

STUDIES IN MEXICAN COMPOSITAE. I. MISCELLANEOUS NEW SPECIES¹

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In the autumn of 1962 Dr. Rogers McVaugh and I botanized together over a large part of Mexico, from Coahuila to Chiapas, and to both coasts. Our purposes were compatible but different, and each of us maintained his collection and records separately. My purpose was to learn something about the Compositae of Mexico. Not surprisingly, a few of my collections turn out to represent previously undescribed species. Four of these are described in this paper. The abbreviations of herbaria are those of Lanjouw and Stafleu in *Index Herbariorum* (1959).

Tithonia pedunculata Cronquist, sp. nov. Fig. 1.

Frutex arborescens 0.6-5 m altus, ramulis leviter hirsuto-strigosis, foliis alternis lanceolatis ovato-lanceolatisve 2-5 cm latis ad basin perspicue subpetiolatis, pedunculis terminalibus 1-2 dm longis folia superantibus; capitula solitaria involuero 13-15 mm alto 3-4-seriato phyllareis extimis angustis acutis, intimis apicem versus membranaceis latis obtusis, ligulis 13-17 (frequenter 13) 2.5-3.5 cm longis, paleis ad apicem angustis luteis cartilagineis floscula superantibus, achaeniis appresso-pilosis pappo ex aristis duobus et squamellis paucis basin versus connatis composito.

Branching, arborescent shrub 0.6-5 m tall, with stems up to nearly 1 dm thick; twigs of the season rather slender, hirsute-strigose; leaves alternate, crowded toward the ends of the branches (beneath the elongate peduncles), sessile or nearly so but with a conspicuous narrow subpetiolar base 2-4 cm long which may be slightly enlarged and clasping at its base, the whole leaf 10-15 cm long and 2-5 cm wide, the expanded part lanceolate or lance-ovate, acute or acuminate, pinnately nerved or obscurely triplinerved, shallowly and obscurely toothed or entire, scabrous or scabrous-hirsute on the upper surface, paler and shortly spreading-villous with crinkled hairs beneath; heads sunflower yellow, solitary on long (1-2 dm) peduncles terminating many of the branches, the peduncles conspicuously surpassing the leaves, hollow distally and slightly inflated; heads rather large, the disk 2-3.5 cm wide as pressed; involucre 13-15 mm high, 3-4-seriate, the bracts, especially the outer, with thickened, cartilaginous and striate base, this giving way abruptly to the more herbaceous or membranous distal portion, the outer bracts relatively narrow and acute, with the terminal portion more or less herbaceous, the inner broader and more obtuse or rounded, with the terminal portion more membranous, the outer bracts somewhat scabrous-hirsute, the inner merely puberulent or subglabrous; rays 13-17 (often 13), 2.5-3.5 cm long, up to nearly 1 cm wide, neutral, with sterile, epappose achenes; receptacular bracts with prominent, narrow, cartilaginous, light yellow tip surpassing the flowers at anthesis and in fruit; achenes of the disk flowers

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blackish, appressed-silky, 4-5 mm long; pappus of 2 well developed awn-scales and several shorter broad scales that are connate below and lacerate above.

Type. *Cronquist 9684*, savanna-land hillsides just below the pine zone along the Pan-American highway 42 miles northwest of Tehuantepec, state of Oaxaca, Mexico. Elevation about 2300 feet. Holotype at NY; isotypes at F, GH, MEXU, MICH, TEX, US.

