

KEY TO THE SPECIES OF PENIOCEREUS

- Young growth pubescent; areoles on flower-tube not borne on knobs;
fruit bearing small inconspicuous spine-clusters; seeds dull black
.....1. *P. greggii*.
Young growth glabrous; areoles on flower-tube borne on knobs; fruit bearing
large clusters of spines at the areoles; seeds larger than in the last, shining
black.....2. *P. johnstonii*.



Fig. 2. *Peniocereus johnstonii*.—Upper figure, branch: lower figures, old flower and seeds.

BOTANY.—*Three new species of Passiflora from Venezuela and Ecuador.*¹ E. P. KILLIP, U. S. National Museum. (Communicated by WILLIAM R. MAXON.)

Recent botanical exploration in Venezuela and Ecuador has brought to light three new species of *Passiflora*, which are described herewith. One of them, *P. popenovii*, is cultivated for its edible fruit.

Passiflora (Granadilla) dispar Killip, sp. nov.

Stem terete, striate, glabrous; stipules ovate, 2 cm. long, 0.6 to 0.8 cm. broad, foliaceous, serrulate, aristulate; petioles 3 to 3.5 cm. long, bearing 4 to 6 stipitate glands 1.8 mm. in length; leaves ovate, 11 to 13 cm. long, 6 to 7 cm. broad, unlobed or occasionally with one lateral lobe, narrowed to an obtuse apex, subpeltate about 2 mm. above base, glabrate above, densely grayish-tomentulose beneath, palmately 5 or 7-nerved with prominent secondary veins, reticulate, the margin entire or remotely and minutely serrulate toward the base; peduncles 2 to 2.5 cm. long; bracts ovate-lanceolate, 1 to 1.5 cm. long, 0.5 to 0.6 cm. broad, foliaceous, acute, closely callous-serrulate, the base cordate with unequal lobes; flowers 4.5 to 5.5 cm. wide; sepals ovate-lanceolate, obtuse, 2 to 2.2 cm. long, 1 cm. broad, short-horned just below apex; filaments of faucial corona in several series, the outer filiform, equaling the petals, the succeeding series capillary, barely 3 mm. high; middle corona membranous, erect, irregularly lacerate; basal corona closely

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surrounding base of gynophore, slightly folded, crenulate; gynophore 1 cm. long, glabrous; anthers linear-oblong, 7 mm. long, 2 mm. broad; ovary ellipsoidal, glabrous, glaucous; styles filiform, 6 to 7 mm. long; stigmas orbicular.

Type in the U. S. National Herbarium, no. 1,065,083, collected in forest at Guaremales, along road from Puerto Cabello to San Felipe, Carabobo, Venezuela, altitude 10 to 100 meters, May 20 to June 10, 1920, by H. Pittier (no. 8854).

This species is allied to *Passiflora gritensis* Karst. of the highlands of Venezuela, which is known to the writer only from description. In *P. gritensis* the leaves are deeply 3-parted, the divisions being acute and mucronate, and the peduncles are twice as long as the leaves. The unusual character of the bracts seems to be common to both species. Detailed description of the structure of the coroneae of *P. gritensis* is lacking.

***Passiflora* (*Granadilla*) *perlobata* Killip, sp. nov.**

Stem terete, striate, glabrous; tendrils stout, glabrous, up to 10 cm. long (in contraction); stipules narrowly linear-subulate, falcate, 8 to 9 mm. long, 1 mm. broad at base, glabrous; petioles flattened, sulcate, glabrous, 3 to 3.5 cm. long, biglandular about 8 mm. from base, the glands sessile, saucer-shaped, 1.5 mm. in diameter; leaves suborbicular in outline, 6.5 to 7 cm. long, 9 to 10 cm. broad, palmately 5 (or 7?)-lobed to within 1 cm. of base (lobes oblong, obtuse, mucronate, the apical one 6.5 cm. long, 2.5 to 3 cm. wide, abruptly narrowed at base to a width of 4 mm., the two middle lobes 4 to 4.5 cm. long, 2.5 cm. wide, narrowed at base to a width of 7 mm., the two lower lobes 2 to 2.2 cm. long, 1 to 1.3 cm. broad), cordate at base, membranous, glabrous, dark green above, paler beneath; peduncles stout, terete, 5.5 to 6 cm. long, 2 mm. in diameter; bracts free to the base, ovate, 3.5 cm. long, 2 to 2.5 cm. broad, obtuse, minutely tomentulose on both surfaces, the margin entire, becoming involute in drying, biglandular on each side near the base, the glands orbicular, 1 mm. in diameter, black, shining; flowers 8 to 10 cm. wide; sepals oblong-lanceolate, obtuse, 4 cm. long, 1.5 cm. broad, subcoriaceous, apparently green without, white within, keeled on the outer surface, the keel terminating in an awn 2.5 mm. long; petals linear-lanceolate or spatulate, 3 cm. long, 0.8 to 1 cm. broad, obtuse, membranous, rose-colored; filaments of faucial corona in several series, those of the outer ligulate, long-tapering, 2 to 2.5 cm. long, dark blue, banded with white, those of the next series linear, 3 mm. long, white at base, those of the succeeding 3 or 4 series capillary, 1.5 to 2 mm. long, pale blue and white; middle corona membranous at base, filamentose above, the filaments very numerous, 8 to 9 mm. long, spatulate, white below, blue at apex; basal corona annular, 1.5 mm. from base of gynophore; gynophore 9 mm. long, glabrous, sulcate, 2 to 3 mm. in diameter, swollen near base to a diameter of 4.5 mm.; ovary globose, glabrous.

