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Studies In American Plants, II

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During continuing studies of several allied families of plants for the "Flora of Guatemala," our concept of the relationship of some of these plants has changed and become quite different from that of the botanists who proposed them. One of the more interesting discoveries which we have made is that five species described as *Clerodendrum*, a genus of the Verbenaceae, do not belong in that family.

Clerodendrum standleyi Moldenke (Known Geogr. Distr. Verben. 76. 1942), the type of which is *Standley 73793*, collected in 1940 in the Department of Zacapa, Guatemala, is one of these plants. It has an inflated, cupular calyx and superficially resembles some species of *Clerodendrum*. Dr. Moldenke's description of the plant could have been made without dissection of the flower. A dissection would have shown that there are only two stamens in each flower and that there are staminodes appearing as appendages near the base of the filaments. The bilocular ovary would have been quite obvious upon dissection. The numerous cystoliths in the upper leaf surfaces, in addition to the characters mentioned previously, should have called attention to the fact that the plant was not verbenaceous.

In working through the Acanthaceae, I have found a second species of this plant which was described as *Jacobinia*, and which is obviously closely related to *Standley 73793*.

Lindau in 1904 (Bull. Herb. Boiss. II. 4: 328) described a new genus, *Trybliocalyx*, with an inflated cupular calyx, based on a Guatemalan plant, *Seler 3276*, collected in 1896, and ascribed to it a single species, *T. pyramidatus* (*l.c.* 401). He assigned his new genus to his *Graptophyllineae*, based on pollen characters. Dr. W. T. Stearn, of the British Museum, who is presently studying West Indian Acanthaceae, was kind enough to make electron microscope photographs of pollen samples of both *Standley 73793* and *Purpus 6049* (the type of *Jacobinia albicaulis* Brandegee). They show (Figs. 1, 2) that the

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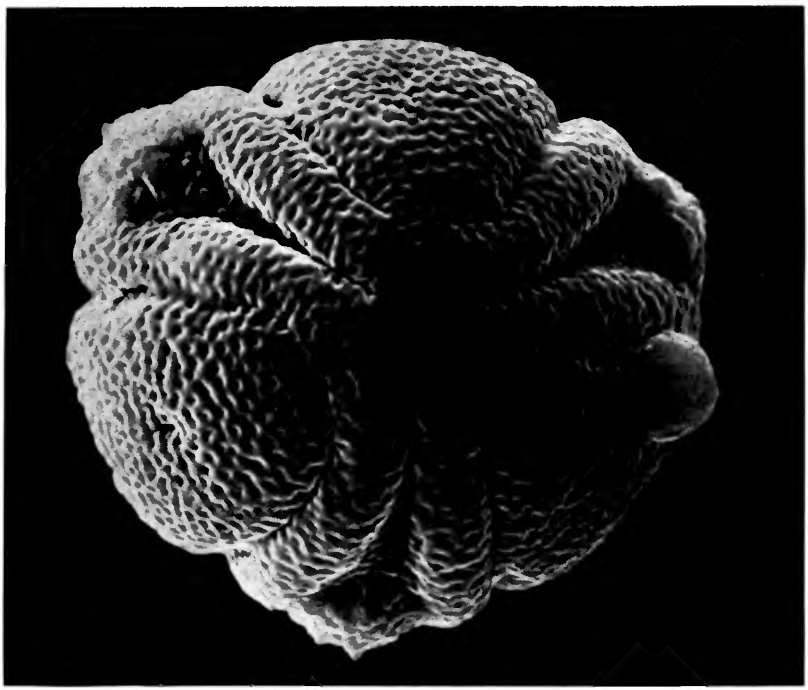

FIG. 1. Electron microscope photograph of pollen of *Clerodendrum standleyi* Moldenke, × 2400.

pollen of these plants is 3-porous and characteristic of that of *Acanthaceae–Odontoneminae* in Lindau's classification (Engler & Prantl, Pflanzenf. IV. 36: 334. 1895), but no genus in that group has an inflated, cupular calyx. However, as Bremekamp has pointed out (Rec. Trav. bot. Néerl. 35: 134 and 137. 1935 and 37: 295. 1940), the pollen grains of some species of *Odontonema* itself show the structures typical of Lindau's *Graptophylleae*. Bremekamp therefore included the *Graptophylleae* in his *Odontonemeae*.

The type material of *T. pyramidatus* Lindau, which was deposited in Berlin, was lost and no duplicate specimens have become available for examination. However, as *Trybliocalyx* is easily distinguished from all other genera of the Acanthaceae known to me by its inflated, cupular calyx, I believe that *C. standleyi* Moldenke is a synonym of *T. pyramidata*, and that *Purpus 6049* is sufficiently distinct to warrant specific recognition. The appropriate combination is made below.

