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BOTANY.—*New species of plants from Salvador.*¹ PAUL C. STANDLEY,
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The present paper consists of descriptions of new species of plants of various families, collected in the Republic of El Salvador by Dr. Salvador Calderón, and by the writer in the course of his visit to the country during the winter of 1921–22. The description of a new species of grass has been contributed by Mrs. Agnes Chase, and those of several new Piperaceae and an *Agave* by Dr. William Trelease.

***Pennisetum vulcanicum* Chase, sp. nov.**

Base not seen, plant presumably perennial, probably about 1 meter tall; culms erect or ascending, terete and scabrous below the panicle, otherwise compressed and glabrous, bearing leafy branches from the lower nodes; nodes glabrous; leaves numerous, the sheaths much overlapping, keeled, villous along the margin and on the sides of the collar, otherwise glabrous or very sparsely pilose; ligule a dense ring of hairs about 1 mm. long; blades rather firm, ascending, flat or drying folded, 20 to 45 cm. long, 5 to 8 mm. wide, slightly narrower at base than the summit of the sheath, tapering into an elongate setaceous scabrous tip, scabrous and papillose-pubescent or papillose only on the upper surface, glabrous beneath, the midnerve prominent beneath; panicle slightly flexuous, 10 to 17 cm. long, 18 to 20 mm. wide excluding the longest bristles, tawny or obscurely purple-tinged, rather dense except at the base, the axis strongly angled, pilose on the angles; fascicles on hairy peduncles 1 to 1.5 mm. long, finally spreading or reflexed; bristles numerous, scabrous, united at the very base, very unequal, the outermost short, slender, scabrous only, the inner 1 to 1.5 cm. long, flattened, flexuous, plumose about half their length, the innermost one stouter, 2 to 5 cm. long, plumose at base, unequal in fascicles of the same panicle, the longer in the middle fascicles; spikelets 3 to 5 in each fascicle (only 1 or 2 well developed), sessile, 6 to 9 mm. long, about 1.4 mm. wide, attenuate, scaberulous; glumes attenuate, 3 to 5-nerved, the first $\frac{1}{4}$ to $\frac{1}{3}$, the second $\frac{2}{3}$ to $\frac{3}{4}$, as long as the spikelet; sterile lemma nearly as long as the fertile, finely many-nerved, inclosing a palea of nearly

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equal length and a staminate flower; fertile lemma subindurate, 5-nerved, the apex attenuate and spreading.

Type in the U. S. National Herbarium, no. 1,152,018, collected in the crater of the volcano Cerro de la Olla near Chalchuapa, Salvador, in 1922, by Dr. Salvador Calderón (no. 1049).

This species is related to *Pennisetum karwinskyi* Schrad., from the highlands of Mexico, from which it differs chiefly in its larger panicles, in its more numerous bristles, the inner plumose, and in the much longer innermost bristles. A second collection of this species, *Jiménez 522*, from Nuestro Amo, on the Pacific slope of Costa Rica, was referred to *P. karwinskyi* as an exceptional specimen, in a recent revision of the genus.² In this specimen the innermost bristles are as much as 5 cm. long, but the inner bristles are much less plumose than in the Salvador specimen. Like that, the plant is without the base.

Lindmania flaccida Standl., sp. nov.

Plants terrestrial; leaves basal, few, very thin and soft, 25–30 cm. long or larger, 3.5–4.5 cm. wide, entire, slightly narrowed near the base, rather abruptly narrowed to a short subulate tip, glabrous above and slightly brown-spotted, beneath very sparsely stellate-lepidote; inflorescence about 50 cm. high, once-branched, the branches long and slender, about 10 cm. long, solitary or fasciculate, sparsely arachnoid-villous or glabrate, the bracts of the scape entire, thin, about equaling the nodes; flowers scarcely secund, nodding, the pedicels slender, about 3 mm. long, glabrous, the bractlets lance-ovate, scarious, much exceeding the pedicels and often equaling the sepals; sepals ovate, acute, about 3 mm. long, scarious, persistent; petals linear-lanceolate, eligulate, 7–8 mm. long, green, acute, conspicuously nerved; stamens shorter than the petals, the anthers linear-oblong, yellow, undulate, not contorted; ovary almost wholly superior, glabrous, the style long and slender, equaling or surpassing the stamens, the branches slender-clavate; seeds numerous, minute, dark brown, with a pale appendage at each end.

