of them more or less spreading, others appressed, each spike about 1.5 cm. long and 1 cm. broad, borne on secondary densely pilose peduncles up to 7 mm. long, the three spikes subtended by a pair of small leaves 18 mm. long and 8 mm. wide, subobtuse and narrowed at base to a winged petiole about 3 mm. long, the pubescence that of the stem leaves, the rachis densely hirsute with ascending whitish hairs about 0.75 mm. long; bracts thin, oblong, 7 mm. long and 4 mm. wide, acute at tip, narrowed at base, thin, entire, both surfaces hirtellous, the hairs up to
0.5 mm. long, mostly ascending, the margins ciliate, the costa and 1 or 2 pairs of lateral nerves slender; bractlets narrowly linear, 5.5 mm. long, 0.5 mm. wide at base, gradually narrowed to a slender tip, the outer surface pilose, densely so toward the tip, the inner surface glabrous, striate-nerved; calyx segments narrowly lanceolate, acute, 0.75 mm. wide, striate-nerved, minutely puberulous toward the tip; corolla 18 mm. long, the lower half glabrous or nearly so, the upper half rather densely pubescent, the hairs up to 0.28 mm. long, more or less curved, ascending, the tube 1.5 mm. broad at base, enlarged over

ovary to 2 mm., then narrowed to 1.25 mm., thence gradually enlarged to 4 mm. at mouth, the upper lip about 3 mm. long and 4 mm. wide, bilobed, the lobes 2 mm. long and wide, rounded and emarginate at tip, the lower lip 4 mm. long, 3-lobed, the lobes obcordate, 2 mm. long and wide, emarginate; stamens reaching the mouth of the corolla tube; ovary glabrous except the hirsute tip; capsules not seen.

Type in the Kew Herbarium, collected in shade of virgin forests at San Ignacio, "Cordillera Orientalis Bogotensis," Colombia, January 1876 by Edouard Andrés (No. 4661).

*Aphelandra andrei* belongs to the *Lagochilium* group of Nees, plants midway between *Stenandrium* and *Aphelandra*. It is probably nearest to *A. botanodes*, as indicated by its small size, herbaceous habit, and trifurcate inflorescences of 3 small spikes. It differs strikingly,
however, from that species in its rather densely hirsute stems and
entire bracts.

16a. *Aphelandra quadrifaria* Leonard, sp. nov. (Page 158.) Figure 258

Herba, caulibus erectis vel ascendentibus, subteretibus, dense
antrorse strigosis; lamina foliorum oblongo-elliptica, apice subobtusa,
basi cuneata, in petiolum decurrent, aliquanto firma, integra vel
undulata, parce hirsuta, pilis appressis vel ascendentibus, praecipue
in costa et venis subtus positis, venis subtus aliquanto prominentibus,
supra obscuris, petioli strigillosi; spica terminalis, pedunculis dense
strigillosis; bracteae conspiciue, subchartaceae, ovatae, apice acutae
et apiculatae, glabrae, deorsum integrae, sursum serratae, costa et
venis et venulosis crasse et conspicue reticulatis prominentibus;
bracteolae lanceolatae, subhyalinae, subchartaceae, acuminatae, car-
inatae, minute ciliolatae, obscure striato-nervatae; calycis segmenta
lanceolata, subhyalina, subchartacea, acuta, apice spinescentia, glabra
vel conspicue ciliolata, graciliter striato-nervata; corolla flava, parce
et minute hirtella, labiis subaequalibus, labio superiore cuneato,
bilobato, lobis rotundatis, labio inferiore 3-lobato, lobis rotundatis;
stamina vix exserta, antheris glabris, apice arachnoideis, filamentis
parce pilosis; ovarium glabrum.

Herbs up to 35 cm. long; stems suberect or ascending, suberete,
strigose, the hairs upwardly directed, up to 0.25 mm. long, the
internodes up to 5 cm. long; leaf blades oblong-elliptic, up to 10 cm.
long and 4.5 cm. wide, subobtuse at tip, cuneate at base and decurrent
on the petiole, moderately firm, entire or undulate, sparingly hirsute,
the hairs appressed or ascending, up to 0.5 mm. long, confined chiefly
to costa and lateral veins (9 or 10 pairs), these and the coarsely
reticulate veinlets moderately prominent beneath, obscure above;
petioles up to 1.5 cm. long, appressed-hirtelous, the hairs resembling
those on the stem; spikes terminal, up to 3 cm. long and 1.5 to 2 cm.
broad (excluding spread of corollas), the peduncles about 2 mm. long,
densely sericeous-strigose, the bracts quadrifarious, subchartaceous,
ovate, up to 12 mm. long and 10 mm. wide at middle, the lower half
entire, the upper half serrate, the teeth (about 5) ascending, abruptly
acuminate from a broad base, about 1 mm. long, the tip of the bracts
acute and apiculate, the base broadly cuneate, both surfaces glabrous,
the costa and 1 or 2 pairs of lateral nerves prominent; veinlets coarsely
and prominently reticulate; bractlets lanceolate, subhyaline, sub-
chartaceous, 4.5 mm. long, 0.75 mm. wide just above base, acuminate,
carinate, minutely ciliolate, the hairs ascending, the costa prominent
and bearing a few small hairs; calyx segments lanceolate, 7 mm. long,
subchartaceous and subhyaline, acute and terminating in weak spines
about 1 mm. long, glabrous or inconspicuously ciliolate, delicately
striate-nerved, the posterior segment about 2 mm. wide, the lateral
segments 1 mm. wide, the anterior ones 1.5 mm. wide; corolla yellow, sparingly and minutely hirtellous, 2 cm. long, the tube 2 mm. wide at base, narrowed to 1.25 mm. at 2 mm. above base, the throat 4 to 5 mm. broad, the lips ascending, about equal, 6 to 7 mm. long, the upper lip cuneate, about 6 mm. wide near tip, bilobed, the lobes 3 mm. long, 3.5 mm. wide, rounded, the lower lip 3-lobed, the lobes obovate, about 5 mm. long, the middle one 6 mm. wide, the lateral ones 3.5 mm. wide, all rounded; stamens slightly exserted but not exceeding the lips,

the anthers glabrous except the arachnoid cohering tips, the filaments sparingly pilose; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045431, collected in subtropical forest in the San Antonio Valley, 15 km. southeast of Gutiérrez and 60 km. south of Bogotá, Cordillera Oriental, Department of Cundinamarca, Colombia, 1,575 meters altitude, August 2, 1944, by Martin L. Grant (No. 9811). Isotype: US 2144013.

The nearest relative of *Aphelandra quadrifaria* seems to be *A. silvicola*, which it superficially resembles. That species has variegated
leaves and smaller bracts, these rather densely and softly appressed-pubescent and with fewer teeth on their margins. The specific epithet alludes to the 4-ranked bracts of the spikes.

Kalbreyer’s No. 1849, collected in forest shade on the Río Verde, Department of Antioquia, 4,500–5,000 feet altitude, June 27, 1880, is also of this species. The following notes are on the Kalbreyer sheet: “4–12 inch stem, repent, If. glossy green, thin; fl. bright yellow with purple veinlets.”

16b. **Aphelandra fosbergii** Leonard, sp. nov. (Page 158.) 

**Figure 259**

Herba, caulibus subteretibus, ascendentibus, nodis infimis radicantibus, hirsutis, pilis ascendentibus vel appressis, subbrunneis; lamina foliorum oblongo-elliptica, apice breviter acuminata (apice ipso subacuto), basi angustata in petiolum decurrens, aliquanto firma, integra vel undulata, utrinque hirsuta, pilis subappressis vel as-

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**Figure 259.—** *Aphelandra fosbergii* Leonard (*Grants & Forsberg 9319*): *a*, Tip of plant; *b*, bract; *c*, bractlet; *d*, calyx segment; *e*, upper portion of corolla. (*a*, Half natural size; *b–d*, twice natural size; *e*, slightly over natural size.)

condentibus, subbrunneis, subitus costa et venis aliquanto prominentibus, supra obscursis; petioli pilosi; spica terminalis solitaria, brevis, rhache dense subbrunneo-pilosa; bracteae ovatae, herbaceae, acuminatae, intus glabrae vel basi parce hirsutae, extus hirsutae, pilis praecipue in costa et venis positis, ciliatae; bracteolae anguste lanceolatae, striato-nervatae, intus glabrae, extus hirsutae, pilis ascendentibus; calycis segmenta anguste lanceolata, sursum hirsuta et ciliata, deorsum glabra; corolla rosea, parce et minute pubescens, tubo anguste hypocratiformi, labiis subaequalibus, ascendentibus, labio superiore obcordato, labio inferiore trilobato, lobis suborbicularibus, rotundatis; stamina inclusa; ovarium glabrum.
Herbs up to 30 cm. high; stems suberete, ascending, rooting at the lower nodes, hirsute, the hairs ascending or spreading, light brown, up to 1.5 mm. long; leaf blades oblong-elliptic, up to 6.5 cm. long and 2 cm. wide, short-acuminate (the tip itself subacute), narrowed at base and decurrent on the petiole, moderately firm, entire or undulate, both surfaces hirsute, the hairs up to 1.25 mm. long, ascending or subappressed, light brownish, the costa and lateral veins (about 6 pairs) more or less prominent beneath (hidden somewhat by the pubescence), obscure above; petioles about 0.5 cm. long, pilose, the hairs similar to those of the stem; spikes terminal, solitary, about 1.5 cm. long and broad, the rachis densely brownish pilose; bracts ovate, herbaceous, 2 cm. long and 16 mm. wide (at least the lowermost pair), acuminate, the margins ciliate (hairs up to 1 mm. long) and bearing about 4 slender ascending teeth up to (the lowermost) 4 mm. long, the upper or inner surface glabrous or sparingly hirsute at base, the lower or outer surface hirsute, the hairs mostly borne in the costal region but diminishing toward the margins; bractlets narrowly lanceolate, 12.5 mm. long, 0.75 mm. wide, striate-nerved, the inner surface glabrous, the outer hirsute, the hairs up to 1.5 mm. long, ascending; calyx 12 mm. long, the segments narrowly lanceolate, the upper half hirsute and ciliate, the lower half glabrous, in other respects resembling the bractlets; corolla rose, sparingly and minutely pubescent, 22 mm. long, narrowly hypocrateriform, the lower part of the tube about 1 mm. broad, the mouth 2.5 mm. broad, the lips subequal, about 8 mm. long, ascending, the upper obcordate, about 6 mm. wide, the lower 3-lobed, the lobes suborbicular, about 3 mm. long, the middle one 4 mm. wide, the lateral 3 mm. wide, all rounded; stamens reaching the mouth of the corolla tube, the anthers about 1.5 mm. long; ovary glabrous, tipped by a few straight erect white hairs about 0.38 mm. long; capsules not seen.

Type in the U. S. National Herbarium, No. 2059099, collected in temperate forest at San Isidro, 8 km. south of Gachala, Cordillera Oriental, Department of Cundinamarca, Colombia, 2,450 meters altitude, May 26, 1944, by Martin L. Grant and F. R. Fosberg (No. 9319).

Aphelandra fosbergii is nearest A. silvicola. In that species, however, the leaf blades have colored veins and the teeth of the bracts are all low instead of sharp and slender.

20a. Aphelandra phalacra Leonard, sp. nov. (Page 166.)

Herba, caulis ascendentibus, subquadrangularibus; folia reflexa, lamina foliorum oblonga, breviter acuminata (apice ipso obtuso vel rotundato), basi angustata, glabra; spica terminalis sessilis; rhachis glabra; bracteae erectae vel ascendentes, lanceolatae, glabrae vel minute et inconspicue papilloso-puberulae, costa et nervis lateralibus
conspicuis; bracteolae paucae, subulatae, carinatae, glabrae; calycis segmenta lanceolata, acuminata, apice tenuia, glabra, striato-nervata, costa prominente; corolla pubescens, pilis plus minusve patentibus; stamina vix exserta; ovarium glabrum vel apice minute hirsutum.

Herbs; stems ascending, subquadrangular, glabrous; leaves reflexed, the blades oblong, up to 8 cm. long and 4 cm. wide, short-acuminate, (the tip itself obtuse or rounded), narrowed at base, glabrous; petioles up to 2 cm. long, glabrous; spike solitary, terminal, sessile, 5 cm. long and 10 mm. wide (if bracts are not spreading), the rachis glabrous; bracts lanceolate, 2 cm. long, 6.25 mm. wide near the middle, 3 mm. at base, minutely dentate, glabrous or very minutely and inconspicuously papillose, puberulous, the costa and a pair of lateral nerves prominent, several additional pairs less so; bractlets subulate, 4 mm. long, 0.25 mm. wide at base, carinate, the costa prominent, glabrous; calyx segments lanceolate, 7 mm. long, 1.25 mm. wide at base, narrowed to a fine slender tip, glabrous, the costa prominent,
strike-nerved; corolla pubescent, the hairs up to 0.2 mm. long, more or less spreading, the tube about 2 mm. broad at base, 5 mm. broad at mouth; stamens slightly exserted, glabrous at least above; ovary glabrous; capsules not seen.

Type in the Kew Herbarium, collected in Antioquia, Colombia, by W. Jervise.

*Aphelandra phalaera* is very closely related to *A. lonchochlamys* and may be merely a form of that species. It differs in being strictly glabrous in all parts except for a very minute and inconspicuous papillar puberulence sometimes present on the bracts. The leaf blades are relatively shorter and broader.

The specific epithet is from the Greek φαλακρός, meaning smooth.

The flowers are too poorly preserved to describe the lips; their color is not apparent in the dried material.

27. *Aphelandra lamprantha* Leonard. (Page 178.)

**Meta:** Dense humid forest of Plaza Bonita, Sierra de la Macarena, 400 meters altitude, November 14, 1949, Philipson, Idrobo & Fernandez 1419 (BM).


**Cundinamarca:** Woods east of Guaduas, 1,100 meters altitude, June 1952, Uribe-Uribe 2337 (US).

30. *Aphelandra deppeana* Schlecht. & Cham. (Page 185.)

**Meta:** Woods along the Río Casanare, at Esmeralda, Cuatrecasas 3810 (Col).

**Vaupés:** Calamar, on the Río Unilla, Cuatrecasas 7339 (Col).

34a. *Aphelandra diachyla* Leonard, sp. nov. (Page 191.) Figure 261

Herbs; stems glabrous, subquadrangular; leaf blades oblanceolate, up to 21 cm. long and 5.8 cm. wide, short-acuminate (the tip itself 1 mm. wide and rounded), gradually narrowed from above middle to base, moderately firm, entire, both sides glabrous, the costa and veins (8 to 10 pairs) scarcely prominent, cystoliths obscure or lacking; petioles up to 15 mm. long and 1.5 mm. thick, glabrous; panicles terminal or subterminal, about 12 cm. long and 6 cm. broad, the internode between the 2 pairs of branches 3.5 cm. long, the peduncle 8 cm. long, 1.75 mm. thick, the flowers solitary and sessile in the axils of
the bracts, the lower internodes of the flower-bearing branches 5 to 19 mm. long, the peduncles glabrous, the rachises sparingly and minutely pubescent, the hairs up to 0.06 mm. long, ascending; bracts oblanceolate, up to 14 mm. long and 4 mm. wide, narrowed from above the middle to a small obtuse tip, glabrous, the veins obscure; bractlets narrowly triangular, 2.5 mm. long, 0.75 mm. wide at base, gradually narrowed to tip, ciliolate, the hairs 0.06 mm. long,

Figure 261.—Aphelandra diackyla Leonard (Triana s. n.): a, Node and leaf; b, inflorescence; c, corolla; d, bract; e, bractlet; f, calyx segment. (a, Half natural size; b, two-thirds natural size; c, twice natural size; d, 2½ times natural size; e, 7 times natural size; f, 5 times natural size.)

the flat surfaces glabrous, the costa and a pair of nerves conspicuous through transmitted light; calyx 5 mm. long, the segments lanceolate, 1.25 mm. wide near base, gradually narrowed to an acute tip, striate-nerved, minutely and sparingly hirtellous and ciliolate at tip, otherwise glabrous, conspicuously striate-nerved through transmitted light; corollas glabrous, up to 2 cm. long (from base of tube to tip of corolla lobes), the tube 11.5 mm. long, 1.5 mm. broad at base, slightly en-
larged over the ovary, narrowed to 0.75 mm. near tip, the mouth
2.5 mm. broad, the corolla lobes obovate, 7 mm. long and 3 mm. wide,
obtuse at tip, delicately nerved; stamens included, 2 mm. long, the
filaments slender, 0.5 mm. long; ovary glabrous; capsules not seen.