FIG. 2. Electron microscope photograph of pollen of *Jacobinia albicaulis* Brandegee, × 2000.

The four remaining species which were described in *Clerodendrum* belong in other families; three are transferred to a newly described genus in the Scrophulariaceae which appears in this issue of *Fieldiana: Botany*. The fourth one is based on inadequate material and the family to which it belongs is not recognized.

ACANTHACEAE

Trybliocalyx pyramidatus Lindau, Bull. Herb. Boiss. II. 4: 401. 1904. *Clerodendrum standleyi* Moldenke, Known Geogr. Distr. Verben. 76. 1942.

Guatemala: Huehuetenango, near Nentón, in thickets, *Seler 3276* (type); Zacapa, alt. 500–660 m., *Standley 73793* (type of *Clerodendrum standleyi*, NY; F; US).

Shrubs, the branches bifariously pubescent; leaves lance-ovate to lance-oblong, 6–15 cm. long, 2–6 cm. wide, acuminate, gradually narrowed to the base, pubescent or glabrate, usually pubescent on costa and veins beneath, cystoliths abundant

on upper surface, lateral veins 9–12 pairs; inflorescences cymose, becoming paniculate, terminal, often longer than the leaves, usually leafy at the base, bracts 2–5 mm. long, linear-acuminate or subulate, pubescent, peduncles and pedicels pubescent, the pedicels 5–15 mm. long; calyx cupular, inflated, more or less pubescent, more densely so near the base of the tube, the tube 4–6 mm. long, 6–9 mm. broad, the 5 lobes 4–6 mm. long, unequal, triangular, acute; corolla lilac to bluish-purple, glabrous, the tube 10–14 mm. long, the limb bilabiate, the lobes unequal, 5–9 mm. long, rounded; stamens included, rising to a point well below the throat, filaments inserted at about the middle of the corolla tube, anthers 2–3 mm. long, both sacs muticous at the base; posterior staminodes about 0.5 mm. long, appearing as appendages at the base of the filaments; style at maturity 10–11 mm. long, pubescent; fruits unknown.

Trybliocalyx albicaulis (Brandegee) D. Gibson, *comb. nov. Jacobinia albicaulis* Brandegee, Univ. Calif. Pub. Bot. 4: 386. 1913.

Mexico: Vera Cruz, *Purpus 6049* (type, UC; F).

Trybliocalyx albicaulis differs from *T. pyramidatus* Lindau in its glabrous peduncles and pedicels, essentially glabrous calyces with acuminate lobes, smaller flowers (calyx 6–9.5 mm. long, corolla 12–18 mm. long), and stamens that reach a point above the throat of the corolla.

VERBENACEAE

Aegiphila martinicensis f. **falcata** (Donn.-Sm.) D. Gibson, *comb. nov.* *A. falcata* Donn.-Sm. Bot. Gaz. 18: 7. 1893.

Southern Mexico to Panama, 150–800 meters.

Differs from *A. martinicensis* in its larger leaves, 14–30 cm. long, 6–14 cm. broad, which are usually more abruptly acuminate, and in its often more conspicuously thickened and flattened nodes of the branchlets, at least in the inflorescence. Although specimens determined to be *A. falcata*, with very large leaves, can easily be separated, close examination reveals no differences in inflorescence, calyx, or corolla. There are intermediate specimens from Mexico and from southern Central America (variously determined by Moldenke) with some leaves as large as these, with some much smaller, and with branchlets not broadly thickened at the nodes. It therefore appears that certain robust plants represent only a large-leaved form and do not deserve specific or varietal rank.

Citharexylum guatemalense (Moldenke) D. Gibson, *comb. nov.* *C. hirtellum* var. *guatemalense* Moldenke, Phytologia 17: 113. 1968.

Although known only from two collections, *Steyermark 41818*, the type (NY), and *Steyermark 41816* (F), both from Izabal, Guatemala, this plant differs in so many respects from *C. hirtellum* that elevation to specific rank is justified. The calyx and corolla resemble in size those of the long-styled form of *C. hirtellum*; however, the style of *C. guatemalense* is only 2–3 mm. long instead of 4–5 mm.; the calyx differs in its conspicuous 5 lobes; the leaves of *C. guatemalanese* are consistently larger, 10–20 cm. long, 4–8 cm. wide, and they are pilose along the costa and veins, with hairs to 1 mm. long. In the latter case, as well as in the conspicuously 5-lobate calyx, *C. guatemalense* appears more like *C. cooperi* Standley, but it lacks the branching, paniculate inflorescences of *C. cooperi*.

Publications 1092, 1093, 1094 and 1095