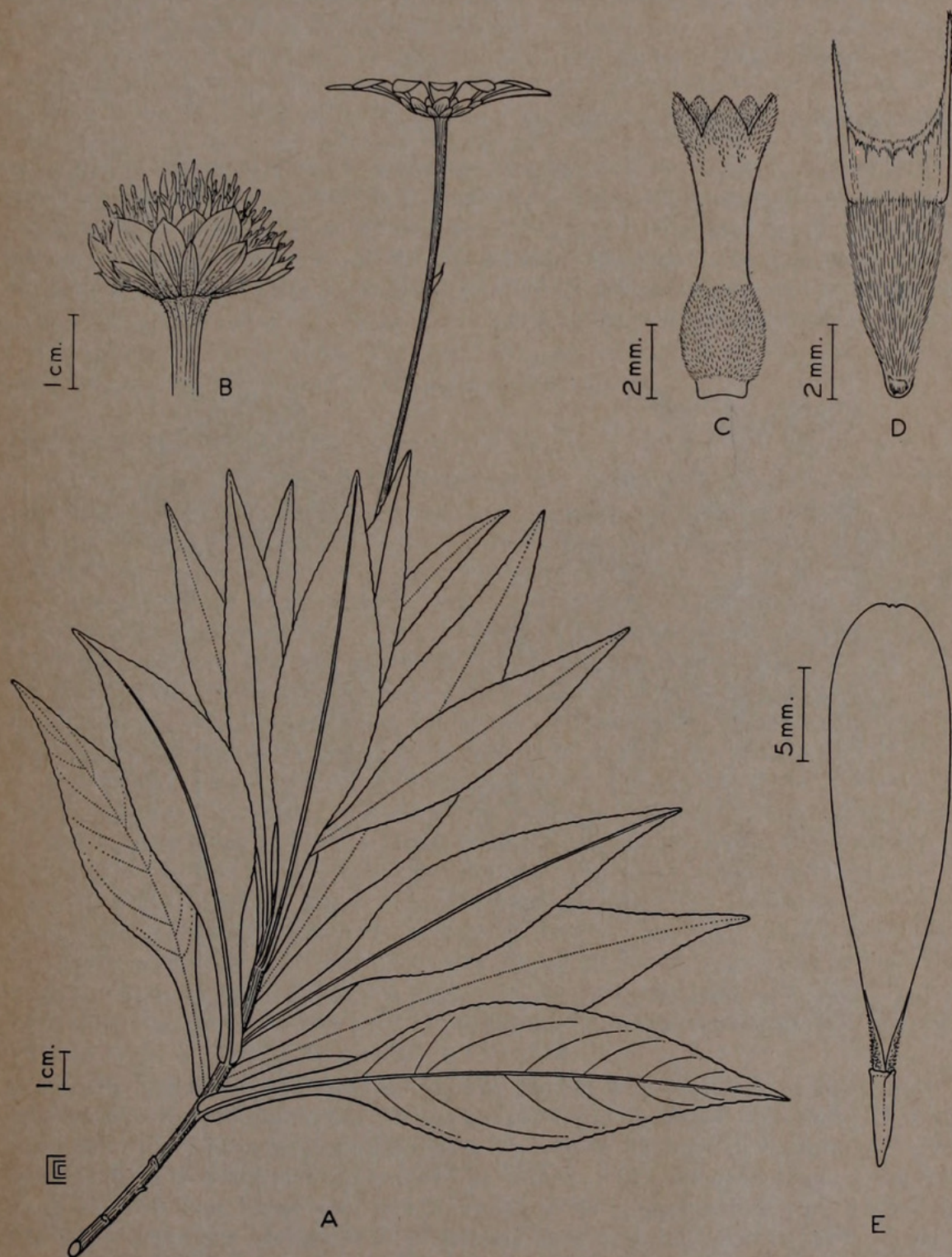


FIG. 1. *Tithonia pedunculata*, holotype. A, habit. B, maturing head, from which the rays have fallen, as pressed. C, disk corolla. D, disk achene, with pappus. E, ray flower.

T. pedunculata is similar in aspect to the more northern *T. fruticosa* Canby & Rose, of Sonora, Chihuahua, Durango, and Sinaloa, which is likewise a stout shrub with narrow (for the genus) alternate leaves with a petioliform base and with large heads on terminal peduncles. That species, however, is much more conspicuously hairy, the pubescence mostly spreading; its peduncles are short, up to about 1 dm long, and mostly surpassed by the leaves; the outer involucral bracts, like the inner, are relatively broad, with rounded or obtuse tip; and the receptacular bracts are surpassed by the disk flowers. The two species are clearly related and as clearly distinct.

***Galinsoga subdiscoidea* Cronquist, sp. nov. Fig. 2.**

Planta annua depressa 2–5 cm alta caulibus obscure strigosis puberulisve, foliis glabris integris subintegrisque oblanceolatis spatulatisve vel ellipticis usque ad 22 mm longis 8 mm latis vix petiolatis; capitula virido-lutea discoidea vel flosculum unicum femineum vix ligulatum habentia, involucri 3 mm alta achae-niis nigris pappo ex squamellis 10 bene evolutis ca. 1 mm longis ad apicem obtusis truncatisve et ciliolatis composito.