Type in the Kew Herbarium, collected at San Pablo, Intendencia
of Chocó, Colombia, 100 meters altitude, March 1853, by J. Triana.
Isotype: Col.

On page 157 above, I referred this collection to Aphelandra botanodes,
but it differs in the more open inflorescence and in the entire, more
distant bracts. The specific epithet is from the Greek διάχυτος,
meaning succulent.

36. Aphelandra lasiophylla. (Page 193.)

The type can be more definitely identified by the number "4074–10,"
which appears on the label. In the typescript of the Triana catalog
this appears (by error?) as "4072–10."

36a. Aphelandra pinarotricha Leonard, Bp. nov. (Page 193.) Figure 262

Suffrutex, caulibus dense pilosis, pilis sordidis, patulis vel ascen-
dentibus; lamina foliorum oblonga, breviter acuminata (apice ipso
subobtuso), basi angustata, firma, integra, pilosa, pilis sordidis, pat-
ulis vel ascendentibus, praecipue in costa et venis positis; petioli
dense pilosi; spicae 1 vel 3, terminales et laterales, pedunculis longis,
dense pilosis, pilis sordidis, rhache aliquanto pilosa, excavata; brac-
teeae lanceolatae, subacutae, deorsum et apice pilosae, pilis ascen-
dentibus, obscure nervatae; bracteolae lanceolatae, parce pilosae,
ciliatae, graciliter nervatae; calycis segmenta aequalia, acuta, glabra
vel apice parce et graciiliter ciliolata, striato-nervata; corolla auranti-
aca, deorsum glabra, sursum graciliter pubescens, tubo aliquanto
anguste infundibuliformi, labio superiore erecto, ovato, subacuto,
labio inferiore erecto vel patulo, 3-lobato, lobis lanceolatis, acutis;
stamina exserta, antheris et filamentis glabris; ovarium glabrum.

Shrubs; stems subquadrangular, densely pilose, the hairs sordid,
spreading or ascending, up to 2 mm. long; leaf blades oblong, up to
7 cm. long and 2.2 cm. wide, short-acuminate (the tip itself subobtuse),
narrowed at base, firm, entire, pilose, the hairs spreading or ascending,
sordid, confined chiefly to costa and lateral veins (about 10 pairs),
these rather prominent beneath but obscure above; petioles up to 1
cm. long, densely pilose; spikes usually 3, terminal and subterminal,
up to 4 cm. long and 2 cm. broad (excluding corollas), the peduncle
of the terminal spike about 1 cm. long, those of the lateral spikes 3
to 4 cm. long, all densely and sordidly pilose, the hairs spreading or
ascending, the rachis moderately pilose, furrowed; bracts lanceolate,
16 mm. long, 5 mm. wide, subacute, the lower half pilose with ascending
hairs up to 2 mm. long, the upper half becoming glabrous just
below the tip, ciliate, obscurely nerved; bractlets lanceolate, 9 mm. long, 1.5 mm. wide, acute, sparingly pilose dorsally, ciliate, delicately nerved; calyx 8 mm. long, the posterior segment 3 mm. wide, the anterior segments 1.5 mm. wide, the lateral segments 1 mm. wide, all acute, glabrous, finely ciliolate at tip, striate-nerved; corolla orange, the lower part glabrous, the upper part finely pubescent (the hairs mostly up to 0.5 mm. long), 4 cm. long from base of tube to tip of upper lip, the tube narrowly funnelform, 2.5 mm. broad at base,

Figure 262.—Aphelandra pinarotricha Leonard (Grant, Killip & Fosberg 9124): a, Tip of plant; b, bract; c, bractlet; d, posterior calyx segment; e, an anterior segment of the calyx; f, a lateral segment; g, corolla lips; h, anther. (a, Natural size; b–g, about twice natural size; h, 3 times natural size.)

4 to 5 mm. broad at mouth, the upper lip erect, ovate, 4 mm. wide at base, 6 mm. wide at middle, subacute, the lower lip 17 mm. long, 5 mm. wide at base, erect to spreading, 3-lobed, the middle lobe lanceolate, 12 mm. long, 3.5 mm. wide just below middle, acute, the lateral lobes linear, 10 mm. long, 1.5 mm. wide, acute; stamens exserted 12 mm. beyond the mouth of the corolla, the anthers 4.5 mm. long, 0.75 mm. broad, acute at both ends, glabrous, the filaments glabrous; ovary glabrous; capsules not seen.
Type in the U. S. National Herbarium, No. 2045424, collected in temperate forest between Sibaté and Fusagasugá, 35 km. southwest of Bogotá, Cordillera Oriental, Department of Cundinamarca, Colombia, 2,650 meters altitude, April 30, 1944, by Martin L. Grant, E. P. Killip, and F. R. Fosberg (No. 9124).

*Aphelandra pinarotricha* is somewhat like *A. phlogea* from the Department of Magdalena, but that species has a glandular pubescence, and much larger leaves, flowers and bracts. Its stems are glabrous. The specific epithet is from the Greek πυρόφορος, sordid, and θορία, hair.

37. **Aphelandra conformis** Leonard. (Page 195.)

*Cundinamarca*: Forest above El Colegio, La Mesa, 6,000 ft. altitude, April 8, 1917, Mrs. Tracey 152 (K).

41. **Aphelandra arisema** Leonard. (Page 202.)

The isotype in the Herbario Nacional Colombiano bears the annotation "80. Lagochilium, no. 2," which identifies it with the entry in the Triana catalog.

*Caucia*: Marshy jungle, Gorgona Island, Colleenette 630 (K).

43. **Aphelandra cuatrecasasii** Leonard. (Page 205.)

*El Valle*: Quebrada La Brea, near Córdoba, Core 1558 (US).

46. **Aphelandra pilosa** Leonard. (Page 211.)


49a. **Aphelandra grantii** Leonard, sp. nov. (Page 218.)

*Frutex vel arbor parva, caulibus suberetibus, sursum pilosis, pilis albidis appressis, deorsum glabris; lamina foliorum oblongo-ovata vel oblongo-obovata, breviter sed graciliter acuminata, basi cuneata et in petiolum decurrentis, aliquanto firma, integra vel leviter undulata, glabra vel parce hirsuta, pilis appressis vel ascendentibus, nitida, subtus costa et venis lateralibus prominibus, supra obscuris; petioli glabri vel parce hirsuti; spicae plures, terminales, pedunculis ascendentibus, pilis albidis; rhachis dense albo-floccosa; bracteae ovatae, subacutae, coriaceae, marginibus scariosis, parce ciliatis, costa et nervis lateralibus aliquanto prominibus; ocelli plures, elliptici, nitidi, brunnei; bracteolae anguste ovatae, acutae, plus minusve falcatae, carinatae, carinae dense albo-floccosa, in margine glabrae, ciliatae; calyx glaber vel apice parce puberulus, graciliter striatus, segmento posteriore ovato, subacuto, segmentis lateralibus oblongis, apice truncatis et apiculatis, parce ciliatis, segmentis anterioribus oblongo-ovatis, acutis, parce ciliatis; corolla cinnabarina, papillosa-puberula, base glabra, tubo hypocretiformi, leviter curvato et ventricoso, labio superiore erecto, bilabiato, lobis
anguste triangularibus, acuminatis, labio inferiore trilobato, lobo leviter curvato et ventricoso, labio superiore erecto, bilabiato, lobis lateralis parvis, triangularibus, cum labio superiore basi connatis; stamina vix exserta, antheris glabris vel apice arachnoideis, filamentis sursum glabris, deorsum hirtellis; ovarium glabrum.

Shrubs up to 5 meters high; stems subterete, pilose, the hairs white, closely appressed, up to 0.5 mm. long, the lower portions of the stems glabrate; leaf blades oblong-ovate to oblong-ovate, up to 23 cm. long and 6.5 cm. wide, somewhat abruptly but slenderly acuminate, cuneate at base and decurrent on the petiole, moderately firm, entire or slightly undulate, glabrous or very sparingly hirsute with appressed or ascending hairs up to 0.5 mm. long, the costa and main lateral nerves (about 12 pairs) prominent beneath, obscure above, the upper surface more or less nitid; petiole (unwinged portion) up to 3 cm. long, glabrous or sparingly hirsute, the hairs similar to those of the blades; spikes several (5 or 7), borne in a terminal paniculate
inflorescence, up to 5 cm. long and 11 mm. broad, the peduncles ascending, about 2 cm. long, appressed-hirsute, the hairs about 0.5 mm. long, whitish, the lowermost nodes of the inflorescence producing leaves similar to those of the stem but somewhat smaller, the peduncles bearing at their tips a pair of lanceolate acuminate appressed-hirsute bracts 5.5 mm. long and 2 mm. wide, and sometimes just below these a pair of small narrow leaves about 12 mm. long and 2 mm. wide; rachis densely white-floccose; bracts subtending the flowers ovate, 6 mm. long and 4 mm. wide just below the middle, subacute, coriaceous, glabrous or essentially so, the margins scarious and sparingly ciliate, the costa and 2 pairs of lateral nerves rather prominent; ocelli usually 5, elliptic, up to 0.32 mm. long and 0.16 mm. wide, nitid, brown; bractlets narrowly ovate, 5 mm. long, 1 mm. wide, acute, somewhat falcate, carinate, dorsally white-floccose, except the thin nearly glabrous ciliate margins; calyx 6 mm. long, glabrous or sparingly puberulous at tip, the posterior segment ovate, 2.5 mm. wide just below the middle, subacute, essentially glabrous, finely striate, the lateral segments oblong, 1.5 mm. wide, truncate and apiculate, finely striate, glabrous, inconspicuously ciliate at tip, finely striate, the anterior segments oblong-ovate, 2 mm. wide, acute, sparingly ciliate at tip, finely striate; corolla orange-scarlet, 4.5 cm. long, papillose-puberulous except base and the subscarious margins of the upper lip, the tube 4.5 mm. broad at base, narrowed at 8 mm. above base to 1.5 mm., thence enlarged to 8 mm. at throat, the tube slightly curved and ventricose, the upper lip erect, 14 mm. long, 2-lobed, the lobes narrowly triangular, 4.5 mm. long, 1.5 mm. wide at base, acuminate, the lower lip usually recurved or coiled, lanceolate, about 15 mm. long and 5 mm. wide above base, slenderly acuminate, the lateral lobes adnate to the upper lip, the free portions triangular, about 0.5 mm. long and broad; stamens exserted 5 mm. beyond the mouth of the corolla tube, the anthers 4 mm. long, 1 mm. wide near base, acute and minutely arachnoid at tip, puberulous dorsally, the filaments hirtellous toward the base, the upper portions glabrous; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045433, collected in subtropical forest at Caño de la Muerta, in the Gazaunta Valley, 15 km. northwest of Medina, Department of Cundinamarca, Colombia, 1,950 meters altitude, October 4, 1944, by Martin L. Grant (No. 10363). Isotype: US.

Aphelandra grantii is closely related to A. parvispica. Its leaf blades are larger than those of A. parvispica, reaching 23 cm. in length and 6.5 cm. in width, whereas those of A. parvispica do not exceed 19 cm. in length or 5 cm. in width. The color of the corolla is orange-scarlet, in contrast with the red flowers of A. parvispica,
and the stems, especially the upper portions, are noticeably pilose instead of being essentially glabrous. Its spikes are broader and the ocelli are relatively large and conspicuous under a lens; in *A. parvispica* the ocelli are small or even lacking.

51. *Aphelandra barkleyi* Leonard. (Page 223.)

*Meta*: Between Acacias and San Martín, 430 meters, July 28, 1946, Uribe-Uribe 1319 (Col).

*Tolima*: “Andes de Mariquita,” Quindío, *Triana* s.n. (K).

55. *Aphelandra trianae* Leonard. (Page 232.)

The holotype bears only the notation “New Granada, Dr. J. Triana”; the data cited on page 232 come from the isotype specimen in the Herbario Nacional Colombiano.

57. *Aphelandra macrophylla* Leonard. (Page 237)

*Aphelandra tetragona* Nees *β grandis* Nees (DC. Prodr. 11: 295. 1847), based on Moritz 1272 from Mérida, Venezuela, is a synonym of this species. A specimen in the Kew Herbarium, collected by Moritz (no data) is probably his No. 1272.

*Norte de Santander*: Ocaña, *Schlim* 258 (K).

*Without locality*: *Triana* (K).

57a. *Aphelandra coccinantha* Leonard, sp. nov. (Page 237.)

*Figure 264*

Frutex, caulibus subquadrangularibus, puberulis, pilis subbrunneis, appressis; lamina foliorum oblongo-elliptica, breviter acuminata, basi acuta, firma, integra vel undulata, supra parce hirsuta, subtilis aequaliter et aliquanto dense hirsuta, pilis ascendentibus vel appressis, subbrunneis, costa et venis lateralibus et venulis crasse reticulatis prominentibus, supra obscuris; petioli aliquanto longi et crassi, hirtelli, pilis appressis; spicae multae, ternae, paniculam magnam terminalem ferentes, pedunculis pubescentibus, pilis appressis vel subtomentosis, rhache floccosa, pilis brunneis; bracteae ovatae, glabrae, basi et marginibus tomentosae, ciliatae; ocelli terni, prominentes; bracteolae minutae, lineari-lanceolatae, glabrae, subhyalinae; calycis segmenta striato-nervata, glabra vel apice parce ciliolata, segmentum posterius ovatum, subobtusum, segmenta lateralia et anteriora lanceolata, subacuta; corolla coccinea, papilloso-puberula, basi glabra excepta, tubo anguste hypocratenformi, leviter curvato et subventricosa, labio superiore erecto, ovato, bilobato, lobis triangularibus, acutis, labio inferiore trilobato, lobo medio lanceolato, recurvato, graciliter acuminato, intus puberulo, lobis lateralis lobis parvis, triangularibus, subobtusis, cum labio superiore basi connatis; stamina vix exserta, antheris utrinque acutis, glabris vel apice arachnoideis, filamentis basi hirtellis, sursum glabris; ovarium glabrum.

Shrubs up to 3 meters high; stems subquadangular, puberulous, the hairs upwardly appressed, up to 0.32 mm. long, brownish; leaf blades
oblong-elliptic, up to 22 cm. long and 10.5 cm. wide, short-acuminate, acute at base, moderately firm, entire or undulate, the upper surface sparingly hirsute, the hairs 0.5 mm. long, the lower surface rather densely and evenly hirsute, the hairs ascending or appressed, about 0.5 mm. long, light brownish, the costa, lateral veins (18 to 20 pairs) and coarsely reticulated veinlets prominent beneath, obscure above; petioles up to 4 mm. long and 2 or 3 mm. thick, the pubescence that of the stems; spikes numerous, in 3's, forming a terminal panicle about 25 cm. long and 12 cm. broad, the peduncles up to 4 cm. long, the secondary peduncles 8 to 10 mm. long, all closely appressed-pubescent.
or subtomentose, the rachis floccose, the hairs brown; bracts reddish-green (Fosberg), ovate, 7 mm. long, 4 mm. wide, subacute, coriaceous, tomentose, the margins tomentose-ciliate, the glands in groups of three, elliptic, brown, well-defined, 0.46 mm. long, 0.16 mm. wide; bractlets linear-lanceolate, 2.5 mm. long and 0.25 mm. wide, subobtuse, glabrous, subhyaline, the posterior calyx segment ovate, 7 mm. long, 3 mm. wide near base, ciliolate toward tip, otherwise glabrous, striate-nerved, subobtuse, lateral segments lanceolate, 1 mm. wide, the anterior segments lanceolate and 1.5 mm. wide, subacute, in other respects resembling the posterior segment; corolla scarlet, 4 to 5 cm. long, papillose-puberulent except the glabrous base, the corolla tube 1.5 mm. broad at base, slightly enlarging over the ovary, 8 mm. broad at mouth, the lips 12 mm. long, the upper lip erect with acuminate recurved tips, ovate, 7 mm. wide near base, the terminal lobes triangular, finely pilose on inner surface, 5 mm. long, 2.5 mm. wide at base, the middle lobe of the lower lip recurved, lanceolate, 4.5 mm. wide at middle, slenderly acuminate, puberulous on the inner surface, the lateral segments small, subtriangular, subobtuse, adnate to the lowermost part of the upper lip; stamens nearly reaching the tip of the upper lip, the anthers 4.5 mm. long, 1 mm. broad, acute at both ends, arachnoid dorsally, otherwise glabrous, the filaments hirtellous at base, glabrous toward tip; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045405, collected on forested hill east of the Río Valegrá and south of Quebrada Valegrá, in the Municipio of Chitagua, Department of Norte de Santander, Colombia, 2,000 meters altitude, November 16, 1942, by F. R. Fosberg (No. 19131).