Type in the U. S. National Herbarium, no. 1,135,666, collected on a moist shaded bank along a stream in the mountains near Ahuachapán, Salvador, January, 1922, by Paul C. Standley (no. 19786).

The genus *Lindmania* has not been reported previously from Central America, the known species being natives of South America. The present plant may perhaps represent an undescribed genus, but it seems to agree moderately well in most of its characters with the plants heretofore referred to *Lindmania*.

Tillandsia vicentina Standl., sp. nov.

Plants solitary, epiphytic; leaves numerous, about 25–30 cm. long, equaling the inflorescence, thin, 3–5 mm. wide at the middle, the bases 1.5–2 cm. wide, brownish, the blades green on the upper surface and covered with closely appressed scales, beneath silvery, covered with coarse loose whitish scales; scapes 15–25 cm. high, stout, covered with numerous overlapping bracts, these coarsely lepidote, their tips filiform-attenuate, their bases slightly inflated; spikes 5–11, simple, digitate or shortly pinnate, sessile, 4–7 cm. long,

²Chase, Contr. U. S. Nat. Herb. 22: 220. 1921.

their bracts compressed, 2–2.5 cm. long, pink, thin, loosely appressed and overlapping for half their length, coarsely and loosely lepidote; sepals distinct, 2 cm. long, glabrous; corolla violet, exceeding the bracts 2–2.5 cm.; stamens conspicuously exceeding the corolla, the style long-exserted.

Type in the U. S. National Herbarium, no. 1,137,360, collected on the Volcán de San Vicente, Salvador, altitude about 1500 meters, March 8, 1922, by Paul C. Standley (no. 21588). *Standley* 21588 from the same locality represents the same species.

Related to *T. digitata* Mez and *T. flabellata* Baker, but readily distinguished by the coarse pubescence of the leaves and bracts. The pubescence is similar to that of *T. streptophylla* Scheidw., but less coarse, and the leaves are not dilated at the base as in that species.

Dioscorea salvadorensis Standl., sp. nov.

Stems scandent, slender, very minutely and sparsely hirtellous or glabrate, with elongate internodes; petioles mostly 2.5–3.5 cm. long, pubescent like the stems; leaf blades about 9 cm. wide and 7–9 cm. long, cordate at base, with a broad rounded sinus, 3-lobed to the middle or nearly to the base, the lateral lobes somewhat falcate, obtuse to acuminate, the terminal lobe obtuse to acuminate and cuspidate-mucronate, glabrous on the upper surface, beneath minutely muricate-hirtellous along the nerves; staminate spikes solitary, long-pedunculate, simple, 15–22 cm. long or longer, the rachis glabrous, slender, the flowers sessile; bractlets lance-attenuate, shorter than the flowers; perianth segments narrowly oblong, obtuse, 2 mm. long, glabrous; stamens 3, two-thirds as long as the perianth segments, the anthers oblong, the filaments broad, slightly dilated toward the base, nearly equaling the anthers.

Type in the U. S. National Herbarium, no. 1,151,507, collected on the Cerro de la Olla, on the Guatemalan frontier, near Chalchuapa, Salvador, in 1922, by Dr. Salvador Calderón (no. 1020). Also collected at La Cebadilla, Departamento de San Salvador in 1922, *Calderón* 1238.

Among the Central American species of *Dioscorea* this is easily recognized by its trilobate leaves.

Agave calderoni Trelease, sp. nov.

Of the group *Guatemalenses*. Acaulescent, not cespitose (?). Leaves green or very lightly and evanescently glaucescent, oblanceolate-oblong, acute, smooth, about 15 cm. wide and 80 cm. long; spine brown or somewhat tinged with purple at base, slightly glossy, elongate-conical or subacicular, straight, slightly flattened above and involutely grooved with acute edges below the middle, narrowly decurrent for about twice its own length, intruded into the green tissue dorsally, about 40 mm. long and 5 mm. thick; teeth chestnut-colored, 5–10 mm. apart, firm, but small (scarcely 1 mm. long), triangular, lenticularly widened into the nearly straight margin. Inflorescence paniculate, apparently with rather short branches and closely bunched flowers, the rather thick and short (5 mm.) pedicels densely invested by short broad papery bracts. Flowers bright orange, about 40 mm. long; ovary 15–20 mm. long, about equaling the perianth, oblong; tube broadly conical, scarcely 5 mm. deep; segments 10–15 mm. long, shorter than the ovary; filaments inserted nearly in the throat, about 40 mm. long. Capsules unknown; not known to be bulbiferous.

