

*Pseudoclappia arenaria* Rydberg, sp. nov.

*Clappia suacdaefolia* Woot. & Standl. Contr. U. S. Nat. Herb. 19:719. 1915.  
Not *C. suacdaefolia* A. Gray. 1859.

A low shrub; leaves linear, 1-3.5 cm. long, 1-2 mm. thick; peduncles 2-4 cm. long, with a few scalelike subulate small leaves; involucre bracts glabrous, linear, acute, 8-10 mm. long; ligules yellow, 6-8 mm. long, 2-2.5 mm. wide; disk-corollas about 1 cm. long; achenes blackish, prismatic, 3 mm. long, 1 mm. thick.

NEW MEXICO: White Sands, Otero County, July 20, 1901, *Wooton* (type; U. S. Nat. Herb. no. 739956); Aug. 31, 1904, *Wooton 2618*; June 21, 1895, *Wooton*. White Sands, Dona Ana County, July 19, 1897, *Wooton 483*. South Spring, May 2-4, 1903, *Griffiths 4243* (U. S. Nat. Herb. no. 496288, in part).

The plant can not be included in *Clappia* since it lacks the resinous striation of the bracts and the fimbriae on the receptacle, and the bristles of the pappus are neither flattened nor paleaceous at the base. It can not be included in *Senecio* since the involucre is without caliculus and its bracts of a different texture, the pappus-bristles are stiffer than is usual in that genus, and the style-branches are distinctly Vernonioid, neither truncate nor with a hair-pencil at the end. The genus should, however, be referred to the tribe Senecioneae, subtribe Senecionanae, notwithstanding the Vernonioid style. A more or less vernonioid style is found also in the genera *Gynura*, *Emilia*, and *Psacalium*.

BOTANY.—*Calderonia* and *Exandra*, two new genera of the family Rubiaceae. By PAUL C. STANDLEY, U. S. NATIONAL MUSEUM.<sup>1</sup>

During a botanical collecting trip to the Republic of Salvador in 1921-22 the writer obtained imperfect material of two trees of the family Rubiaceae, both of which prove to represent undescribed genera. Both of them had been obtained by earlier collectors, and specimens existed in the National Herbarium, but the early material was too incomplete for satisfactory identification and has remained undetermined until now.

Of the two genera here described the more interesting and better defined is *Calderonia*, of which a complete series of specimens, showing both flowers and fruit from the same tree, has been collected by Dr. Salvador Calderón, of the Chemical Laboratories of the Salvadorean Department of Agriculture. Dr. Calderón is an enthusiastic student of botany and entomology, and has presented to the National Museum an unusually interesting collection of Salvadorean plants, beautifully prepared and consisting of over 1500 specimens, which are of exceptional value because of the vernacular names and full notes upon economic applications which accompany them.

<sup>1</sup> Published by permission of the Secretary of the Smithsonian Institution.

It is with a peculiar sense of pleasure and satisfaction that I am able to associate with one of the important trees of Salvador the name of a valued personal friend who is a true scientist in every sense of the word and who has done so much to make known the flora of one of the Central American countries of which practically no information was available previously. My pleasure in naming this genus is enhanced by the fact that it is thus possible to express, although very inadequately, an appreciation of the generous attentions and courtesies received from Dr. Calderón during a visit of five months to Salvador, attentions which contributed in a large measure toward making those months a delightful experience.

**Calderonia** Standl., gen. nov.

Trees, nearly glabrous throughout. Leaves opposite, petiolate, large, thin, deciduous. Stipules large, interpetiolar, caducous. Inflorescence terminal, the flowers small, cymose-paniculate, bracteate and bracteolate, sessile or short-pedicellate; hypanthium clavate, terete; calyx very shallowly 5-lobate but ruptured by the expanding corolla, persistent; corolla fleshy-coriaceous, funnelform-campanulate, the tube short, campanulate, the 5 lobes oblong-ovate, obtuse, nearly equaling the tube, glabrous outside, pubescent within, recurved, valvate in bud. Stamens 5, alternate with the corolla lobes, inserted at the base of the tube; filaments stout, pubescent below, exserted; anthers oblong, obtuse, dorsifixed near the base, dehiscent by antrorse slits. Disk annular, fleshy. Ovary 2-celled; style stout, glabrous, exserted, the 2 branches clavate and angulate; ovules numerous, crowded, attached to the septum. Capsule globose, ligneous, 2-celled, loculicidally bivalvate from apex nearly to base, the septum also vertically dehiscent. Seeds numerous, large, horizontal, semiorbicular, compressed, terminating in a thin transparent wing as large as the body, the testa minutely reticulate; embryo large, the radicle minute, the cotyledons oval, thin; endosperm none.