_Aphelandra coccinantha_ would follow _A. macrophylla_ in the key. It differs, however, from that species in its relatively shorter leaf blades, these evenly and rather densely hirsute beneath instead of glabrous or subglabrous. In _A. macrophylla_, furthermore, the panicles are smaller and the spikes are noticeably shorter and thicker, and, lastly, the corollas are orange-red instead of scarlet as in _A. coccinantha_.

The specific epithet is from the Greek _koxoxos_, scarlet, and _etvatos_, flower.

60. _Aphelandra incarnata_ Leonard. (Page 243.)

_Antioquia_: Dense forests around Savaletas, 200-500 meters altitude, _Lehmann_ 7845 (K).

_Cundinamarca_: San Antonio, 200 meters altitude, June 14, 1948, _Haugt_ 6243 (US).

60a. _Aphelandra trichota_ Leonard, sp. nov. (Page 244.)

_Suffrutex_, caulibus subquadrangularibus, dense hirsutis, pilis patulis vel retrorse subappressis; lamina foliorum oblongo-obovata, apice breviter acuminata (apice ipso subobtuso), basi cuneata, in
petiolum decurrens, aliquanto firma, integra vel undulata, supra parce hirsuta, subtus dense hirsuta, pilis patulis vel ascendentibus, costa et venis prominentibus; petioli breves, dense hirsuti; spicae 1 vel 3, terminales, sessiles vel subsessiles, magnae et longae, rhachis glabra vel puberula; bracteae obovatae, apice obtuse et apiculatae, subchartaceae, glabrae, striato-nervatae; bracteolae lanceolatae, basi subcarinatae, apice acutae, pilosae, pilis appressis, striato-nervatae; calycis segmenta glabra vel apice parce puberula et ciliata, striato-nervata, segmentum superiorum ovatum, subobtusum, segmenta inferiora lanceolata; corolla ignota; capsulae obtusae, glabrae, minute punctatae, nitidae; retinacula linearia, apice rotundata et cucullata; semina brunnea, obovata, glabra vel apice minute puberula.

Shrubs up to 2 meters tall; stems subquadrangular, densely hirsute, the hairs spreading or retrorsely subappressed, up to 1.5 mm. long; leaf blades oblong-obovate, up to 36 cm. long and 12 cm. wide, short-acuminate at tip (the tip itself subobtuse), cuneate at base and

Figure 265.—*Aphelandra trichota* Leonard (*Fosberg & Fasett 21809*): a, Node with basal portion of leaf; b, tip of leaf blade; c, leaf, reduced to show shape; d, bract; e, stamen; f, bractlet; g, posterior calyx segment; h, an anterior segment; i, a lateral segment. (a, b, Half natural size; c, about 1/2 natural size; d, natural size; e, about 40 times natural size; f–i, twice natural size.)
decurrent on the petiole, rather firm, entire or undulate, the upper surface sparingly hirsute, the lower rather densely so, the hairs spreading or ascending, up to 1.5 mm. long; the costa and lateral veins (about 16 pairs) prominent on the lower surface, obscure on the upper; petioles (unwinged portion) stout, 5 to 10 mm. long, densely hirsute; spikes terminal, solitary or in 3's, sessile or subsessile, up to 45 cm. long and 2.5 cm. broad, the rachis glabrous to puberulous with sub-appressed hairs up to 0.28 mm. long; bracts obovate, up to 30 cm. long and 13 mm. wide between middle and tip, obtuse and minutely apiculate, chartaceous, orange-red (Fosberg & Fassett), glabrous, striate-nerved, the nerves becoming reticulate toward margin; ocelli numerous, minute (the larger about 0.32 mm. long and 0.25 mm. wide), confined in an irregular oval area about 3 mm. long and 1.5 mm. wide; bractlets lanceolate, subcarinate, 1 cm. long, 3 mm. wide near base, thence gradually narrowed to an acute tip, appressed-pilose, striate-nerved; calyx 1 cm. long, the posterior segment ovate, 5 mm. wide near base, subobtuse, the anterior segments lanceolate, 3 mm. near base, acute, the lateral segments lanceolate, 2.5 mm. wide near base, acute and apiculate, all glabrous or sparingly puberulous and ciliolate, striate-nerved; corollas not seen; capsules 13 mm. long, 6 mm. broad, about 4 mm. thick, obtuse and minutely punctate, glabrous, nitid; retinacula linear, 3.5 mm. long, rounded and cucullate at tip; seeds brown, obovate, 4.5 mm. long, 4 mm. wide, 1.75 mm. thick, glabrous or the upper margin rather minutely puberulous.

Type in the U. S. National Herbarium, No. 2045416, collected in thick forest on steep slope at Jordán, on the north side of the Cuchillo de Los Micos, 20 km. north-northwest of Velez, 8 km. south-southeast of Landazuri, Department of Santander, Colombia, 1,100 meters altitude, April 17, 18, 1944, by F. R. Fosberg and N. C. Fassett (No. 21809). Iso-type: US 2144298.

Aphelandra trichota can be recognized by its densely hirsute stems, large leaves, hirsute on the lower surface, and large spikes. The specific epithet is from the Greek τριχώτος, meaning beset with hairs.

61. Aphelandra sericantha Leonard. (Page 246.)

The type specimen can be identified a little more definitely by the number "4074-1" appearing on the label; in the Triana catalog, this appears as "4072-1," perhaps by error.

62. Aphelandra hartwegiana Nees. (Page 248.)

Department (?) : Playa, Lehmann 9047 (K).

The type can be identified a little more accurately by the number appearing on the label, namely “4074-5”; in the Triana catalog this appears (by error?) as “4072-5.”

*Cundinamarca:* Hacienda Cucharo, between Tocaima and Pubenza, 1,000 meters altitude, April 14, 1952, *Uribe-Uribe* 2308 (US).

68. *Aphelandra crenata* Leonard. (Page 261.)

*Antioquia:* Urabá, 100 meters altitude, January 17, 1947, *Uribe-Uribe* 1502 (Col).

69. *Aphelandra glabrata* Willd. ex Nees. (Page 262.)

*Tolima:* Along stream east of Chaparral, about 38 km. on road to Coyaima, Cordillera Central, *S. Galen Smith* 1314 (US).

70a. *Aphelandra atecmarta* Leonard, sp. nov. (Page 265.) Figure 266

Suffrutex, caulibus subquadrangularibus, puberulis, pilis appressis, albidis; lamina foliorum oblonga, apice breviter acuminata, basi cuneata, in petiolum decurrent, aliquanto tenuis, integra vel undulata, supra glabra vel costa et venis lateralibus parce et minute hirtellis, subtus aequaliter puberula, pilis appressis, costa et venis aliquanto prominentibus; petioli puberuli, pilis appressis; spicae solitariae, terminalis, rhachis glabra, pedunculo brevi; bracteae ovatae, acutae, glabrae vel minute ciliolatae, striato-nervatae, areola elliptica opaca pro ocellis substituta; bracteolae falcato-lanceolatae, acutae, costa et apice dense et molliter hirsutae, pilis plus minusve appressis, marginibus glabrae vel parce et minute papillosae; segmenta calycis glabra vel apice pilis paucis praedita, parce et minute papillosa, segmentum superius ovatum, subobtusum, segmenta anteriores lanceolata, acuta, segmenta lateralia lanceolata, subobtusa et apiculata; corolla aurantiaca, papillosa, basi glabra, tubo subcylindrico vel anguste hypocratiformi, labio superiore erecto, ovato, apice bilobato, lobis anguste triangularibus acuminatis, labio inferiore trilobato, lobo medio ascendentem, ovato acuto, lobis lateralis parvis, triangularibus, subacutis, cum labio superiore basi connatis; stamina vix exserta, glabra, antheris utrinque acutis, apice arachnoidicis; ovarium glabrum.

Shrubs up to 2 meters high; stems subquadrangular, puberulous, the hairs closely and upwardly appressed, whitish, up to 0.2 mm. long; leaf blades oblong, up to 28 cm. long and 10 cm. wide, short-acuminate, narrowed from about the middle to a cuneate base and decurrent on the petiole, rather thin, entire or undulate, the upper surface glabrous or the costa sparingly and minutely puberulous, the lower surface evenly hirtellous, the hairs appressed, resembling those of the stem, the costa and lateral veins (about 12 pairs) moderately prominent; petioles (unwinged portion) up to 4 cm. long, the pubescence that of the stem; spikes solitary, terminal, up to 23 cm. long and 1.5 cm. broad, the
rachis glabrous; peduncle 5 mm. long, appressed-puberulous; bracts orange (Grant), ovate, 13 mm. long, 11 mm. wide, acute (the tip itself obtuse), glabrous or minutely ciliolate, striate-nerved, the glandular area dull, oval, about 1.5 mm. long and 1 mm. wide; bractlets falcate-lanceolate, 12-14 mm. long, about 3 mm. wide at middle, acute,

the costal region and tip densely and softly hirsute, the hairs more or less appressed, up to 0.25 mm. long, the marginal region (about 1 mm. wide) glabrous and sparingly and minutely papillose; calyx 1.5 cm. long, the segments glabrous, rather sparingly and minutely papillose dorsally and tipped by a few minute hairs, the posterior segment ovate, about 6 mm. wide, subobtuse, the anterior segments lanceolate, about 4 mm. wide, acute, the lateral segments lanceolate, about 3.5 mm. wide, subobtuse and apiculate; corolla orange, up to 6 cm. long,
papillose except the glabrous basal portion, the tube subcylindrical or rather narrowly infundibuliform, 3 to 4 mm. wide at or near base, 7 mm. wide at mouth, the upper lip erect, ovate, bilobed at tip, the lobes narrowly triangular, 3 mm. long, 1.5 mm. wide at base, acuminate, the middle lobe of lower lip ascending, oval, acute, about 10 mm. wide at middle, the lateral lobes adnate to the upper lip, the free portion triangular, subacute, 1.5 mm. long and 1 mm. wide at point of attachment; stamens reaching the tip of the upper lip, the anthers glabrous except the arachnoid tip, 7 mm. long, 2 mm. broad, acute at both ends, the style glabrous or sparingly pilose at base; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2045425, collected in temperate forest on the Caraucha Range, east of Ibama, 13 km. east of Yacopí, near the Boyacá border, Department of Cundinamarca, 2,250 meters altitude, May 8, 1944, by Martin L. Grant (No. 9167). Isotype: US, 2144299.

*Aphelandra atecmartia* in the key would follow *A. crenata*, but it differs in having entire instead of crenate leaves. The spikes of *A. crenata*, too, are shorter and more compact.

The specific epithet is from the Greek ἀτεκυπρός, meaning without distinctive mark.

73. **Aphelandra lingua-bovis** Leonard. (Page 270.)

Chocó: Fairly common between La Oveja and Quibdó, April 1, 2, 1931, Archer 1731 (US).

76. **Aphelandra pharangophila** Leonard. (Page 277.)

El Valle: Timba, von Sneidern 1113 (S).

22. **PACHYSTACHYS** Nees

1. **Pachystachys riedeliana** Nees. (Page 291.)

El Valle: Thickets along the Río Dagua at Cisneros, 300-500 meters altitude, May 5, 1939, Killip 35590 (US).

23. **PSEUDERANTHEMUM** Radlk.

It appears that the citation given above on page 292, i. e., Radlk. in Sitzungsbl. Math. Phys. Kl. Akad. Wiss. München 13: 282. 1883, is incorrect, even though it is the one usually given. At this place the name is a *nomen nudum*, for there is only a listing of species and no description. Nor is there any reference to a description of the genus under another name. *Pseuderanthemum* is said to be the *Eranthemum* of authors not Linnaeus, and there is mention of Nees’ treatment (in DC. Prodr.), but Nees included in *Eranthemum* the species of true *Eranthemum* as well as those that Radlkofe wished to separate as *Pseuderanthemum*, and did not provide any description of the latter as a group. The species were mostly those grouped by Nees and
briefly characterized as "Parvibracteatae," but included also a species (*E. palatiferum*) from another section of the genus. Radlkofeer gave a reference also to two papers by T. Anderson, but at these places Anderson merely listed several species as *Eranthemum* and did not give any generic description. Apparently, the first valid publication of *Pseuderanthemum* must be attributed to Lindau, and the citation will be:


No one species seems to have a particular claim as a lectotype, and so the species illustrated by Lindau (op. cit. fig. 133), *P. bicolor* Schrank) Radlkofeer, may appropriately be chosen.

**EMENDED KEY TO THE SPECIES (PAGE 292)**

<table>
<thead>
<tr>
<th>Tips and bases of the seeds bearing a spiny crest; panicles large and many-flowered.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>P. ctenospermum</em></td>
</tr>
<tr>
<td>Tips and bases of the seed without a spiny crest (<em>P. chilianthium</em> bearing a single spinelike projection at base of seed).</td>
</tr>
<tr>
<td>A. Leaves of each pair very unequal, the larger alternating with the smaller of the next succeeding pair.</td>
</tr>
<tr>
<td>Tips of the leaf blades slenderly acuminate.------------------ 2. <em>P. chilianthium</em></td>
</tr>
<tr>
<td>Tips of leaf blades short-acuminate, the tip itself blunt. 3. <em>P. diachylum</em></td>
</tr>
<tr>
<td>A. Leaves of each pair equal or subequal.</td>
</tr>
<tr>
<td>B. Leaf blades ovate; corolla tube 2 cm. long or more, very slender.</td>
</tr>
<tr>
<td>Leaf blades sessile or subsessile, rounded at base, those subtending the lowermost branches of the inflorescence similar to the main stem leaves but somewhat smaller. 4. <em>P. cladodes</em></td>
</tr>
<tr>
<td>Leaf blades abruptly narrowed into long winged petioles, those subtending the lowermost branches of the inflorescence orbicular or suborbicular, sessile or subsessile, differing noticeably from the main stem leaves.</td>
</tr>
<tr>
<td>Flowers dark red; bracts subtending the flowers triangular, up to 2 mm. long. 5. <em>P. haughtii</em></td>
</tr>
<tr>
<td>Flowers purple; bracts subtending the flowers lanceolate or oblanceolate, up to 4 mm. long. 6. <em>P. idroboi</em></td>
</tr>
<tr>
<td>B. Leaf blades elliptic to oblong or lanceolate, rarely ovate, the petioles short.</td>
</tr>
<tr>
<td>C. Calyx with some glandular hairs.</td>
</tr>
<tr>
<td>Leaf blades (lower surface) glabrous or bearing a few scattered minute hairs; cystoliths black. 7. <em>P. leiophyllum</em></td>
</tr>
<tr>
<td>Leaf blades (lower surface) definitely puberulous or hirtellous; cystoliths whitish.</td>
</tr>
<tr>
<td>Lobes of the corolla conspicuously purple-dotted. 8. <em>P. poecilanthum</em></td>
</tr>
<tr>
<td>Lobes of the corolla uniformly colored. 9. <em>P. galbanum</em></td>
</tr>
<tr>
<td>Corollas greenish yellow. 10. <em>P. micranthum</em></td>
</tr>
<tr>
<td>Corollas not greenish yellow, usually violet, purple, pink, or white.</td>
</tr>
<tr>
<td>Base of the leaf blades (dried material) strongly recurved and crisped making the blades apparently subpanduriform.</td>
</tr>
</tbody>
</table>
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Bases of the leaf blades (dried material) flat, not noticeably recurved and crisped.