Type in the U. S. National Herbarium, no. 1,067,545, collected at San Antonio, San Cristóbal, Venezuela, July, 1920, by Eleazar Vivas (no. 6).

This species has no very close affinities. Its deeply lobed leaves resemble those of *Passiflora coerulea*, but its linear stipules and more slender, rose-colored petals and the longer filaments of the middle corona readily distinguish it from that species. In the notes which accompany the type speci-

men the collector states that the leaves are 7-lobed. The two leaves which the specimen bears are but 5-lobed. Doubtless the lower leaves have an additional pair of lobes.

***Passiflora* (*Granadilla*) *popenovii* Killip, sp. nov.**

Vine, up to 8 meters in length, glabrous throughout, except the ovary and outer surface of the flower tube; stem terete below, 4 or 5-angled above, striate; tendrils wiry, up to 0.8 mm. in diameter; stipules narrowly linear-subulate, 1 cm. long, 0.5 mm. broad, deciduous; petioles slender, averaging 2 cm. in length, slightly tortuose toward the base, glandless; leaves oblong-ovate or elliptic-ovate, 8.5 to 14.5 cm. long, 4 to 7 cm. wide, acuminate, rounded at base, entire, papery or pergamentaceous, lustrous on both surfaces, featherveined (lateral veins 4 or 5 pairs) and prominulous-reticulate, without ocellae; peduncles slender, elongate, 8 to 10 cm. long; bracts distinct to base, concave, 2 to 2.5 cm. long, 1.2 to 1.5 cm. broad, rounded and often cleft at apex, narrowed at base, entire, minutely puberulent on the lower part of the outer surface; flowers showy, fragrant, up to 10 cm. wide; the tube 1.2 cm. long; sepals deep rose-colored, oblong, 3 to 3.5 cm. long, 1.5 to 2 cm. broad, slightly concave, wide-spreading when developed, obtuse, keeled on the outer surface, the keel terminating in a cusp 3 mm. long; petals white, linear-oblong, 3 to 3.5 cm. long, averaging 1 cm. wide, flat, slightly reflexed; filaments of faucial corona in 4 series, the 2 outer at throat of tube, white, banded with purplish-blue, the 2 inner 3 mm. and 2 mm. from the throat, the filaments of the outermost series filiform, 1.5 cm. long, 1 mm. thick at base, slightly divaricate, those of second series ligulate, fleshy, 3 to 3.5 cm. long, 2 to 2.5 mm. wide, those of third series capillary, 1 mm. long, those of the fourth series capillary, 2 mm. long; middle corona membranous, 5 mm. long, the lower half adnate to the floor of the flower tube, the upper half free, slightly recurved; basal corona none; gynophore stout, grooved, conspicuously swollen about 1 cm. above base; ovary globose, narrowed at base, densely tomentellous; styles clavate, 6 mm. long; stigmas 3 mm. in diameter.

Type in the U. S. National Herbarium, no. 1,060,000, cultivated in volcanic loam at Baños, Tungurahua, Ecuador, at an altitude of 1,850 meters, collected March 6, 1921, by Wilson Popenoe (no. 1271).

The nearest relative of *P. popenovii* is *P. laurifolia*, widely cultivated in the West Indies under the name water-lemon. The flowers of the two species are very much alike, the coronal structure being practically identical. *Passiflora popenovii* is to be separated, however, by its thinner, more acuminate leaves, by the absence of petiolar glands, and by its more slender and more elongate peduncles.

This species is one of several cultivated in Ecuador under the name of "Granadilla de Quijos" and the edible fruit is commonly on sale in the markets of Baños and Riobamba. It is said to be indigenous on the eastern slopes of the Andes.