FIG. 2. *Galinsoga subdiscoidea*, holotype. A, habit. B, head, as expanded after boiling. C, head, as pressed. D, pistillate flower. E, disk flower.

Depressed annual only 2–5 cm tall, simple or branched; stem and peduncles thinly and inconspicuously strigose or puberulent, the plants otherwise glabrous; leaves all opposite, entire or nearly so, oblanceolate or spatulate to elliptic or narrowly rhombic, tapering to a narrow and sometimes more or less petiolar base, but not with a definite petiole, up to about 22 mm long and 8 mm wide, tending to be 3-nerved, the uppermost ones smaller and relatively narrower than the others; heads axillary and terminal, on short peduncles up to about 8 mm long, or some of them sessile, greenish-yellow, discoid or with a single small, inconspicuous, scarcely ligulate pistillate flower, campanulate to hemispheric, the

disk mostly 3–5 mm wide, involucre ca. 3 mm high; achenes obconic, black; pappus of about 10 well developed blunt scales a little shorter than the disk corollas, minutely fringed-ciliate distally, that of the pistillate flower similar to that of the disk flowers.

Type. *Cronquist 9583*, in thin soil on rhyolite rock in open pine woods; Sierra Madre Occidental, about 10 miles west of El Salto, state of Durango, Mexico. Elevation about 8800 feet. October 2, 1962. Holotype at NY; isotypes at F, GH, MEXU, MICH, TEX, US, others.

This species is perhaps most closely related to *G. semicalva* (Gray) St. John & White, which was collected at the same time at the same station but is amply distinct. *G. subdiscoidea* differs from all other species of *Galinsoga* in its diminutive habit, in its scarcely petiolate leaves, and in its mostly discoid heads, which are scarcely radiate even when a solitary pistillate flower is present. It is also unusual in being nearly glabrous, although *G. semicalva* approaches it in this respect. It further differs from *G. semicalva* in that the pistillate flower, when present, has a pappus like that of the disk flowers, whereas in *G. semicalva* the ray pappus is much reduced. The peculiar greenish-yellow color of the disk flowers is also different from the more definite yellow of those species of *Galinsoga* which I have observed in the field. The plant is nonetheless a true *Galinsoga*, and no other genus could be stretched to accommodate it.

***Piptothrix paleacea* Cronquist, sp. nov. Fig. 3.**

Suffrutex 3–4 m altus caule unico glauco, foliis ovatis subglabris breviter petiolatis caulis principalis quaternatis ramulorum oppositis; capitula plurima in inflorescentia magna foliosa cymoso-paniculata disposita, receptaculo paleaceo, floribus 11–13 albis involucrem perspicue superantibus.

Coarse, arching, single-stemmed semi-shrub 3–4 m tall, the main stem glabrous and glaucous, 2–3 cm thick; leaves whorled in 4's on the main stem, opposite on the flowering branches, rather broadly ovate, with rounded or subcordate base, crenate-serrate, palmately veined, somewhat villous-hirsute (especially proximally) on the midrib and main veins especially beneath, otherwise nearly glabrous, those of the upper part of the main stem up to 11 cm long and 8 cm wide, on a petiole up to 2 cm long, those of the flowering branches smaller, up to about 8 cm long and 6 cm wide, on petioles up to 1 cm long; heads short-pedunculate or sessile, numerous in small cymes arranged in a large, leafy, paniculiform inflorescence; involucre 2.5–3 mm high, the bracts finely and inconspicuously ciliate-margined and slightly glutinous, otherwise glabrous or nearly so; receptacle chaffy, the pales much like the involucre bracts; flowers 11–13, bright white, becoming somewhat ochroleucous in drying, about 3 mm long, conspicuously surpassing the involucre and pales; pappus of about a dozen slender, fragile, finely and remotely but conspicuously barbellate, deciduous bristles that are much shorter than the corolla, only about 1 mm long.

Type. *Cronquist 9775*, on steep slopes in the oak forest on the seaward slope of the mts., 11 road miles southwest of Autlan and 2 road miles southwest of the pass, state of Jalisco, Mexico. Elevation about 4500 feet. November 1, 1962. Holotype at NY; isotypes at F, GH, MEXU, MICH, TEX, US, others.