Corollas pure white ........................................ 11. *P. ellipticum*
Corollas violet, purple, or pink.
Corollas pale pink, the lobes up to 7 mm. long; leaf blades gland-dotted beneath. ... 12. *P. evanii*
Corollas violet, the lobes up to 3.5 mm. long; leaf blades not gland-dotted beneath. ... 13. *P. pennellii*

C. Calyx without gland-tipped hairs.

Leaf blades predominantly 2 cm. wide or less.

Calyx glabrous. ................................................ 14. *P. lanceum*
Calyx puberulous ........................................... 15. *P. sneidernii*

Leaf blades, or at least some of them, 2.5 cm. wide or more.

Rachis glabrous; leaf blades predominantly obtuse or rounded at tip. ................. 16. *P. atropurpureum*
Rachis pubescent; leaf blades acuminate.

D. Flowers borne in racemes, these simple or forked or 3-parted at the lowermost node.

Leaf blades (dried material) flat at base. ... 17. *P. potomophilum*
Leaf blades (dried material) recurved and crisped at base so as to give the blades a subpanduriform appearance.

Flowers solitary or several at each node of the inflorescence; leaves firm. .......... 18. *P. hylophilum*
Flowers few to numerous at each node of the inflorescence; leaves thin. ........... 10. *P. micranthum*

D. Flowers borne in panicles.

Corollas densely glandular-papillose.

Pedicels stout, 1 mm. long or less .......... 19. *P. chaponense*
Pedicels slender, up to 4 mm. long .......... 20. *P. thelothrix*

Corollas sparingly puberulous or pubescent.

Tube of the corolla narrow, the throat 1.5 mm. broad; branches of the panicle few (2 or 3) ........... 21. *P. stenosiphon*
Tube of the corolla relatively broad; branches of the panicle several (3 or more).

Shrubs; margins of the basal part of the leaf blades recurved and crisped to give the blade a subpanduriform appearance. .......... 22. *P. cuatrecasasi*

Herbs; margins of the basal portions of the leaf blades flat, not noticeably recurved and crisped.

Tips of the leaf blades slenderly acuminate; panicle open, the branches straight and more or less spreading, up to 9 cm. long. .......... 23. *P. dawei*
Tips of the leaf blades abruptly and shortly acuminate; panicles dense, the branches suberect, up to 4 cm. long. .......... 24. *P. chocoense*

1. *Pseuderanthemum ctenospermum* Leonard, sp. nov. ...

Suffrutex, caulibus erectis, quadrangularibus, plus minusve crassis, glabras vel parce puberulis, pilis curvatis; lamina foliorum oblongo-elliptica, breviter acuminata (apice ipso obtuso), basi angustata, in petiolum decurrens (lamina foliorum summorum basi plus minusve auriculata), firma et crassa, integra vel undulata, supra glabra, cysto-
lithis minutis, subtus glabra, costa et venis prominentibus, puberulis vel strigosis, cystolithis minutis, venulis crasse reticulatis; petioli alati, glabri vel parce strigosi; paniculae terminales, in nodis ramis pluribus et aliquando floribus sessilibus vel subsessilibus praeditae, pedunculis et rachibus subquadrangularibus, striatis, hirtellis, pilis curvatis, patulis vel ascendentibus, subbrunneis, septatis; bracteae ramos infimos subtendentes foliaceae; bracteae ramos superiores subtendentes lineares; bracteae flores subtendentes triangulares, acutae (apice ipso obtuso), parce hirtellae et ciliatae; bracteolae lineares, apice subobtusae, parce hirtellae; pedicelli graciles, puberuli, pilis patulis vel ascendentibus, subbrunneis; calycis segmenta anguste triangularia, apice graciliter acuta, parce hirtella, pilis ascendentibus; corollae parvae, lilacinae, parce puberulae, pilis fere patulis aliquis glandulosis, tubo cylindrico, lobis ovatis, subobtusis; stamina inclusa, glabra, lobis antherarum basi leviter divergentibus; staminodia parva, oblanceolata, glabra; capsulae clavatae, basi graciles, parce puberulae, pilis fere patulis, glandulosus; retinacula gracilia, curvata, apice rotundata; semina brunnea, plana, glabra, suborbicularia, apice et basi cris tis spinosis praedita, spinis albidis, triangularibus, minute striatis, retrorse hirtella, pilis rigidis, minutis.

Erect shrubby plants up to 1 meter high; stems quadrangular, more or less fleshy, glabrous or sparingly puberulous, the hairs variously curved, up to 0.24 mm. long; leaf blades oblong-elliptic, up to 15 cm. long and 6 cm. wide, short-acuminate (the tip itself blunt), narrowed at base and decurrent on the petiole, the uppermost leaves more or less auriculate at base, firm and fleshy, entire or undulate, the upper surface glabrous, the cystoliths minute, up to 0.1 mm. long, the lower surface glabrous except the costa and lateral veins (12 to 16 pairs), these sparingly puberulous or strigose, the hairs up to 0.32 mm. long, the cystoliths similar to those of the upper surface, the venation prominent, the veinlets coarsely reticulate, the axes of the leaves often bearing small leafy shoots; petioles winged nearly to the base, glabrous or sparingly strigose; panicles terminal, up to 15 cm. long and broad, the nodes bearing 1 to several pairs of branches and sometimes additional sessile or subsessile flowers (flowering branches also occurring in the axils of the upper stem leaves); peduncles 5 cm. long, the lowermost internode 3 cm. long, the others successively shorter toward the tips of the branches, both peduncle and internodes of the inflorescence subquadrangular, striate, hirtellous, the hairs variously curved, spreading or ascending, up to 0.28 mm. long, septate, brownish; bracts subtending the lowermost branches of the inflorescence leaflike, about 2 cm. long and 5 mm. wide, those subtending the upper branches of the inflorescence linear, 10 mm. long and 0.75 mm. wide or smaller; bracts subtending the flowers triangular, 3 mm. long and 1.5 mm. wide at
base, acute (the tip itself blunt), sparingly hirtellous and ciliate; bractlets linear, about 2.5 mm. long and 0.25 mm. wide, bluntish at tip, sparingly hirtellous; pedicels 5 to 7 mm. long, rather slender, puberulous, the hairs spreading or ascending, brownish, up to 0.16 mm. long; calyx 5 mm. long, the segments 5, narrowly triangular, 4 mm.

Figure 267.—Pseuderanthemum cienospermum Leonard (Cuatrecasas 16433): a, Stem node showing leaves; b, lower node of panicle; c, portion of internode of panicle enlarged to show pubescence; d, node from near tip of panicle to show bract and bractlets; e, calyx segment; f, corolla; g, a portion of corolla tube enlarged to show pubescence; h, stamens; i, capsule valve; j, a portion of capsule valve from near its tip enlarged to show pubescence; k, seed. (a, Half natural size; b, natural size; c, 21 times natural size; d, 3 times natural size; e, about 6½ times natural size; f, h, 3 times natural size; g, 45 times natural size; i, twice natural size; j, 23 times natural size; k, 7 times natural size.)
long, 0.5 mm. wide at base, gradually narrowed to a slender tip, sparingly hirtellous, the hairs ascending, up to 0.13 mm. long; corollas up to 12 mm. long, lilac, rather sparingly puberulous, the hairs mostly spreading, up to 0.1 mm. long, some of them gland-tipped, the tube cylindric, 1.5 mm. in diameter, the lobes ovate, 4 to 5 mm. long, 2.5 to 3 mm. wide, subobtuse; stamens included, 3.25 mm. long, glabrous, the anthers 1.5 mm. long, 0.75 mm. wide near base, the lobes slightly divergent; staminodes about 1 mm. long, oblanceolate, glabrous; capsules clavate, about 18 mm. long, 4 mm. wide and 1.5 mm. thick, sparingly puberulous, the hairs mostly spreading, 0.1 mm. long, gland-tipped, the solid basal portion of the capsule slender, 12 mm. long, 1.5 mm. broad, 2 mm. thick; retinacula slender, 2.5 mm. long, curved, the tip rounded; seed suborbicular, 3 mm. long, 2.5 mm. wide and 0.5 mm. thick, brown, glabrous, bearing on the upper edge a crest of usually 7 triangular whitish spines, these about 0.75 mm. long, the anterior one multiple, and bearing also on the projecting basal edge a similar but shorter crest of 2 or 3 spines, all of the spines striate, whitish, broad-based, retrorsely hirtellous with rigid hairs about 0.02 mm. long.

Type in the U. S. National Herbarium, No. 1852484, collected along the Rio Calima at La Trojita, Department of El Valle, Colombia, 5-50 meters altitude, February 19 to March 10, 1944, by J. Cuatre-casas (No. 16433).

Collected also in the same general region are the following: In dense forest along the Rio Dagua, about 20 kilometers east of Buenaventura, 40 meters altitude, February 15, 1939, E. P. Killip and Hernando García, No. 33318 (US). Highway between Buenaventura and Cali at Km. 100, 100 meters altitude, December 5, 1946, Haught, No. 5323 (US). Wet forests of Chuare, Cauca, 90 meters altitude, December 24, 1946, Haught, No. 5390 (US). “Andes de Mariquita, Antioquia,” 2,200 meters altitude, February 1852, Triana (K).

According to the label notes, Haught’s No. 5390 was taken from an epiphyte with very succulent shoots 1 meter long and having a showy purple inflorescence, and his No. 5323 was taken from an erect suffrutescent plant 1 meter high or less which possessed a showy inflorescence with the axes and flowers light purple. Killip and García describe their No. 33318 as an herb 80 cm. high, the stems in clusters bearing distichous panicles, and with both flowers and inflorescence branches pink. The type sheet bears the following note: “Sufrutex de ramos erguidas 1 m.; hojas rugosas, verde grisáceas; brácteas, cáliz y corola lilas.”

Pseuderanthemum ctenospermum can be easily recognized by its peculiar crested seed and rather large rugose leaves. This comblike crest suggests the specific epithet taken from the Greek κτείς, comb, and σπέρμα, seed.
2. *Pseuderanthemum chilianthium* Leonard, sp. nov. Figure 268

Herbs or shrubs usually up to 2 meters high but sometimes becoming scandent and reaching 10 meters in height, the upper portions of the stems subquadrangular, glabrous or sparingly puberulous, the hairs up to 0.2 mm. long, subpressed or ascending, septate, the cystoliths few or sometimes numerous and parallel, the lower portions of the stems tough, woody, subterete, glabrous, sparingly branched, the bark brown and becoming shredded; leaves of each pair unequal, the smaller leaf of each pair alternating with the larger of the next pair, the blades oblong-lanceolate or oblong-obovate, up to 30 cm. long and 9 cm. wide, slightly panduriform, more or less slenderly acuminate, the tip slender, narrowed to a rounded narrow subcordate base, rather firm, entire or undulate, both surfaces nitid, glabrous or sparingly puberulous, the hairs ascending, the costa, lateral veins (14 to 16 pairs) and the coarsely reticulated veinlets prominent beneath, obscure above, the cystoliths obscure; petioles thick (unwinged portions), glabrous or sparingly hirtellous, the cystoliths sometimes numerous; flowers numerous, borne in terminal pyramidal panicles up to 30 cm. long and 26 cm. wide, the nodes bearing 3 or 4 branches, the branches of the ultimate nodes slender, 1 to 3 cm. long, several-flowered, dichotomously branched, forming lax dichasia or the flowers sometimes secund on the racemes; peduncles up to 6 cm. long, these and the rachises sparingly to rather densely hirtellous, the hairs
ascending, up to 0.25 mm. long, septate, the pedicels slender, hirtellous, up to 5 mm. long; bracts subulate, up to 1 cm. long, 1.5 mm. wide at the base, sparingly hirtellous, the lowermost often foliaceous; calyces up to 4.5 mm. long, the segments 4 mm. long, 0.5 mm. wide at base, gradually narrowed to an acute tip, sparingly hirtellous with ascending hairs about 0.06 mm. long; corollas purplish blue or lilac, 10 to 17 mm. long, sparingly puberulous with a mixture of glandular papilliform hairs (about 0.03 mm. long) and curved ascending

Figure 268.—Pseudanthemum chillianthium Leonard (Killip 35270): a, Node of stem to show pair of dissimilar leaves; b, portion of lower surface of leaf blade enlarged to show pubescence; c, branch of panicle; d, calyx; e, corolla; f, portion of corolla tube enlarged to show pubescence; g, stamen and staminode; h, capsule valve, i, seed. (a, c, Half natural size; b, 5 times natural size; d, 3½ times natural size; e, h, twice natural size; f, 40 times natural size; g, 7 times natural size; i, 5 times natural size.)
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glandular ones up to 0.13 mm. long, the corolla tube cylindric, 1 cm. long, 2 mm. broad at base, narrowed to 1.5 mm. at 2 mm. above base, thence gradually enlarged to 2 mm. at mouth, or the tube of the smaller flowers only about 7 mm. long, 1.5 mm. wide at base and 1 mm. wide at their narrowest point, the corolla lobes oval, 4 to 6 mm. long, 2.5 mm. wide, rounded at the tip; stamens included, those of the smaller flowers 1.5 mm. long, the anthers 0.75 mm. long, the staminodes 0.5 mm. long, the stamens of the larger flowers 3.5 mm. long with anthers 1 mm. long, the staminodes 1 mm. long; capsules 16 mm. long, 3 mm. broad, about 2 mm. thick, the solid basal stipe about 1 cm. long and 1.25 mm. broad, the surface of the capsule glabrous or bearing a few small papilliform glandular hairs near tip, the retinacula curved, about 1.75 mm. long, the tip rounded, thin, finely striate and subfimbriate; seed ovate, flat, 3 mm. long, 1.5 mm. wide, the margin winged, the wing 1.5 mm. long at tip of seed, obtuse, rather densely puberulous with whitish hairs, the basal angle bearing a small, spikelike projection.

Type in the U. S. National Herbarium, No. 1772005, collected in the Corcovada Region of the upper Rio San Juan, in a dense forest on a ridge along the Yeracuí Valley, Intendencia of Chocó, Colombia, 200 to 275 meters, April 24, 25, 1939, by E. P. Killip (No. 35270).

Antioquia: Mariquita, 2,200 meters altitude, February 1852, Triana s.n. (K).
Cauca: Damp forests at Coteje, along the Rio Timbiquí, 0 to 500 meters altitude, February 1898, Lehmann s.n. (K).


Meta: Tiramena, Llanos de San Martín, 250 meters altitude, J. Triana s.n. (Col).

Pseuderanthemum chilianthium must be an attractive plant with its large dense panicles of lilac flowers. Archer states that the pedicels are also colored like the corollas. Archer’s No. 2120, representing the small flowered form, has lavender colollas with darker stripes on the lobes. The plant of the holotype had leaves deep purple beneath. More material should be examined before any of these variations can be used as characters on which to base varieties or closely related species. The specific epithet is from the Greek χίλιον, thousand, and ἀνθείον, blossom, in allusion to its numerous flowers.
3. Pseuderanthemum diachylum Leonard, sp. nov.  

Herba erecta, succulenta, caulibus subquadrangularibus, nitidis, deorsum glabratis, sursum parce puberulis, pilis curvatis, septatis, cystolithis parallelis, inconspicuis, rarís; folia per paria inaequalia; lamina foliorum oblongo-elliptica, breviter acuminata (apice ipso obtuso), basí acuta vel obtusa, in petiolum decurrens, alíquanto firma, integra, undulata, supra nitida, parce puberula, pilis appressis, septatis, cystolithis inconspicuis, costa et venis lateralis obscurís, subtus puberula, pilis præcipue in costa et venis prominentibus positis, venulis crasse reticulatis, cystolithis inconspicuis; petioli (pars non alatus) breves, parce hirtelli; paniculae terminales, floribus in nodis 4 vel 5 productis, pedicellis gracilibus sed aliquanto brevibus, dense hirtellis, pilis ascendentibus, dense hirtello; bracteae triangulares, aliquanto parvae, acutae (apice ipso obtuso), carinatae, hirtellae, pilis ascendentibus, septatis, ciliatae; bracteolae parvae, triangulares, acutae, hirtellae; calycis segmenta subulata, nitida, minute et parce hirtella, pilis glandulosis et eglandulosis intermixtis; corolla dilute purpurea, parce hirtella, pilis minutís, glandulosís et eglandulosís intermixtís, tubo subcylindricó, lobís corollae ovátis apice rotundátis; stamina inclusa, filamentís glabris vel basí pilis paucís præeditís, antherí glabris; staminodia parva, lineári; ovaríum glabrum.