Type in the U. S. National Herbarium, no. 1,152,451, taken from a plant cultivated in San Salvador, Salvador, January, 1923, by Dr. Salvador Calderón (no. 1463).

The vernacular name is *maqueyón*.

***Peperomia izalcoana* Trelease, sp. nov.**

A glabrous subrhizomatous herb; stem slender (2 mm.), scarcely 30 cm. high; leaves alternate, round- or subdeltoid-ovate, blunt or subacute, round-based, moderate or rather small (2–4.5 cm. long), 5 or 7-nerved; petiole rather short (scarcely 3 cm.); spikes terminal and opposite the leaves, 40–100 mm. long, loosely flowered; peduncle, depending on the spike length, 1–3 cm. long; bracts round-peltate; berries ellipsoid, essentially sessile; style short but evident; stigma apical.

Type in the herbarium of the University of Illinois, collected at Izaleo, Salvador, on wet bank, March 19, 1922, by Paul C. Standley (no. 21874).

***Peperomia matapalo* Trelease, sp. nov.**

A villous assurgent herb; leaves alternate or the uppermost congested into a whorl of 2 or 3, elliptic-oblanccolate or the lower reduced and obovate, rather small (1.5–2 cm. wide, 3–4.5 cm. long), obtuse or bluntly acuminate, euncate, 5-nerved, appressed-villous on both faces; petiole short (5 mm.); spikes terminal, 2 mm. thick, 50–70 mm. long, rather closely flowered; peduncle 10–15 mm. long; bracts round-peltate; ovary subglobose; stigma obliquely anterior.

Type in the herbarium of the University of Illinois, collected at San Salvador, Salvador by Dr. Salvador Calderón (no. 1121).

The common name is *matapalo*.

***Peperomia standleyi* Trelease, sp. nov.**

A delicate fleshy glabrous herb, creeping over tree branches; stem filiform; leaves commonly 4–6 at a node, elliptic-obovate, acute-based, minute (5–7 mm. wide, 8–10 mm. long), 1 or obscurely 3-nerved, impressed-punctulate; petiole 2–3 mm. long; spikes terminal, scarcely 2 mm. thick and 15 mm. long, rather loosely flowered; peduncle about 10 mm. long; bracts round-peltate; ovary ovoid, submucronulate; stigma apical.

Type in the herbarium of the University of Illinois, collected at Tonacatepeque, Departamento de San Salvador, Salvador, December 30, 1921 by Paul C. Standley (no. 19426).

***Piper patulum cordifolium* Trelease, var. nov.**

A shrub 2–3 m. tall, glabrous except that the leaves are more or less puberulent on the nerves beneath; leaves broadly ovate, acuminate, deeply cordate with rather narrow sinus, moderately large (10–16 cm. wide, 15–23 cm. long); spikes in fruit 4 mm. thick and 130 mm. long; berries oblong-truncate, glabrous.

Type in the herbarium of the University of Illinois, collected at Nahulingo, Departamento de Sonsonate, Salvador, March 21, 1922, by Paul C. Standley (no. 22046).

***Piper standleyi* Trelease, sp. nov.**

A shrub 1–1.5 m. tall; twigs slender, for a time conspicuously subhirsute; leaves membranous, lance-oblong, long-acuminate, inequilaterally cordulate, rather small (1.5–2.5 cm. wide, 5–9 cm. long), subpalmately 5-nerved, hirsute

beneath on the nerves; petioles short (2-4 mm.), not winged, hirsute; inflorescence unknown.

Type in the herbarium of the University of Illinois, collected on the Volcán de San Salvador, Salvador, in moist forest, altitude about 1800 meters, April 7, 1922, by Paul C. Standley (no. 22894).

***Piper uncatum* Trelease, sp. nov.**

A practically glabrous shrub with the general characters of *P. marginatum* but the subciliate leaves concavely truncate at base and with the margins subconfluent across the petiole, and with rather slender spikes 2-3 mm. thick and 150 mm. long, abruptly hooked below the middle.

Type in the herbarium of the University of Illinois, collected at Tonacatepeque, Departamento de San Salvador, Salvador, December 30, 1921, by Paul C. Standley (no. 19435).