Type species, *Calderonia salvadorensis* Standl.

**Calderonia salvadorensis** Standl., sp. nov.

A tree, 5–15 meters, high, the trunk slender, with smooth whitish bark; young branchlets minutely puberulent; stipules linear-lanceolate, long-attenuate, about 2 cm. long, glabrous; petioles slender, 2–3 cm. long, minutely puberulent; leaf blades elliptic to oval-elliptic or oblong-obovate, 12–24 cm. long, 5.5–12 cm. wide, acute or short-acuminate, somewhat narrowed to the rounded or emarginate base, thin, puberulent beneath along the nerves, in the axils of the main nerves barbate and domidiate (furnished with small shelters—for parasites?), elsewhere glabrous, the lateral nerves 10–12 pairs; panicles 8–15 cm. long, often leafy below, dense, many-flowered, the rachis minutely puberulent, the flowers mostly sessile; hypanthium glabrous, 3 mm. long; calyx 1.5 mm. long, the lobes rounded, minutely ciliolate; corolla 5 mm. long; filaments about equaling the corolla lobes, the anthers 2.5 mm. long; capsule slightly depressed, about 2 cm. in diameter, with numerous large pale lenticels; seeds (including the wing) about 15 mm. long and 6 mm. wide.

Type (a flowering specimen) in the U. S. National Herbarium, no. 1,151,718, taken from a tree planted in the street in front of the Santa Tecla Railway station, in San Salvador, Republic of Salvador, July, 1922, by Dr. Salvador Calderón (no. 761).

Additional specimens examined:

SALVADOR: San Salvador, December, 1922, *Calderón* 761 (fruiting specimens from the type tree). Tonacatepeque, Departamento de San Salvador, December, 1921, *Standley* 19499. Nahulingo, Departamento de Sonsonate, alt. 220 meters, March, 1922, *Standley* 22052. Sonsonate, alt. 220 meters, March 1922, *Standley* 22312.

GUATEMALA: Patalul, Departamento de Sololá, February, 1906, *Kellerman* 5986.

The genus *Calderonia* belongs to the tribe Condamineae of the family Rubiaceae. In the key to the genera of this group published a few years ago by the writer,<sup>2</sup> it would run at once to *Picardaea*, a West Indian genus to which it is not closely related. *Calderonia* differs from *Condaminae* in its winged seeds; from *Chimarrhis* in its terminal inflorescence; and from *Rustia* in the dehiscence of the anthers. The absence of endosperm in the seed is probably an important character. The Salvadorean tree appears to represent an unusually well marked genus of the Rubiaceae.

*Calderonia salvadorensis* is known in Salvador by the vernacular names of *campeche*, *brasil*, and *palo colorado*, and at Sonsonate I was informed that the names *drago* and *sangre de chuchó* ("dog's-blood") were applied to it. The names *palo colorado*, *drago*, and *sangre de chuchó* doubtless allude to the fact that all parts of the plant quickly assume a reddish tint when cut. This is particularly noticeable in the wood, but the leaves also are often affected the same way in drying.

The wood is said to be of good quality and is employed for building purposes and for firewood. By its peculiar color it is easily recognized. This red coloration is a property of other woods produced by trees of the same family, as, for instance, *Genipa maxonii* Standl., of Panama. Dr. Calderón in a recent letter says: "Lately I saw the wood used for rafters in a country house being built near Sonsonate, and in a building under construction in that city. Some time ago on the shore of Lake Ilopango, at a locality known as Apulo, I saw a large quantity of sawed timbers at least 45 cm. wide and 7 meters long or more, of pink wood, to which the name of *quina* was given. I do not know whether the tree from which they were obtained was the same as my No. 761, but the appearance of the wood was identical. The trees which I have seen are smaller, but in the wild state it would not be strange to find them large enough to give lumber of the dimensions I have described." The name *quina* ("quinine"), it may be remarked, is one often given in Salvador and elsewhere in Central America to Rubiaceae trees because their bitter bark is employed locally in place of the imported quinine.

The tree, Dr. Calderón states, is common in the fincas about San Salvador,

<sup>2</sup> N. Amer. Fl. 32: 4. 1918.

being grown from seeds brought from the forests of the Department of La Libertad, where it is native. I saw many of the trees planted along the roads in the neighborhood of Sonsonate, and a fine large one in a finca at Tonacatepeque.

*Exandra* Standl., gen. nov.