Erect succulent herbs up to 60 cm. high, stems subquadrangular, nitid, sparingly puberulous with curved septate hairs up to 0.24 mm. long, the lower portions of the stem glabrate, the cystoliths straight, parallel, up to 0.11 mm. long, inconspicuous and scattered; leaves of a pair noticeably unequal, the larger leaves alternate with the smaller of the succeeding pair, the blades oblong-elliptic, up to 21 cm. long and 7.5 cm. wide, short-acuminate (the tip itself obtuse), acute to obtuse at base and decurrent on the petiole, rather thick, entire or undulate, the upper surface nitid, sparingly puberulous, the hairs up to 0.19 mm. long, septate, appressed, the cystoliths inconspicuous, up to 0.08 mm. long, the costa and lateral veins (about 8 pairs) obscure, the lower surface puberulous, the hairs confined chiefly to costa and veins, these and the coarsely reticulated veinlets conspicuous, the cystoliths inconspicuous; petioles (unwinged portion) up to 4 mm. long, with the winged portion up to 3.5 cm. long, the wings gradually enlarged from base to 1 cm. wide at foot of blade, the petiole sparingly hirtellous; panicles terminal, about 10 cm. long and 5 cm. broad, each node producing a large and a small branch, these alternating throughout the panicle, the flowers as many as 4 or 5 at each node, the peduncle 8.5 cm. long, subquadrangular, about 2 mm. thick, finely striate, rather densely hirtellous, the hairs retrorsely curved, up to 0.2 mm.
long, septate, the lowermost internode of the panicle 3 cm. long, the others successively shorter toward tip of the inflorescence, all hirtellous, the hairs spreading or ascending, septate and up to 0.2 mm. long; bracts triangular, up to 5 mm. long, 1.5 mm. wide at base, gradually narrowed to a blunt tip, carinate, hirtellous, the hairs ascending, mostly marginal and dorsal, septate; bractlets triangular, up to 3 mm.

Figure 269.—Pseuderanthemum diachylum Leonard (Haught 5489): a, Tip of plant; b, a pair of stem leaves; c, portion of leaf blade, lower surface, to show venation; d, portion of inflorescence from node showing bract, bractlets and flowers; e, portion of calyx enlarged to show pubescence; f, stamen and staminode. (a–c, Half natural size; d, natural size; e, 30 times natural size; f, 6 1/4 times natural size.)

long, 1.25 mm. wide at base, acute, hirtellous; pedicels slender, up to 3 mm. long, densely hirtellous with ascending hairs up to 0.13 mm. long; calyx up to 4 mm. long, the segments subulate, 3 mm. long, 0.5 mm. wide near base, nitid, minutely and sparingly hirtellous, the hairs about 0.06 mm. long, some of them gland-tipped; flowers showy, light purple, 16 mm. long, sparingly hirtellous, the hairs up to 0.1
mm. long, some of them gland-tipped, the tube 1 mm. broad at base, narrowed at 2 mm. above base to 0.75 mm., thence gradually enlarged to 2 mm. at throat, the lobes ovate, 8 mm. long, 4 mm. wide, rounded at tip; stamens reaching the mouth of the corolla tube, the filaments 0.75 mm. long, glabrous or bearing a few minute hairs at base, the anthers 1.75 mm. long, 0.5 mm. broad, glabrous; staminodes linear, 0.5 mm. long; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 1995094, collected in a wet forest glade along the Río Nuquí, Intendencia of Chocó, Colombia, about 300 meters altitude, January 25, 1947, by Oscar Haught (No. 5489).

Pseuderanthemum diachylum is characterized by its large leaves, attractive light purple flowers, and succulent texture. The plant from which the type was taken was the only one seen by the collector. The specific epithet is from the Greek, διάχυλος, meaning succulent.

4. Pseuderanthemum cladodes Leonard, sp. nov. Figure 270

Herbs up to 1 meter high; stems slender and profusely branched, furrowed, moderately pilose, the hairs spreading, up to 0.58 mm. long, evenly or sometimes bifariously distributed, the lowermost internodes 10 cm. long or more; leaf blades ovate, up to 6.5 cm. long and 3.5 cm. wide, slenderly acuminate, rounded at base, hirsute, the hairs mostly confined to the costa and lateral veins (4 or 5 pairs), up to 0.5 mm. long, the upper surface bearing numerous crowded whitish cystoliths, these very conspicuous under a lens and up to 0.13 mm. long; petioles about 4 mm. long, rather sparingly hirsute and conspicuously marked by cystoliths; flowers borne in lax spikes, these both terminal and axillary, up to 18 cm. long, forming loose terminal panicles up to 30 cm. long, the lowermost pairs of bracts subtending the axillary spikes resembling the stem leaves but slightly smaller and sessile, the other pairs progressively smaller toward tip of panicle, the lowermost pair of bracts subtending the flowers suborbicular, about 5 mm. in diameter, sessile, long-apiculate, the succeeding
floral bracts lanceolate, up to 3 mm. long and 1 mm. wide at base, acuminate, sparingly hirtellous, the lowermost internode of the flowering spike 1.5 to 2 cm. long, the others successively shorter, these and the internodes of the panicle hirsute, the hairs similar to those of the stems, the flowers borne in pairs at the nodes of the spike (sometimes accompanied by one or more rudimentary flowers); calyx about 5 mm. long, the segments lanceolate, 3 mm. long, 0.5 mm. wide at base, sparingly hirtellous; corolla lilac-red (Lehmann), glabrous, the tube up to 2.5 cm. long, very slender, 1.25 mm. in diameter at base, gradually reduced to 0.75 mm. about the middle and thence enlarged to 2 mm. at mouth, the lobes more or less spreading, obovate, about 8 mm. long and 3 mm. wide, rounded at tip; stamens included, 2.5 mm. long, glabrous; anthers 1.5 mm. long, 0.25 mm. broad; staminodes 0.5 mm. long; capsules clavate, 1.8 cm. long, the

Figure 270.—Pseuderanthemum cladodes Leonard (Lehmann 7266): a, A lower node showing leaf blade; b, inflorescence; c, portion of leaf blade (upper surface) showing cystoliths; d, bracts; e, calyx; f, stamen and staminode. (a, Natural size; b, half natural size; c, 20 times natural size; d, 4 times natural size; e, 5 times natural size; f, 10 times natural size.)
slender solid stipe 7 mm. long, 1 mm. in diameter, glabrous, the seed-bearing portion 3 mm. broad and about 1 mm. thick, sparingly puberulous, the hairs spreading, 0.11 mm. long, gland-tipped; seed flat, whitish, muricate.

Type in the Kew Herbarium, collected in a forest glade along the Rio Sucio, between Dabeiba and Uramita, Department of Antioquia, Colombia, 400 to 800 meters altitude, October 1891, by F. C. Lehmann (No. 7266).

According to Lehman's notes the plants of this species are "Weeds up to 1 m. in height with profusely ramified and thin stems." The leaves are "dark sap-green" and the flowers "lilac-red."

The specific epithet is from the Greek κλαδῶδης, abounding in young shoots, in allusion to the branching habit of the plant.

5. Pseuderanthemum haughtii Leonard
See page 293.

6. Pseuderanthemum idrobot Leonard
See page 295.

7. Pseuderanthemum leiophyllum Leonard
See page 297.

8. Pseuderanthemum poecilanthum Leonard
See page 299.

9. Pseuderanthemum galbanum Leonard, sp. nov. 

Frutex, caulibus deorsum glabris, sursum puberulis, pilis curvatis; lamina foliorum aliquanto magna, apice breviter acuminata (apice ipso rotundato), basi angustata, in petiolum decurrens, aliquanto firma, integra, utrinque glabra vel subtus in costa parce et minute puberula, cystolithis obscuris et raris; petioli breves, minute puberuli, pilis curvatis; racemi solitarii, terminales, rhache et pedunculis dense et minute puberulis, pilis glandulosis et acutis intermixtis; bracteae (par infimum sterile) lanceolatae, graciliter acutae, minute hirtellae, pilis glandulosis et acutis, plus minusve patulis intermixtis; bracteolae ovatae vel lanceolatae, acutae, aliquanto parce et minute hirtellae; pedicelli dense hirtelli, pilis glandulosis et acutis intermixtis; calycis segmenta anguste lanceolata, acuta, pilis glandulosis et acutis intermixtis; corolla galbana; capsulae graciles, minute hirtellae, pilis patulis vel ascendentibus, glandulosis et acutis intermixtis; semina brunneo-purpurea, plana, suborbicularia, crasse rugosa.

Shrubs up to 3 meters high; stems glabrous below, the upper portions puberulous, the hairs upwardly curved, up to 0.13 mm. long; leaf blades oblong, up to 19 cm. long and 9 cm. wide, short-acuminate (the tip itself rounded), narrowed at base and decurrent on the petiole, moderately firm, entire, both surfaces glabrous or the lower
minutely and sparingly puberulous on costa, cystoliths obscure and scattered; petioles up to 1 cm. long (including the wing at the base of the blade, this 6 to 7 mm. wide), minutely puberulous with upwardly curved hairs; racemes solitary, terminal, narrow and lax, the flower-bearing portion about 9 cm. long and 8 mm. broad, the peduncle 4 cm. long, the lowermost internode of the raceme 2 cm. long, the

![Figure 271. - Pseudanthemum galbanum Leonard (Garcia-Barriga 14377): a, Tip of plant; b, portion of rachis enlarged to show pubescence; c, leaf; d, calyx, pedicel, bracts and bractlets; e, portion of calyx segment enlarged to show pubescence; f, valve of capsule; g, seed. (a, c, Half natural size; b, e, about 50 times natural size; d, 3 times natural size; f, natural size; g, 3½ times natural size.)](image-url)

others successively shorter toward tip of inflorescence, both peduncle and rachis rather densely and minutely hirtellous with both glandular and acute hairs, these spreading or ascending and up to 0.25 mm. long; bracts (the lower pair without flowers) lanceolate, slenderly acute, the larger ones 4 mm. long and about 0.75 mm. wide at base, minutely hirtellous with a mixture of more or less spreading glandular and acute hairs; bractlets ovate to lanceolate, 2 mm. long, 0.75 mm. wide at base, acute, rather sparingly and minutely hirtellous; pedicels
rather stout, up to 2.5 mm. long, rather densely hirtellous with minute glandular and acute hairs; calyx segments narrowly lanceolate, 6.5 mm. long, 0.75 mm. wide at base, narrowed to a slender acute tip, minutely and more or less densely hirtellous with glandular and acute hairs; corolla not seen (greenish yellow, García-Barriga); capsules minutely hirtellous with glandular and acute, spreading or ascending hairs (up to 0.16 mm. long), the solid stipe about 1.5 cm. long, 2 mm. broad, curved after dehiscence, the seed-bearing tip (4-seeded) 12 mm. long, 8 mm. broad, 3 mm. thick, subacute; seed brownish-purple, flattened, suborbicular, 4 mm. broad and long, 2 mm. thick, coarsely wrinkled, the wrinkles more pronounced toward margins of seed.

Type in the U. S. National Herbarium, No. 2144877, collected in Caño Unguyá, at Jino-Gojé, between the Ríos Piraparaná and Popeyaká, tributaries of Río Apaporis, Amazonas-Vaupés, Colombia, 250 meters altitude, September 3–11, 1952, by H. García-Barriga (No. 14377).

In many respects Pseudanthemum galbanum resembles P. poecilanthum; the inflorescence, the shape and size of the bracts and bractlets, and the pubescence of the two species are practically identical. There are, however, several striking differences. P. poecilanthum is herbaceous, rarely if ever exceeding 30 cm. in height, the leaves are relatively smaller, and the flowers white with conspicuously purple-spotted lobes. In contrast, P. galbanum is a shrub or small tree as much as 3 meters high; its leaves are relatively larger, and the corollas are greenish yellow. It is to the color of the corolla that the specific epithet, galbanum, alludes.

10. Pseudanthemum micranthum Leonard, sp. nov.

Herba, caulibus subquadrangularibus, glabris vel parce et minute hirtellis, fere ascendentibus, cystolithis subpunctiformibus; lamina foliorum ob lanceolata, breviter acuminata (apice ipso obtuso), basi cuneata, marginibus recurvata et crispata, siccitate subpanduriformis tenuis, integra vel undulata, glabra, costa et venis minute hirtellis, pilis ascendentibus excepta, subtus costa venis et venulis crasse reticulatis prominentibus, supra obscuris; racemi graciles, laxi, terminales, solitarii vel terni, floribus in nodis paucis vel multis, pedunculis glabris vel parce hirtellis, rhache aliquanto dense puberula, pilis curvatis, pedicellis gracilibus, puberulis; bracteae triangulares, glabrae vel parce puberulae, acutae; bracteolae triangulares, parvae; calycis segmenta lanceolata, acuta, minute hirtella, pilis acutis, ascendentibus, pilis minutis glandulosis intermixtis; corolla parva, sursum puberula, basi glabra, lobis ovatis, rotundatis; stamina inclusa; ovarium minute hirtellum.
Herbs; stems subquadrangular, glabrous or sparingly and minutely hirtellous, the hairs up to 0.2 mm. long, mostly ascending, the cystoliths subpunctiform; leaf blades oblanceolate, up to 18.5 cm. long and 5.5 cm. wide slightly above middle, short-acuminate (the tip itself blunt), gradually narrowed to a crisped recurved apparently subpanduriform base, thin, entire or undulate, glabrous except the costa and veins (8 to 10 pairs), these minutely hirtellous with ascending hairs up to 0.16 mm. long, the costa, lateral veins and the coarsely reticulated veinlets prominent on the lower surface, obscure on the upper, the cystoliths scattered and inconspicuous; flowers usually several to numerous, forming dense fascicles up to 1 cm. broad and 0.5 cm. long at the nodes of the slender, lax, simple, forked or 3-parted racemes, the peduncles up to 10 cm. long, glabrous or sparingly hirtellous, bearing a pair of lance-ovate, acuminate, subsessile leaves up to

Figure 272.—*Pseuderanthemum micranthum* Leonard (*Triana* s. n.): a, Leaf and node; b, inflorescence; c, inflorescence (Col); d, node of inflorescence; e, a segment of the calyx; f, portion of calyx segment enlarged to show pubescence; g, corolla. (a–c, Half natural size; d, 3 times natural size; e, 15 times natural size; f, 40 times natural size; g, 4 times natural size.)
15 mm. long and 4 mm. wide, the lowermost internode of the raceme up to 7 cm. long, the others successively shorter, the rachis rather densely puberulous, the hairs upwardly curved, up to 0.3 mm. long; pedicels slender, up to 1.5 mm. long, puberulous; bracts subtending the flowers triangular, 1.5 mm. long and 0.75 mm. wide, glabrous or sparingly puberulous; bractlets similar but smaller; calyx segments 2 mm. long, 0.5 mm. wide at base, gradually narrowed to a slender acute tip, minutely hirtellous, the acute hairs up to 0.1 mm. long, ascending, these intermixed with a few shorter gland-tipped hairs; corolla 6 mm. long, puberulous toward tip, the tube 0.5 mm. broad, the mouth 1 mm. broad, the lobes ovate, 1.5 mm. long, about 1 mm. wide, rounded at tip; stamens included; ovary minutely hirtellous; capsules not seen.

Type in the Kew Herbarium, collected in the "Province of Buenaventura," Department of El Valle, Colombia, 1,600 meters altitude, July 1853, by J. Triana (No. 101-1). Isotype: Col.

The corollas of the type material were probably immature and thus smaller than fully developed ones. The color of the flower was not apparent in the dried material. The specific epithet is from the Greek μικρός, small, and ἀνθος, flower.

11. Pseuderanthemum ellipticum Turrill

See page 301.

Caldas: Thicket along stream east of Balen, Pennell 10625 (GH).