***Piper uncatum levyanum* Trelease, var. nov.**

Differing from the type in having the upper surface of the leaves and the veins beneath more or less persistently hairy.

Type in the Copenhagen Herbarium, collected at Granada, Nicaragua by Lévy (no. 1294). *Baker* 850 from the same locality also represents the same variety.

***Ficus rensoniana* Calderón & Standl., sp. nov.**

Young branchlets brownish, densely fulvous-pilose; stipules ovate-oblong, 1.5-2 cm. long, acute or acuminate, rather tardily deciduous, thin, brown, densely pilose outside below the middle; petioles stout, 1-2.5 cm. long, densely pilose; leaf blades oval or oblong-oval, broadest at or near the middle, 7-10.5 cm. long, 4-6 cm. wide, cordate at base, rounded or very obtuse at apex, coriaceous, short-pilose above, especially along the nerves, copiously short-pilose beneath with white hairs, the lateral nerves prominent, 6 or 7 pairs, arcuate-ascending, distant, anastomosing near the margin; peduncles geminate, stout, 4-6 mm. long; involucre bilobate, 10-12 mm. long, the lobes rounded, thin, brown, strigose near the base, glabrous within; receptacles globose, 8-11 mm. in diameter, glabrous, the ostiole prominent, closed by 3 rounded scales.

Type in the U. S. National Herbarium, no. 1,152,090, collected at San Salvador, Salvador, August, 1920, by Dr. Salvador Calderón (no. 1120).

Most closely related, apparently, to *F. pringlei* S. Wats., which is distinguished from the Salvadorean tree by its dense pubescence, larger receptacles, and sericeous involucre.

***Aristolochia salvadorensis* Standl., sp. nov.**

A large woody vine, the branches densely brownish-puberulent, with very short internodes; petioles stout, densely puberulent, 5-7 mm. long; leaf blades oblong, often slightly wider above the middle, 11-20 cm. long, 4-9 cm. wide, acute or abruptly short-acuminate, rounded at base, thick, glabrous above, with prominulous venation, beneath lustrous, puberulent along the nerves, 5-nerved from the base and with several pairs of lateral nerves, the veins very prominent and reticulate; racemes large, branched, borne at the base of the stem, the rachis densely brown-pilose with short hairs, often geniculate, the bracts ovate or lanceolate, 12 mm. long or less, sometimes green and foliaceous, the pedicels mostly 5-7 cm. long, slender; bractlets none

at base of calyx; ovary about 1.5 cm. long, abruptly curved near the base, 6-costate, densely brown-pilose; calyx dark brown-purple, about 4.5 cm. long, sparsely puberulent outside, the tube very short and inflated, the pouch inflated, rounded, produced within the limb into a large blunt recurved beak, the limb shallowly 3-lobed, the 2 lateral lobes broad, acute, the central lobe much smaller and narrower, acute or short-acuminate; style short, the stigma obscurely lobate; capsule oblong, about 7 cm. long and 2-2.5 cm. in diameter, sharply 6-angulate, brown-tomentulose.

Type in the U. S. National Herbarium, no. 1,111,203, collected at San Salvador, February 9, 1923, by Dr. Salvador Calderón (no. 1484). The following additional specimens have been examined:

SALVADOR: San Salvador, November, 1921, *Calderón* 287. Santa Tecla, August, 1922, *Calderón* 1096. Sierra de Apaneca, region of the Finca Colima, Departamento de Ahuachapán, January, 1922, *Standley* 20036.

The vernacular names are *guaco*, *guaquito*, and *guaquito de la tierra*. Like other species of the genus, it is employed locally as a remedy for snake bites.

Aristolochia salvadorensis is related to *A. arborea* Linden, but has very different flowers and much smaller, reticulately veined leaves. The leaves somewhat resemble those of *A. maxima* L., which also is abundant in Salvador, but the flowers of the two species are quite dissimilar, and even sterile specimens of the two are easily distinguishable.

Coccoloba montana Standl., sp. nov.

Young branchlets terete, pale, glabrous; ocreae brown, glabrous, 6-7 mm. long; petioles stout, glabrous, 12-20 mm. long; leaf blades ovate or oblong-ovate, 10-20 cm. long, 5.5-10 cm. wide, acuminate or long-acuminate, unequal at base, rounded on one side, on the other semicordate, glabrous above, glabrous beneath except along the costa, there brownish-tomentose, especially in the axils of the lateral nerves, papyraceous, the costa salient on both surfaces, the venation conspicuous above and beneath and closely reticulate.