Shrubs or trees. Leaves opposite, petiolate, the blades large, thin. Stipules interpetiolar, caducous. Inflorescence terminal, the flowers small, numerous, in paniculate cymes, sessile or short-pedicellate, bracteate and bracteolate; hypanthium clavate, somewhat obcompressed; calyx short, persistent, irregularly 5 or 6-lobate, the lobes triangular, obtuse or acute, thin, about equaling the tube; corolla shortly and broadly funnellform, glabrous within and without, open in bud, the tube broadly obovate, the 5 or 6 lobes nearly obsolete, broadly rounded, recurved in anthesis. Stamens 5 or 6, inserted at the middle of the corolla tube, alternate with the lobes, the filaments stout, long-exserted, pubescent below; anthers oblong, obtuse, dorsifixed near the base, dehiscent by lateral slits. Disk annular, shallowly lobate. Ovary 2-celled; style stout, nearly equaling the stamens, glabrous, deeply bilobate, the lobes oblong, obtuse; ovules numerous.

Type species, *Exandra rhodoclada* Standl.

*Exandra rhodoclada* Standl., sp. nov.

A shrub or tree, the young branchlets minutely puberulent; stipules about 2 cm. long, attenuate, puberulent; petioles slender, 2.5–4 cm. long, subterete, minutely puberulent; leaf blades rounded-ovate or rounded-oval, broadest near the middle, 20–30 cm. long, 16–25 cm. wide, short-acute or acuminate at apex, often somewhat abruptly so, slightly narrowed below and at base shallowly or deeply cordate, thin, glabrous except beneath upon the nerves, there minutely puberulent, the costa slender and salient beneath, the lateral nerves about 11 pairs; panicles short-pedunculate, dense, about 9 cm. long, pyramidal, the rachises fulvous-puberulent; bracts and bractlets lanceolate to triangular, small and deciduous; flowers mostly sessile; hypanthium puberulent, 3 mm. long; corolla 4–5 mm. long, 3.5–4 mm. broad; filaments 5–6 mm. long, the anthers 2 mm. long.

Type in the U. S. National Herbarium, no. 229232, collected between La Venta and Niltepec, Oaxaca, Mexico, altitude 60 meters, July 14, 1895, by E. W. Nelson (no. 2796).

Additional specimens examined:

SALVADOR: Comasagua, December, 1922, *Calderón* 1370. Finca Colima, in the Sierra de Apaneca, Departamento de Ahuachapán, January, 1922, *Standley* 20139.

The Mexican specimen is said to have been taken from a shrub or tree of 2.5 to 4.5 meters, with brownish and green flowers. Both the Salvadorean specimens are sterile but there is little doubt that they represent the same species. They were taken from trees, for which the vernacular names were given as *brasil* and *limpia-dientes*. Dr. *Calderón* reports that the tree yields lumber of good quality.

The systematic position of the proposed genus is doubtful because of the lack of fruit, but the writer has little hesitation in making the tree the type

of a new genus, since comparison with all the American genera of restricted groups of Rubiaceae, to one of which it must belong, shows that it can not be referred satisfactorily to any of them. The most noteworthy character is to be found in the estivation of the corolla, which is open in all the buds upon the single fertile specimen seen. It is probable, however, that the corolla lobes, theoretically at least, are imbricate in bud, which would make impossible the reference of the genus to the tribe Condamineae, whose genera it resembles in general appearance. In its aspect it strongly suggests *Calderonia*, to which the writer at first believed that it must belong, but the floral details of the two trees are quite distinct.

One of the striking features of *Exandra rhodoclada* is the red coloration assumed by the wood upon exposure to the air, a character which it shares with *Calderonia*. This coloration is perceptible also in the petioles and in the veins of the leaves after drying.

In connection with the descriptions of these two new genera there may be recorded the rediscovery of a plant described in this Journal<sup>3</sup> by myself a few years ago as a new genus of Rubiaceae, under the name *Blepharidium guatemalense*. The description was based upon a specimen collected in forest along the Saklak River below Secanquím, Alta Verapaz, Guatemala, in 1905 by Mr. H. Pittier. During May, 1922, I spent several weeks collecting about Quiriguá, Guatemala, and on the very first morning that I went out collecting this plant was found and recognized. It was seen several times in the vicinity, but the season was a little too early for obtaining good material, since at this time, the end of the dry season, the flowers were not fully developed. *Blepharidium guatemalense* is a shrub of two to three meters, with few branches and large (sometimes 45 cm. long), handsome, glossy leaves. It occurs sparingly upon the hills back of the hospital at Quiriguá at the edge of the pine forest with which their summits are clothed, growing in the dense thickets which are characteristic of the cohune (*Attalea cohune*) and pine ridges. The vegetation here bears a striking resemblance, both in general appearance and in composition, to that of the pinelands of southwestern Florida.

<sup>3</sup> 8: 59. 1918.