Cundinamarca: Densely wooded mountain in the vicinity of Laguna de Pedro Palo, 3 km. north of Tena, Municipio of Tena, 2,080 meters, May 19, 1952, Fernández & Mora 1442 (US).

12. Pseuderanthemum ewanii Leonard

See page 302.

Cundinamarca: Quebrada Chinita, Ewan 15629 (US, isotype).

13. Pseuderanthemum pennellii Leonard

See page 304.


See page 305.

15. Pseuderanthemum sneidernii Leonard

See page 306.

16. Pseuderanthemum atropurpureum (Bull) Bailey

See page 307.

17. Pseuderanthemum potamophilum Leonard

See page 308.

Putumayo: San José, Sprague s.n. (K).

388179—57—28
18. *Pseudanthemum hylophilum* Leonard

See page 310.

19. *Pseudanthemum chaponense* Leonard

See page 312.

20. *Pseudanthemum thelothrix* Leonard, sp. nov.

Figure 273

Herbs, caulibus basi plus minusve suffrutescentibus, erectis vel ascendentibus, subquadrangularibus, glabris vel sursum minute puberulis, pilis appressis; lamina foliorum ovata vel oblonga, plus minusve abrupte acuminata (apice ipso acuto, subinde curvato), basi angustata vel rotundata, in petiolum alatum decurrens, aliquanto firma, integra vel undulata, supra parce puberula, subtus minute et aliquanto dense puberula, pilis brunneis, curvatis, subappressis; petioli minute puberuli; flores solitarii vel in cymas parvas positi, paniculam plus minusve laxam terminalem formantes, pedunculo et rhache et pedicellis gracilibus, minute hirtellis, pilis curvatis, ascendentibus; bracteae subulatae vel lanceolato-subulatae, subglabrae vel parce et minute hirtellae; corolla alba, tubo basi glabro excepto minute glanduloso-puberula, lobis corollae spathulatis, apice rotundatis; stamina inclusa, glabra; staminodia glabra, gracilia.

Herbs, sometimes suffrutescent at base; stems erect or ascending, up to 30 cm. high or more; stems quadrangular, glabrous or the upper portions minutely puberulous, the hairs upwardly appressed, up to 0.2 mm. long; leaf blades ovate to oblong, up to 12 cm. long and 6 cm. wide, more or less abruptly acuminate (the tip itself acute and sometimes curved), rounded or narrowed at base, passing into a winged petiole, moderately firm, entire or undulate, the upper surface sparingly puberulous, the hairs up to 0.28 mm. long, the lower surface rather densely and minutely puberulous, the hairs brownish, curved, subappressed, up to 0.2 mm. long, the cystoliths obscure or lacking; petioles up to 5 cm. long, the wing 1 to 1.5 cm. wide at base of blade, gradually narrowed to or below the middle of the petiole, the petiole itself minutely brown-puberulous; flowers solitary or in cymules up to 2 cm. long, several to each node forming a rather loose terminal raceme up to 7 cm. long and 2 to 3 cm. broad at base, the lowermost internode of the inflorescence about 2 cm. long, the others successively shorter, the peduncles 3 to 4 cm. long, these and the branches of the panicle including the pedicels (slender and up to 5 mm. long) minutely hirtellous, the hairs ascending, curved, up to 0.13 mm. long; nodal bracts lance-subulate, up to 8 mm. long and 1 mm. wide near base, the bracts subtending the pedicels similar but smaller, 1.5 to 3 mm. long, 0.25 to 0.5 mm. wide at base, all subglabrous to sparingly and minutely hirtellous with curved hairs; calyx segments linear, 5 mm.
long, 0.5 mm. wide at base, rather sparingly and minutely hirtellous; flowers white, the tube (8 mm. long and about 1 mm. in diameter) densely covered without by minute glandular hairs up to 0.05 mm. long, the corolla lobes spathulate, about 5 mm. long, 2 mm. wide above middle, rounded at tip, papillose but less densely so than the tube; stamens included, reaching within 1.5 mm. of the mouth of

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![Figure 273.](image)

*Figure 273. - Pseuderanthemum thelothrix* Leonard (Core 819): a, Tip of plant; b, stem node showing leaf and branchlet; c, node of inflorescence (second from base); d, calyx; e, corolla; f, portion of corolla tube enlarged to show pubescence; g, stamen and staminode. (a, b, Half natural size; c, 1½ times natural size; d, 3½ times natural size; e, 3 times natural size; f, about 70 times natural size; g, 5 times natural size.)

the corolla tube, glabrous, the filaments 1.25 mm. long, the anthers 1.5 mm. long, 0.75 mm. broad; staminodes slender, 0.5 mm. long; ovary glabrous; capsules not seen.

Type in the U. S. National Herbarium, No. 2105340, collected in moist thicket along road between Alto del Tigre and El Socorro, east of Argelia, Department of Antioquia, Colombia, 900 to 1,710 meters altitude, June 1, 1944, by Earl L. Core (No. 819).
*Pseuderanthemum thelothrix* is near *P. chaponense* in its relationship and general appearance. The pedicels of *P. chaponense*, however, do not exceed 1 mm. in length, whereas in this new species they are noticeably slender and are usually as much as 5 mm. long.

The specific epithet is from the Greek ὅηλη, nipple, and ὑπί, hair, in allusion to the papillose puberulence of the corolla.

21. *Pseuderanthemum stenosiphon* Leonard

See page 314.

**Bolívar:** Edge of forest at Antizales, *Pennell* 4453 (NY).

22. *Pseuderanthemum cuatrecasasi* Leonard

See page 316.

**Cauca:** Forest at La Gallera, *Killip* 7742 (GH); 7783 (GH). In primitive forest of La Costa, vicinity of El Tambo, 800 to 1,000 meters altitude, *von Sneidern* 493 (S); 612 (S); 617 (S); 775 (S); 809 (S); 822 (S). Munchique, vicinity of Tambo, 2,500 meters altitude, *von Sneidern* 821 (S).

**El Valle:** Woods of La Laguna, valley of the Río Sanjuniquín, 1,250–1,400 meters altitude, December 10–20, 1943, *Cuatrecasas* 15506 (US).

The specimens cited above are all large-leaved plants closely resembling *Killip’s* No. 7742. The leaves of the type specimen, *Cuatrecasas’* No. 21646, are atypical in size, being the smaller leaves of terminal secondary branches. The leaf blades of *Killip’s* No. 7742 are as much as 18 cm. long and 5.5 cm. wide.

23. *Pseuderanthemum dawei* Turrill

See page 318.

**El Valle:** La Cumbre, *Killip* 5962 (GH, NY).

**Without definite locality:** “Andes de Mariquita i Antioquia,” 2,200 meters altitude, February 1852, *Triana* s.n. (Col).


*Herba, caulibus subquadrangularibus, glabris vel in nodis parce hirtellis, pilis ascendentibus; lamina foliorum obovata, breviter acuminata, basi cuneata, submembranacea, integra vel undulata, utrinque glabra, costa et venis lateralibus parce hirtellis; petioli parce hirtellis, aliquanto breves; panicula modice densa, anguste ovoidea, apice acuta, rhachibus aliquanto dense pubescentibus, pilis septatis, pedunculo aliquanto longo, hirtello; bracteae infimae lanceolatae, apice acuta, subobtusae, recurvatae, intus glabrae, extus hirtellae; bracteae flores subtendentes lanceolatae, carinatae, hirtellae; pedicelli graciles, aliquanto parce hirtelli; calycis segmenta anguste lanceolata, apice acuta, glabra vel apice parce hirtella; corolla sursum puberula, basi glabra, lobis ovatis, rotundatis; stamina inclusa; staminodia parva, curvata; ovarium glabrum.*
Herbs; stems subquadrangular, glabrous or sparingly hirtellous at and near the nodes, the hairs ascending, 0.28 mm. long; leaf blades obovate, up to 16 cm. long and 5.8 cm. wide above middle, short and rather abruptly acuminate (the tip itself blunt), narrowed at base, rather thin, entire or undulate, both surfaces glabrous except costa and lateral veins (8 to 10 pairs), these sparingly hirtellous, the hairs up to 0.16 mm. long, subappressed, the venation of both surfaces scarcely prominent but more so beneath than above; petioles up to 6 mm. long and 1.25 mm. thick, sparingly hirtellous, the hairs similar to those on the stems; panicles rather dense, up to 8 cm. long and 3 cm. broad, narrowly ovoid and acute at tip, the branches (1 to 2 pairs at each node) mostly 3 to 4 cm. long, the rachises rather densely pubescent with ascending hairs up to 0.25 mm. long, these conspicuously septate under a lens, the peduncle 4.5 cm. long, 1.75 mm. thick, hirtellous, the hairs similar to those of the rachises but not so numerous, the first internode of the panicle 2.5 cm. long,
the others successively shorter; bracts subtending the branches of the panicle lanceolate, 6 mm. long, 1.5 mm. wide near base, narrowed to an acute bluntish recurved tip, the inner surface glabrous, the outer hirtellous, the hairs similar to those of the rachises; bracts subtending the flowers lanceolate, 3 mm. long, 0.75 mm. wide at base, carinate, hirtellous; pedicels up to 5 mm. long, rather sparingly hirtellous; calyx 5 mm. long, the segments narrowly lanceolate, 4 mm. long, 0.75 mm. wide near base, narrowed to an acute tip, glabrous or bearing a few hairs on tips and margins; corolla 1 cm. long, moderately puberulous except the glabrous base (the hairs about 0.08 mm. long), the tube 1.5 mm. broad at base, narrowed above ovary to 0.75 mm., thence gradually enlarged to 1.5 mm. at mouth, the lobes ovate, about 2 mm. long and 1.25 mm. wide, rounded at tip; stamens included, 2.5 mm. long, the anthers 1.5 mm. long, the staminodes 1 mm. long, curved; ovary glabrous; capsules not seen.

Type in the Kew Herbarium, collected in the "Prov. del Chocó," Colombia, 150 meters altitude, March 1853, by J. Triana (No. 101-5).

The color of the corolla is not apparent in the dried material.
APPENDIX
LIST OF NUMBERED SPECIMENS
Parts I-III

ALFARO-P., S.
27. Hygrophila guianensis

ALLEN, CYRIL
25. Justicia laevilinguis
368. Odontonema bracteolatum var. parviflorum
628. Justicia chaetocephala
841. Blechum brownei f. puberulum
844. Justicea sciotia (type)
845. Aphelandra pulcherrima
863. Ruellia macrophylla
866. Odontonema bracteolatum
876. Trichanthera gigantea
912. Teliostachya alopecuroidea
913. Justicea pectoralis
934. Ruellia geminiflora

ALLEN, PAUL H., AND ALLEN, DOROTHY O.
3229. Ruellia tubiflora var. tetrastichantha

ANDRÉ, EDOUARD
266. Sanchezia pennellii
287. Aphelandra glabrata
301. Justicea comata
402. Ruellia pennellii
447. Justicea phytolaccoides
512. Sanchezia pennellii
513. Sanchezia pennellii
665. Stenandrium dulce
900. Ruellia tubiflora var. tetrastichantha
1014. Ruellia tubiflora var. tetrastichantha f. bicolor
1055. Aphelandra lampantha (type)
1094. Justicea ischnorachis
1203. Ruellia aurantiaca (type)
1439. Ruellia ischnopoda
1445. Ruellia tolimensis
1517. Justicea fusagasugana (type)
1658. Aphelandra conformis (type)
1713. Ruellia tuberosa
1859bis. Ruellia geminiflora
1865. Ruellia lorentziana
1881. Ruellia ischnopoda
2047. Aphelandra acanthus
2406. Ruellia lasiostachya
2848. Ruellia rusbyi
2916. Ruellia ischnopoda
4061. Aphelandra andrei (type)

antonio-miguel, brother
121. Ruellia fulgida var. angustissima

apolinar-angel, brother
488. Justicea bracteosa
490. Justicea leucerythra
491. Aphelandra pulcherrima
496. Ruellia paniculata
515. Ruellia macrophylla
704. Hygrophila guianensis
762. Pseuderanthemum atropurpureum

apolinar-maria, brother
92. Justicea sanchesioloides
157. Justicea pectoralis

araque-m., jorge, & barkley, fred a.
18an.360. Ruellia geminiflora var. angustifolia
19an.032. Aphelandra blandii
19at.081. Aphelandra pulcherrima
19bo.033. Aphelandra pulcherrima
19bol.83. Elytraria imbricata
19ch.034. Thumbeginia grandiflora
19ch.058. Justicea comata
19ch.112. Justicea comata
18m.015. Justicea filibracteolata var. leucantha

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18M.018. Justicia ischnorhachis
18M.026. Justicia filibracteolata var. leucantha
18M.027. Justicia filibracteolata var. leucantha
18M.033. Aphelandra barkleyi (type)
18M.041. Hygrophila guianensis
18M.054. Telioestachya lanceolata
18M.058. Ruellia tubiflora var. tetras-tichantha f. bicolor
18NS.106. Ruellia tuberosa
18NS.153. Ruellia tuberosa
18S.212. Trichanthera corymbosa
18S.247. Hygrophila guianensis
18S.275. Justicia bracteosa
18S.316. Tetramerium nervosum
18S.321. Tetramerium nervosum
18S.341. Habracanthus smithii
18Vsn.068. Sanchezia pennellii
18V1.128. Mendoncia hirsuta

ARAQUE-M., JORGE; OTALORA, ANTONIO; & BARKLEY, FRED A.
18NS.066. Aphelandra pulcherrima

ARCHER, W. A.

14. Blechum brownei f. puberulum
47. Thunbergia alata
88. Blechum brownei f. puberulum
460. Hygrophila guianensis
523. Trichanthera gigantea
574. Trichanthera gigantea
638. Justicia filibracteolata
818. Mendoncia gracilis
871. Justicia filibracteolata
899. Hygrophila guianensis
1093. Aphelandra runcinata
1354. Dicliptera scandens (type)
1417. Blechum brownei f. puberulum
1640. Justicia archeri (type)
1673. Pseuderanthemum chilianthium
1708. Mendoncia glabrescens
1731. Aphelandra lingua-bovis
1803. Sanchezia pennellii
1925. Justicia comata
2003. Aphelandra dolichantha
2012. Aphelandra lingua-bovis (type)
2097. Pseuderanthemum chillianthium
2120. Pseuderanthemum chillianthium
2174. Sanchezia lutea (type)
2220. Justicia comata

ARISTE-JOSEPH, BROTHER

A224. Habracanthus microcalyx (type)
A360. Aphelandra glabrata
A375. Pseuderanthemum atropurpureum
A946. Ruellia paniculata
A973. Ruellia tubiflora
1019. Aphelandra glabrata
1055. Thunbergia alata
1061. Trichanthera gigantea
1081. Aphelandra grandis
1082. Justicia filibracteolata
1085. Kalbreyeriella rostellata

BARKLEY, FRED A.
17C.345. Blechum brownei f. puberulum

BARKLEY, FRED A., & ARAQUÉ-M., JORGE

20. Ruellia tuberosa
21. Ruellia tuberosa
22. Ruellia lorentziana

BARKLEY, FRED A.; ARAQUÉ-MOLINA, JORGE; & GÓMEZ-J., JAVIER

406. Justicia chlorostachya
424. Aphelandra runcinata

BARKLEY, FRED A., & ARBOLEDA-R., L. L.

3. Thunbergia fragrans

BARKLEY, FRED A.; BARROS-N., OVIDIO; & ALVAREZ-A., RICARDO

381. Blechum brownei f. puberulum
393. Ruellia tuberosa

BARKLEY, FRED A.; CORREA-V., JAIRO; & PÉREZ-F., CÉSAR A.

102. Justicia chlorostachya

BARKLEY, FRED A.; CORREA-V., JAIRO; & POSADA-S., SAMUEL

101. Aphelandra runcinata

BARKLEY, FRED A., & GUTIÉRREZ-V., GABRIEL

1834. Ruellia paniculata
1835. Ruellia inundata
1836. Elytraria imbricata
1857. Dicliptera assurgens
Barkley, Fred A.; Klevens, Milton Jon; & Gutíerrez-V., Gabriel

17C.380. Ruellia tuberosa

Barkley, Fred A.; Rfos-C., Danilo; & Betancourt-O., Alberto

618. Aphelandra scolnikae

Barkley, Fred A.; Skolnik, Rosa; & Gómez, Javier

413. Justicia comata

Barkley, Fred A.; Skolnik, Rosa; & Orozco, Tomás G.