Type in the U.S. National Herbarium, no. 1,135,924, collected in the Sierra de Apaneca, region of the Finca Colima, Departamento de Ahuachapán, Salvador, January, 1922, by Paul C. Standley (no. 20061).

The vernacular name is *papaturro*. Although known only from sterile specimens, the leaves of this *Coccoloba* are so distinct from those of the other Central American species that it seems desirable to give it a name for purposes of reference.

Pleuropetalum calospermum Standl., sp. nov.

Slender shrub, 1-2 m. high, the young branches granular-papillose; petioles slender, 1-3 cm. long; leaf blades oblong-ovate to lance-oblong, 9-13 cm. long, 3-5 cm. wide, long-acuminate, rounded or obtuse at base and abruptly decurrent upon the petiole, thin, bright green above, paler beneath, when young obscurely puberulent but quickly glabrate; inflorescences terminal and in the upper axils, cymose-paniculate, few-flowered, long-pedunculate, shorter than the leaves; pedicels very stout, sometimes 7 mm. long but usually much shorter; bractlets rounded-ovate, 1 mm. long; sepals rounded-oval, 3-3.5 mm. long, rounded at apex, sharply ribbed, glabrous; fruit baccate, black, 6-7 mm. broad, globose, glabrous; seeds numerous, on thickened

funicles, nearly 2 mm. in diameter, black, lustrous, with a metallic and iridescent sheen.

Type in the U. S. National Herbarium, no. 1,135,662, collected in a moist wooded ravine in the mountains near Ahuachapán, Salvador, altitude about 1000 meters, January, 1922, by Paul C. Standley (no. 19782). Also collected in the region of Finca Colima, Sierra de Apaneca, Departamento de Ahuachapán, *Standley 20074*.

Two other species of *Pleuropetalum* are known from Central America, *P. sprucei* (Hook. f.) Standl., which ranges from Veracruz to Ecuador, and **P. pleiogynum** (Kuntze) Standl. (*Celosia pleiogyna* Kuntze, Rev. Gen. Pl. 541. 1891). In the North American Flora³ the latter was referred to the genus *Celosia*, but further study of the material indicates that it is really a species of *Pleuropetalum*.

Pleuropetalum calospermum has sepals of about the same size as those of *P. pleiogynum*, but in the latter the seeds are half as large, much more numerous, and on slender funicles. From *P. sprucei* the Salvadorean plant is distinguished by its much larger sepals and capsules.

ENTOMOLOGY.—*Three new Pemphredonine wasps (Hymenoptera)*.
S. A. ROHWER, Bureau of Entomology.

Two of the species described below have been recently received from correspondents who are anxious to use the specific name in connection with some observations on habits of the species.

***Microstigmus guianensis*, new species.**

This species seems to be very close to *M. theridii* Ducke, which has been recorded from French Guiana by Buysson,¹ but it does not agree with the description in all ways, especially in the sculpture of the mesoscutum.

Female.—Length 2.5 mm. Clypeus gently convex, the anterior margin broadly and gradually rounded; interocular quadrangle somewhat higher than broad; head shining, polished; the ocelli in an acute triangle; flagellum slightly thickening apically, the first joint distinctly longer than the second, which is slightly longer than the third; dorsal surface of the pronotum polished, the anterior margin with a sharp carina; mesoscutum coarsely reticulate, the posterior margin with a transverse carina; the scutellum with four strong carinae which meet medianly and form a transverse pyramid, the posterior face of which has a triangular shaped area bounded by striae; posterior margin of the scutellum with a strong, high carina; dorsal area of the propodeum irregularly reticulate on a granular surface, the margin bounded by a U-shaped carina; mesepisternum granular and with a few irregular raised lines; sides of the propodeum with a few oblique striae; posterior face of the propodeum with coarse reticulations; petiole short, carinate laterally; abdomen polished; stigma oval, its greatest width slightly longer than the first abscissa of the radius. Head rufo-ferruginous; clypeus, mandibles and lower part of face stramineous; thorax, legs and petiole stramineous; the top of the scutellar

³ 21:98. 1917.

¹ Ann. Soc. Ent. France, 76:29. 1907.