523. Aphelandra scolnikae (type)

Barkley, Fred A.; Skolnik, Rosa; & Ramírez, Emilio

522. Justicia chlorostachya

Bechara-Zainum, Juan; Araque-M., Jorge; & Barkley, Fred A.

19Bo.085. Blechum brownei f. puberulum
19Bo.094. Justicia comata
19Bo.218. Aphelandra pulcherrima

Billberg, Johan I.

1. Tetramerium nervosum
3. Ruellia paniculata
113. Elytraria imbricata

Camillo, H. Antonio

78. Sanchezia lutea

Cardona-González, Luis; Gutíerrez-V., Gabriel; & Barkley, Fred A.

18C.049. Justicia pectoralis
18C.077. Aphelandra daemonia
18C.089. Odontonema bracteolatum

Cervantes, Julio; Araque-M., Jorge; & Barkley, Fred A.

19Bo.054. Blechum brownei f. puberulum
19Bo.066. Ruellia tuberosa

Cheesman, L. E.

533. Ruellia gorgonensis (type)

Collenette, C. L.

557. Sanchezia lutea
630. Aphelandra arisema
614. Justicia petraea (type)

Core, Earl L.

591. Habracanthus pilosus
819. Pseuderanthemum thelothrix (type)
825. Mendonecia lindavil
1200. Habracanthus corei (type)
1323. Neriacanthus lehmannianus
1324. Neriacanthus lehmannianus
1377. Kalbreyeriella rostellata
1482. Blechum brownei f. puberulum
1501. Trichanthera gigantea
1558. Aphelandra cuatrecassii
1619. Aphelandra huilensis

Cuatrecasas, J.

209. Habracanthus callianthus
214. Dicliptera sciaphila (type)
1088. Ruellia tuberosa
1119. Ruellia tuberosa
1924. Trichanthera gigantea
1985. Telioschychyavirus var. crispa
3577. Justicia comata
3810. Aphelandra deppeana
3816. Aphelandra deppeana
3978. Justicia comata
4046. Aphelandra deppeana
4139. Justicia filibracteolata
4195. Aphelandra deppeana
4269. Justicia periplocifolia
4422. Blechum brownei f. puberulum
4513. Justicia filibracteolata var. leucantha (type)
4518. Justicia ischnorhachis
4535. Ruellia tubiflora var. tetristichantha
4536. Ruellia humboldtiana
4538. Aphelandra barkleyi
4591. Ruellia tubiflora var. hirsuta (type)
4627. Sanchezia lutea
4631. Ruellia tubiflora var. tetristichantha
4701. Justicia filibracteolata var. aurantiaca
4709. Justicia ischnorhachis
4727. Ruellia geminiflora
6878. Aphelandra deppeana
7075. Ruellia humboldtiana
7223. Aphelandra pilosa (type)
7317. Ruellia humboldtiana
7339. Aphelandra deppeana
7383. Justicia croceochlamys
7422. Sanchezia pennellii
7456. Aphelandra impressa
7478. Aphelandra pilosa
7536. Justicia hyperdasya (type)
7542. Justicia hyperdasya
7586. Teliostachya lanceolata
7640. Ruellia geminiflora var. anguetifolia
8519. Habracanthus floriferus (type)
8740. Habracanthus cuatrecasassii (type)
9052. Aphelandra pilosa
9064. Mendoneia pilosa
9147. Justicia filibracteolata var. lilacinna (type)
10524. Justicia polygonoides
10529. Ruellia tubiflora
10529a. Ruellia tolimensis (type)
10562. Aphelandra pilosa
10581. Justicia sanchezoides (type)
10629. Pseuderanthemum potamophilum (type)
10656. Aphelandra pilosa
10671. Pseuderanthemum poecilanthurum (type)
10733. Trichanthera gigantea
10757. Justicia idiogenes (type)
10848. Justicia hygrobia (type)
10918. Sanchezia pennellii
10919. Sanchezia putumayensis
10933. Justicia chloanantha
11007. Aphelandra impressa
11027. Ruellia colorata
11044. Teliostachya lanceolata
11051. Sanchezia pennellii
11086. Pseuderanthemum potamophilum
11109. Sanchezia speciosa
11134. Mendoneia cuatrecassii (type)
11137. Justicia chloanantha (type)
11157. Justicea pelianthia (type)
11231. Sanchezia parvibracteata
11241. Hygrophila guianensis
11271. Kalbreyeriella gigas (type)
11276. Ruellia tubiflora var. parviflora f. alba (type)
11352. Aphelandra crispata (type)
11435. Habracanthus aglaus (type)
11631. Aphelandra phobera
12873. Aphelandra macrophylla (type)
12883. Aphelandra parvispica (type)
12897. Aphelandra macrophylla
12976. Ruellia humboldtiana
13061. Justicia stereostachya (type)
13109, in part. Mendoneia cocinea var. elliptica
13109, in part. Mendoneia sprucii
13109. Justicea unguiculata
13374. Aphelandra impressa
13382. Justicea ischnorachis
13437. Trichanthera gigantea
13731. Justicea chryosea (type)
14111. Justicea comata
14236. Hygrophila guianensis
14345. Justicea comata
14346. Hygrophila tyttha
14461. Thunbergia alata
14510. Blechum brownii f. puberulum
14530. Ruellia malacosperma
15035. Ruellia potamophilica
15100. Kalbreyeriella rostellata
15205. Mendoneia glabrescens
15216. Mendoneia cordata (type)
15275. Jacobinia tinctoria
15303. Justicea chlorostachya
15317. Pseuderanthemum hylophilum (type)
15388. Kalbreyeriella rostellata
15400. Aphelandra arborescens (type)
15436. Aphelandra leiophylla (type)
15438. Justicea chlorostachya
15468. Dicliptera saroecromosa (type)
15506. Pseuderanthemum cuatrecassii
15625. Neriacanthus grandiflorus (type)
15916. Justicea comata
16003. Justicea comata
16060. Justicea comata
16069. Aphelandra hartwegiana
16322. Sanchezia pennellii
16334. Blechum brownei f. puberulum
16355. Aphelandra hartwegiana
16424. Ruellia colombiana (type)
16433. Pseuderanthemum ctenospermum (type)
16444. Justicea chlorostachya
16672. Hygrophila tyttha
16705. Aphelandra cuatrecassii (type)
16811. Justicea sterea (type)
16847. Mendoneia glabrescens
17093. Justicea comata
17101. Hygrophila tyttha
17182. Mendoncia glabrescens
17231. Aphelandra hartwegiana
17235. Mendoncia glabrescens (type)
17317. Justicia malacophylla (type)
17529. Mendoncia litoralis (type)
17605. Aphelandra hartwegiana
17736. Pseuderanthemum chilianthium
18314. Mendoncia gracilis
18484. Aphelandra phobera (type)
18515. Habracanthus pycnostachys (type)
18656. Blechum brownei f. puberulum
18716. Teliostachya lauceolata
18751. Aphelandra arborescens
18783. Dicliptera cuatrecasasii (type)
19710. Ruellia ischnopoda
20236. Aphelandra euopla (type)
20941. Justicia malacophylla (type)
21205. Sanchezia pennellii
21206. Aphelandra hartwegiana
21246. Hygrophila tytthta
21428. Justicea killipii
21641. Mendoncia microidnamys
21646. Pseudoranthemum cuatrecasasii (type)
22063. Justicea comata
22210. Justicea chlorostachya
22266. Justicea chlorostachya
22283. Aphelandra porphyrolepis (type)
22284. Aphelandra taboresis (type)
22620. Justicea filibracteolata
22631. Trichanthera gigantea
22728. Kalbreyeriella rostellata
22764. Thunbergia alata
22770. Justicea polygonoides
23321. Aphelandra acanthus
23462. Aphelandra hulillens
23467. Jacobinia amphibola (type)
23468. Habracanthus caucensis (type)
23848. Pseudoranthemum cuatrecasasii
23866. Hygrophila guianensis
23929. Habracanthus pycnostachys
23947. Ruellia potamophila
23947. Ruellia potamophila
24419. Habracanthus trichotus (type)
24511. Justicea fuchsiifolia (type)
25156. Aphelandra parvispica

Curran, H. M.
54. Trichanthera gigantea
99. Aphelandra deppeana
111. Aphelandra deppeana
222. Bravaisia integerrima
264a. Ruellia obtusa
308. Bravaisia integerrima
317. Bravaisia integerrima
315. Aphelandra pulcherrima
415. Ruellia tuberosa

Daniel, Brother
897. Hygrophila guianensis
1790. Justicea filibracteolata
2172. Aphelandra runcinata
2970. Dicliptera danielli (type)
2974. Mendoncia gracilis
3965. Hygrophila guianensis
4024. Aphelandra runcinata var. pilosa

Daniel, Brother, & Tomás, Brother
2589. Aphelandra blandii
3366. Justicea filibracteolata

Dawe, M. T.
201. Stenandrium dulce
229. Mendoncia lindavii
440. Justicea chaetocephala
616. Ruellia macrophylla
766. Aphelandra runcinata
789. Ruellia macrophylla
847. Pseudoranthemum daweii (type)
900. Aphelandra pilosa

Dryander, E.
47. Trichanthera gigantea
413. Thunbergia fragrans
681. Aphelandra arborescens
2940. Neriacanthus lehmannianus
2988. Neriacanthus lehmannianus
2337. Ruellia guminiflora

Dugand, A.
13. Bravaisia integerrima
83. Bravaisia integerrima
108. Bravaisia integerrima
412. Bravaisia integerrima
542. Bravaisia integerrima
580. Bravaisia integerrima
1063. Ruellia paniculata
3605. Pseudoranthemum atropurpureum
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3623. Elytraria imbricata
3630. Ruellia inundata
3633. Ruellia paniculata
3639. Elytraria imbricata
4014. Ruellia inundata
4420. Blechum brownii f. puberulum
4427. Ruellia inundata

DUGAND, A., & GARCÍA-BARRICA, H.

2272. Justicia bracteosa
2273. Aphelandra pulcherrima
2287. Justicia leucerythra
2318. Elytraria imbricata
2324. Bravaisia integerrima
2343. Justicia carthaginensis
2354. Justicia carthaginensis
2362. Ruellia paniculata
2369. Ruellia obtusa
2371. Dicliptera assurgens
2383. Ruellia obtusa
2384. Blechum brownii f. puberulum
2436. Ruellia inundata
2445. Ruellia paniculata
2493. Odontonema bracteolatum
2535. Barleria cristata
2539. Ruellia obtusa
2545. Ruellia paniculata
2549. Aphelandra pulcherrima

DUGAND, A., & JARAMILLO, R.

2701. Aphelandra pulcherrima
2725. Elytraria imbricata
2740. Ruellia paniculata
2767. Elytraria imbricata
2797. Ruellia inundata
2798. Dicliptera vahliana
2800. Aphelandra pulcherrima
2852. Odontonema bracteolatum
2920. Ruellia tubiflora var. tetrastricta
3113. Ruellia humboldtiana
3117. Aphelandra pilosa
3242. Ruellia obtusa
3280. Ruellia obtusa
3871. Mendoncia gracilis
4053. Aphelandra pulcherrima
4061. Barleria micans
4091. Ruellia paniculata
4094. Bravaisia integerrima
4096. Justicia bracteosa
4154. Barleria micans

4153. Odontonema bracteolatum var. parviflorum
4155. Ruellia macrophylla
4160. Justicia leucerythra
4164. Blechum brownii f. puberulum

DUQUE, J. M.

1051. Justicia comata
1339. Justicia pectoralis var. stenophylla
1396. Thunbergia fragrans
1446. Ruellia lorentziana
1570A. Jacobinia magnifica
1660. Habracanthus pycnostachys
1701. Jacobinia tinctoria
1804. Thunbergia fragrans

ELIAS, BROTH3

143. Pseuderanthemum atropurpureum
160. Elytraria imbricata
234. Pseuderanthemum atropurpureum
247. Ruellia obtusa
287. Justicia lacvilinguis
351. Justicia carthaginensis
433. Ruellia paniculata
440. Aphelandra pulcherrima
444. Bravaisia integerrima
473. Nelsonia brunelloides
487. Bravaisia integerrima
496. Justicia bracteosa
502. Barleria cristata
622. Asystasia gangetica
670. Justicia bracteosa
676. Blechum brownii f. puberulum
681. Justicia leucerythra
695. Ruellia macrophylla
705. Aphelandra pulcherrima
707. Ruellia inundata
720. Ruellia paniculata
735. Barleria micans
742. Odontonema bracteolatum
746. Ruellia inundata
753. Barleria cristata
788. Ruellia macrophylla
794. Thunbergia grandiflora f. alba
(type)
821. Ruellia paniculata
857. Ruellia inundata
860. Aphelandra pulcherrima
915. Elytraria imbricata
952. Bravaisia integerrima
974. Bravaisia integerrima
757

980. Barleria cristata
988. Ruellia obtusa
1034. Justicia carthaginensis
1155. Ruellia inundata
1180. Justicia bracteosa
1265. Bravaisia integerrima
1375. Ruellia paniculata
1385. Ruellia inundata
1408. Thunbergia grandiflora
1411. Justicia leucerythra
1498. Justicia bracteosa
1507. Bravaisia integerrima

EWAN, JOSEPH A.

15622. Stenandrium humboldtianum
15628. Dicliptera ewanii (type)
15629. Pseuderanthemum ewanii (type)
15732. Aphelandra runcinata
15833. Thunbergia grandiflora f. citrina (type)
16501. Aphelandra glilva (type)
16785. Ruellia tubiflora var. parviflora (type)

FERNÁNDEZ, A.

254. Aphelandra fernandezii (type)
350. Justicia filibracteolata
354. Aphelandra hartwegiana

FERNÁNDEZ, A., & MORA, L. E.

1442. Pseuderanthemum ellipticum

FOSBERG, F. R.

19129. Mendoncia sprucei
19131. Aphelandra coccinantha (type)
19492. Justicia macarenensis
19791. Hanstelia charitopes (type)
19941. Habracanthus caucensis
20115. Jacobinia amphibola
20160. Ruellia humboldtiana
20386. Hygrophila guianensis
20901. Habracanthus ampelinus
21113. Aphelandra acanthus
21244. Justicia atacta (type)
21438. Dicliptera assurgens
21445. Ruellia humboldtiana
22126. Ruellia tuberosa

FOSBERG, F. R., & FASSETT, N. C.

21733. Habracanthus syscius (type)
21809. Aphelandra trichota (type)

Foster, M. B.

2360. Ruellia tuberosa

Funck, Nicolas, & Schlim, Louis Joseph

694. Ruellia tuberosa

GABRIEL, H. ANTONINO

6. Stenandrium dulce

García-Barriga, H.

3067. Justicia filibracteolata
4314. Trichanthera gigantea
4702. Blechum brownei f. puberulum
4704. Thunbergia alata
4857. Habracanthus sclonikae
5107. Ruellia giminiflora
5126. Ruellia humboldtiana
5131. Ruellia giminiflora var. angustifolia
5158. Ruellia giminiflora
5177. Dicliptera ochrochlamys (type)
5181. Phaulopsis oppositifolia
5196. Ruellia giminiflora
5394. Mendoncia lindavii
6327. Hygrophila guianensis
7658. Trichanthera gigantea
7720. Mendoncia odorata
8337. Mendoncia gracilis
8341. Justicia phytolaccoides
8346. Justicia phytolaccoides
10998. Ruellia longifilamentosa
11128. Pseuderanthemum chilianthium
11524. Hygrophila guianensis
11727. Aphelandra deppeana
12049. Pseuderanthemum atropurpureum
12114. Trichanthera gigantea
12137. Ruellia tuberosa
12148. Ruellia tuberosa
12193. Trichanthera gigantea
12203. Trichanthera gigantea
12268. Aphelandra lasia
12273. Aphelandra acanthus
12322. Ruellia fulgida var. angustissima
12323. Aphelandra lasia
12347. Dicliptera columbiana
12353. Justicia phytolaccoides
12355. Dicliptera columbiana (type)
12358. Aphelandra glabra
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<th>Species Name</th>
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<td>Justicia polygonoides</td>
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<td>Jacobinia magnifica</td>
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| 587. Aphelandra mildbraediana |

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| 50. Justicia bracteosa |

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38155. Apheleandra glabrata
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38289. Chaetochlamys columbiensis
38346. Apheleandra longispica (type)

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33671. Justicia chlorostachya (type)
33678. Neriacanthus lehmannianus
33889. Neriacanthus lehmannianus

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8795. Justicia chlorostachya
11152. Neriacanthus lehmannianus

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5056. Dicliptera koiei (type)

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| | B.T.654. Blechum brownei f. puberulum | 1893 |
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| 7846. Aphelandra runcinata | 1893 |
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| | 7930. Trichanthera gigantea | 1893 |
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| | 30075. Ruellia pennellii | 1893 |

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18VC.000. Ruellia geminiflora

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35. Habracanthus heliophilus (type)

Mutis, José Celestino

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720. Aphelandra glabrata
725. Justicia polygonoides
892. Justicia phytolaccoides
894. Mendoncia lindavii
895. Mendoncia villosa
916. Mendoncia mutisii (type)
924. Mendoncia lindavii

1488. Justicia comata
1489. Aphelandra deppeana
1494. Aphelandra aurantiaca
1498. Ruellia ischnopoda
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1501. Aphelandra straminea
1502. Aphelandra longispica
1503. Justicia phytolaccoides
1504. Aphelandra glabrata
1508. Habracanthus hylobius
1509. Aphelandra chaponensis
1512. Justicia filibracteolata
1943. Aphelandra phobera
3904. Justicia chaetocephala

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1. Sanchezia pennellii
27. Ruellia macrophylla

Noval, Maria Di Palma, & Barkley, Fred A.

18C.484. Aphelandra runcinata

Paul, Brother

B-7. Elytraria imbricata
B-19. Justicia laevilinguis
B-26. Dieliptera vahliana
B-34. Ruellia paniculata
B-36. Ruellia inundata
C-11. Ruellia obtusa

25. Pseuderanthemum atropurpureum
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1397. Mendoncia lindavii
1473. Justicia comata
1475. Mendoncia lindavii
1478. Ruellia tubiflora var. tetrastichantha f. bicolor
1551. Hygrophila guianensis
1630. Ruellia humboldtiana
1714. Justicia filibracteolata var. leucantha
2191. Stenandrium dulce
2667. Habracanthus callianthus
2700. Pseuderanthemum ellipticum
2722. Justicia carthaginensis
2783. Ruellia geminiflora
2812. Justicia carthaginensis
2831. Justicia crythrantha
2842. Thunbergia alata
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3218. Hygrophila guianensis
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3675. Ruellia geminiflora
3752. Blechum brownei f. puberulum
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4178, in part. Ruellia pennellii
4182. Ruellia colombiana
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4206, in part. Justicia pectoralis
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5788. Dicliptera driophila
5977. Dicliptera caucensis (type)
6183. Justicia chlorostachya
6260. Habracanthus hylobius
6267. Justicia chlorostachya
6332. Trichanthera gigantea
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PHILIPSON, W. R., & IDROBO, J. M.

1794. Justicia cystolithosa

PHILIPSON, W. R.; IDROBO, J. M.; & FERNÁNDEZ, A.

1351. Aphelandra barkleyi
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1580. Justicia filibracteolata var. leucantha
1627. Justicia filibracteolata var. lila-
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1627a. Teliostachya lanceolata var. crispa
1634. Justicia filibracteolata var. lilacina
1639. Trichanthera gigantea
1722. Sanchezia pennellii

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2046. Ruellia potamophila
2146. Justicia cystolithosa
2183. Justicia oreopala (type)

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610. Neriacanthus lehmannianus
1506. Fittonia verschaffeltii

PRING, GEORGE H.

36. Stenandrium dulce

RECORD, S. J.

35. Justicia rohrii
36. Aphelandra daemonia

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605. Blechum brownei f. puberulum

ROMERO-CASTANEDA, R.

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18C.316. Blechum brownei f. puberulum
18C.388. Aphelandra incarnata
18C.430. Justicia phlebophylla

RUSBY, H. H.

4799. Ruellia obtusa

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167. Ruellia tuberosa
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398. Ruellia geniniiflora
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486. Chaetothylax hulensis (type)
487. Dicliptera rhombochlamys (type)
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548. Ruellia rusbyi
891. Aphelandra porphyrocarpa (type)
1000. Ruellia rusbyi (type)
1060. Ruellia ischnopoda
1104. Ruellia ischnopoda
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1178. Blechum brownei f. puberulum

SANDERMAN, CHRISTOPHER

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5814. Justicia ischnorhachis
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757. Ruellia humboldtiana
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813A. Justicia unguiculata (type)
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278. Aphelandra deppeana
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SCHULTES, RICHARD EVANS

3480. Fittonia verschaffeltii
3507. Ruellia colorata
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18455. Aphelandra pilosa
18556. Justicia pectoralis

SCHULTES, RICHARD EVANS, & BLACK, GEORGE A.

8317. Justicia blackii (type)
8697. Justicia blackii

SCHULTES, RICHARD EVANS, & CABRERA, ISIDORO

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12679. Justicia cabrerae
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12703. Justicia chlorostachya
13322. Justicia schultesii (type)

SCHULTES, RICHARD EVANS, & LÓPEZ, FRANCISCO

10400K. Mendoncia lasiophyta (type)

SCHULTES, RICHARD EVANS, & VILLARREAL, MARDOQUEO

7740. Habracanthus putumayensis (type)

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1636. Pseuderanthemum chillianthium

SCOLNIK, ROSA; ARAQUE-M., JORGE; & BARKLET, FRED A.

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19An439. Justicia filibracteolata
19An340. Habracanthus erythranthhus (type)
19An478. Mendoncia lindavii

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428. Justicia chlorostachya

SCOLNIK, ROSA; BARVA LÓPEZ, NEMESIO; & BARKLET, FRED A.

19An199. Habracanthus scolnikiae (type)
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624. Ruellia tuberosa

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178. Ruellia fulgida var. angustissima

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81. Blechum brownei f. puberulum
89. Hygrophila guianensis
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746. Ruellia tuberosa
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1358. Justicia rhodoides (type)
1359. Ruellia paniculata
1389. in part. Odontonema bracteolatum
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1164. Chaetothylax huilensis
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1272. Ruellia guminiflora
1314. Aphelandra glabrata

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1062. Ruellia guminiflora
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2645. Habracanthus hylobius
2646. Habracanthus congestus (type)
2647. Ruellia caucensis (type)
2649. Aphelandra huilensis (type)
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Soto-Herrera, Gentil

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246. Ruellia rustyri
387. Justicia sanchezioides
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396. Justicia chloanantha
402. Mendoncia spraguei (type)
601. Aphelandra ochrolarynx (type)

Speer, William C.

7095. Justicia bracteosa

Tarragon, Hugo De; Araque-M., Jorge; & Barkley, Fred A.

18Cu.100. Stenandrium dulce

Tomas, Brother

770. Aphelandra runcinata
2432. Sanchezia pennellii

Toro, Rafael A.

12. Thunbergia alata
78. Trichanthera gigantea
554. Thunbergia fragrans
842. Justicia filibracteolata
859. Ruellia ischnopoda
943. Pseuderanthemum leiophyllum (type)
960. Mendoncia gracilis
1175. Kalbreyeriella rostellata
1290. Aphelandra runcinata var. pilosa
1309. Thunbergia fragrans

Torregroza, Manuel; Araque-M., Jorge; & Barkley, Fred A.

18At.502. Justicia carthaginensis
18At.504. Justicia carthaginensis
18At.521. Elytraria imbricata
18At.522. Justicia carthaginensis

Tracey, Mrs.

152. Aphelandra conformis

Uribe-Uribe, Lorenzo

343. Dicliptera uribeia (type)
1319. Aphelandra barkleyi
1320. Justicia filibracteolata var. leucantha
1436. Aphelandra glabrata
1437. Aphelandra uribeia (type)
1502. Aphelandra crenata
1505. Aphelandra hartwegiana
1517. Aphelandra glabrata
1683. Justicia carthaginensis
1754. Pseudteranthemum ellipticum
1857. Aphelandra runcinata
1862. Aphelandra xanthantha (type)
2029. Ruellia pennellii
2115. Aphelandra runcinata
2151. Mendoncia lindavii
2207. Ruellia fulgida var. angustissima
2273. Ruellia ischnopoda
2308. Aphelandra sericophylla
2309. Justicia erythrantha
2335. Ruellia tubiflora
2336. Justicia filibracteolata
2337. Aphelandra lasia
2496. Mendoncia villosa
2567. Ruellia tubiflora

Walker, Fred

1205. Ruellia tuberosa
1282. Dicliptera assurgens

Yepes-Agredo, Silvio

202. Justicia chlorostachya

Yepes, Emilio; Blair, Enrique; & Barkley, Fred A.

18C.300. Aphelandra incarnata
ERRATA
Parts I and II

Page iii (of Part I), line 14: For "72" read "73."
Page 5, line 20: For "Henrich" read "Heinrich."
Page 7, line 2: For "Buena Vista" read "Buenavista."
Page 8, line 15: For "appressed-ovate" read "appressed, ovate."
Page 8, fifth line from bottom: Delete "Marc Caribe."
Page 8, second line from bottom: For "Sonto" read "Santo."
Page 10, line 11: Delete the line reading "Type species: Justicia brunelloides Lam. Type locality: Java," and substitute "There were two original species, N. campestris R. Brown and N. rotundifolia R. Brown, of which the first may be chosen as lectotype."
Page 12, line 14: For "1874" read "1847."
Page 12, line 16: For "Nees" read "Karsten ex Nees"; for "Engelio" read "Engel."
Page 12, line 26: For "Type" read "Lectotype."
Page 17, line 1: For "rotundatae" read "rotundatae."
Page 18, line 23: For "palido" read "pallide."
Page 18, line 26: For "hisuta" read "hirsuta."
Page 21, line 27: For "1947" read "1847."
Page 22, line 11: After "Crucis" add "oppidum."
Page 22, line 12: For "Provincia" read "Province."
Page 23, line 9 from bottom: For "dipositi" read "dispositi."
Page 26, line 14: For "Santurario" read "Santuario."
Page 29, line 18 from bottom: For "1790" read "1825."
Page 30, line 25: For "Cubujón" read "Cubugón."
Page 36, line 9: For "1260" read "1280."
Page 36, line 11: For "Bayaca" read "Boyaca."
Page 43, line 2: For "1639" read "1369."
Page 44, line 17: For "species" read "series."
Page 44, line 18: For "at" read "in."
Page 44, line 19: For "at" read "in."
Page 44, line 5 from bottom: For "Phaylopsi" read "Phaulopsis."
Page 45, line 19: For "stamens 2 or 3" read "stamens 2 or 4."
Page 45, line 20 from bottom: For "Bignonaceae" read "Bignoniaceae."
Page 46, line 20: For "arbore" read "arboreus."
Page 46, line 20: For "pl. 149" read "pl. 159."
Page 49, line 4 from bottom: For "4213" read "4314."
Page 49, last line: For "Freijito" read "Frejito."
Page 50, line 16: For "Tricanthera" read "Trichanthera."
Page 50, line 18: For "March 4" read "March 3-S."
Page 52, line 19: Add "10" after "Holton."
Page 52, line 21: For "Bermega" read "Bermega."
Page 55, line 13: For "fasiculis" read "fasciculis."
Page 58, line 6 from bottom: For "Porcesito" read "Porcecito."
Page 58, line 5 from bottom: For "Killip & Hazen" read "Pennell, Killip, & Hazen."
Page 59, line 12 from bottom: For "Neuva" read "Nueva."
Page 60, line 18: For "Phaylopsis" read "Phaulopsis."

Page 60, line 22: For "Type species Ruellia blechum L." read "Lectotype: Blechum brounei Jussieu."

Page 60, line 9 from bottom: For "disseptiment" read "dissepmiment."

Page 61, line 7 from bottom: For "the type" read "their types."

Page 62, line 6: For "Landa, Rivera, & Barkley" read "Ruiz-Landa, Rivera, & Barkley."

Page 62, line 12: For "654" read "B. T. 654."

Page 62, line 19: For "Gordona" read "Gorgona."

Page 62, line 28: For "Playa Barba" read "Playa Brava."

Page 62, line 16 from bottom: For "hirellis" read "hirtellis."

Page 66, line 23: For "Verat." read "Vratisl."

Page 69, line 9: For "plubescent" read "pubescent."
For “November” read “October-November.”
For “tenuia” read “tenuis.”
For “Jaques” read “Jacques.”
For “1634” read “1606.”
For “Type” read “Lectotype.”
For “στάχος” read “στάχος.”
For “radically” read “radially.”
For “Lepidagathis Willd.” read “Lepidagathis sensu auctt. non Willd.”
For “1801” read “1800.”
For “alopecuroïdes” read “alopecuroidea.”
For “penduénéli” read “penduénéli.”
For “bank” read “side of the valley.”
For “Hazen & Killip” read “Killip & Hazen.”
For “Colombia” read “Columbia.”
Delete parenthesis after “Hooker” and insert parenthesis at end of sentence.
For “83” read “85.”
For “earmine” read “earmine.”
For “Subita” read “Subata.”
Insert “(US)” after “4024.”
Insert “(NY)” after “1260.”
For “tooth-leaved” read “toothed-leaved.”
For “unde” read “under.”
For “pos” read “pos.”
For “amarillo” read “amarilla.”
For “El Tabor.” read “El Tabor.”
For “179548” read “179548.”
For “bōtaniddh” read “bōtaniddh.”
For “Rhombochamys” read “Rhombochlamys.”
For “Putumayo.”
For “bank” read “side of the valley.”
For “pleurumque” read “plerumque.”
For “Scheide” read “Schiede.”
For “Royal Botanic Gardens, Kew.”
For “Kew” read “Riksmuseet, Stockholm.”
For “aliquando” read “aliquanto.”
For “these” read “this.”
For the garbled Greek word read “ἄρινος.”
For “Department” read “Intendencia.”
For “27” read “20-30.”
For “supper” read “upper.”
For “1.75” read “0.5-0.7.”
For “glaborous” read “glabrous.”
Delete the word “et.”
For “lucenti” read “lucentes.”
Transfer parenthesis from after “Iso types” to before the word.
For “often” read “often.”
Page 234, line 12 from bottom: For "pendunculis" read "pedunculis."
Page 242, line 12: For "pendunculatae" read "pedunculatae."
Page 245, line 7: For "praecipue" read "praecipue."
Page 246, line 12 from bottom: For "Cauca" read "Caldas."
Page 255, line 6 from bottom: For "Limbo" read "Limba;" for "100" read "800."
Page 256, first line of legend to figure 92: For "Limbo" read "Limba."
Page 258, bottom line: For "Department" read "Intendencia."
Page 261, line 24: For "Nees" read "Willd. ex Nees."
Page 262, line 9 from bottom: For "Herrera" read "Soto Herrera."
Page 263, line 16: For "Suffrutescent" read "Suffrutescent."
Page 269, line 2 from bottom: For "April 30" read "April 20–May 23."
Page 272, line 6 from bottom: For "Department" read "Intendencia."
Page 273, line 4: For "acutae" read "acuta."
Page 279, line 24: For "bank" read "side of the valley," for "Sanguinini" read "Sanquininis."
Page 283, line 11: For "bracteolae" read "bracteolae."
Page 290, line 7: Add parenthesis after "1947;" for "παχυς" read "παχυς."
Page 302, line 5: For "8630" read "8630a."
Page 302, line 19: For "petoli" read "petioli."
Page 303, line 7 from bottom: For "1: 619. 1875" read "n. ser. 3: 619. 1875."
Page 312, line 9: For "bank" read "side of the valley."
Page 312, line 17 from bottom: For "bracteolae" read "bracteolae."
Page 314, line 13 from bottom: Before "fasciculis" add "floribus in."
Page 318, line 17: For "in the valleys of the Cali and Pichindé rivers" read "on Rio Pichindé, in the valley of Río Cali."
Page 318, line 15 from bottom: For "142565" read "1423565."
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