This species is unique in the genus in having a chaffy receptacle. Additional differences appear when it is compared with any of the other species. It is evidently more robust than the other known species, but herbarium specimens are at first sight much like those of *P. goldmanii* Rob. In field aspect the species is reminiscent of the group of *Eupatoria* to which *Eupatorium areolare* DC. belongs.

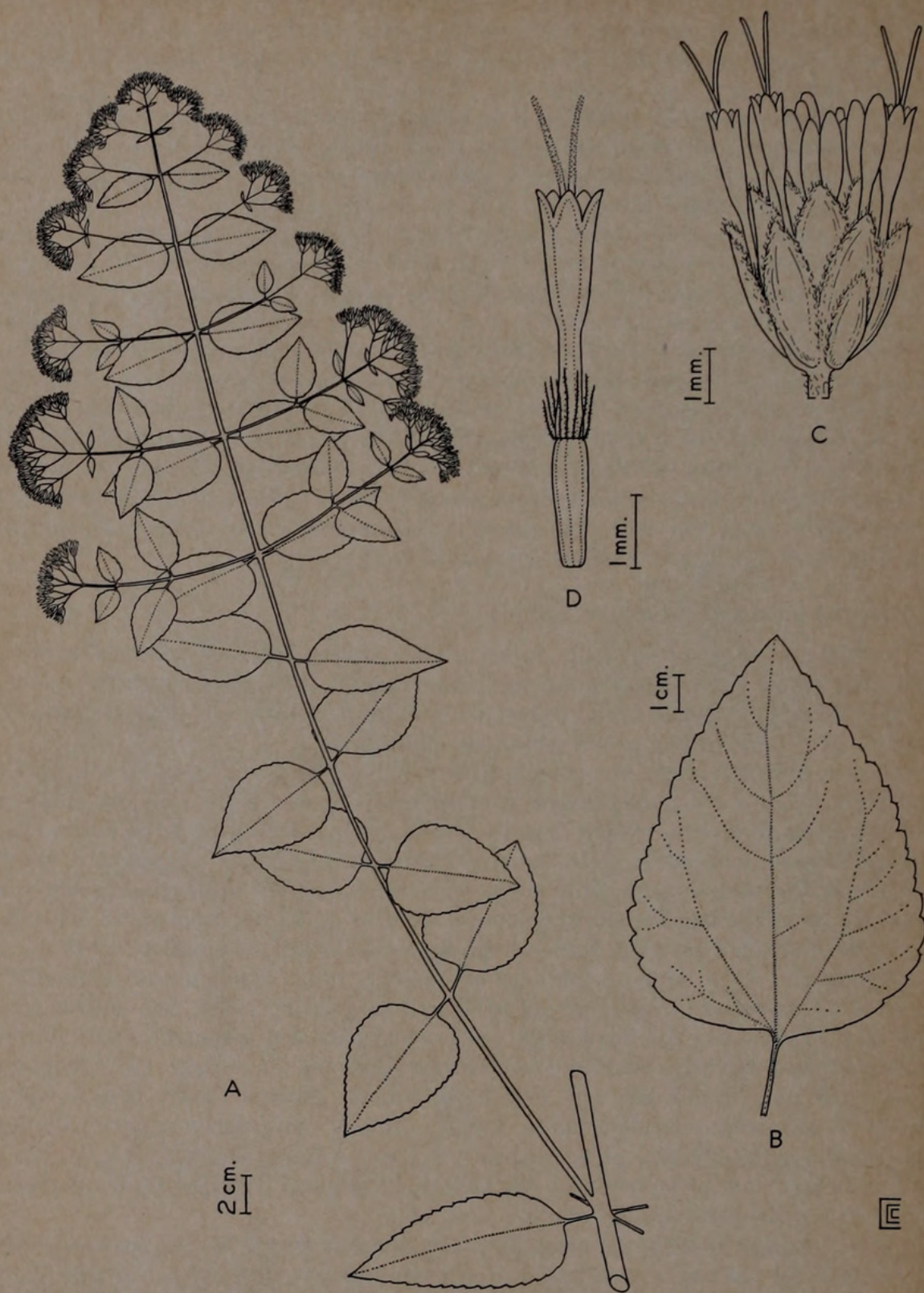


FIG. 3. *Piptothrix paleacea*, holotype. A, habit. B, leaf from upper part of main stem. C, head. D, disk flower.

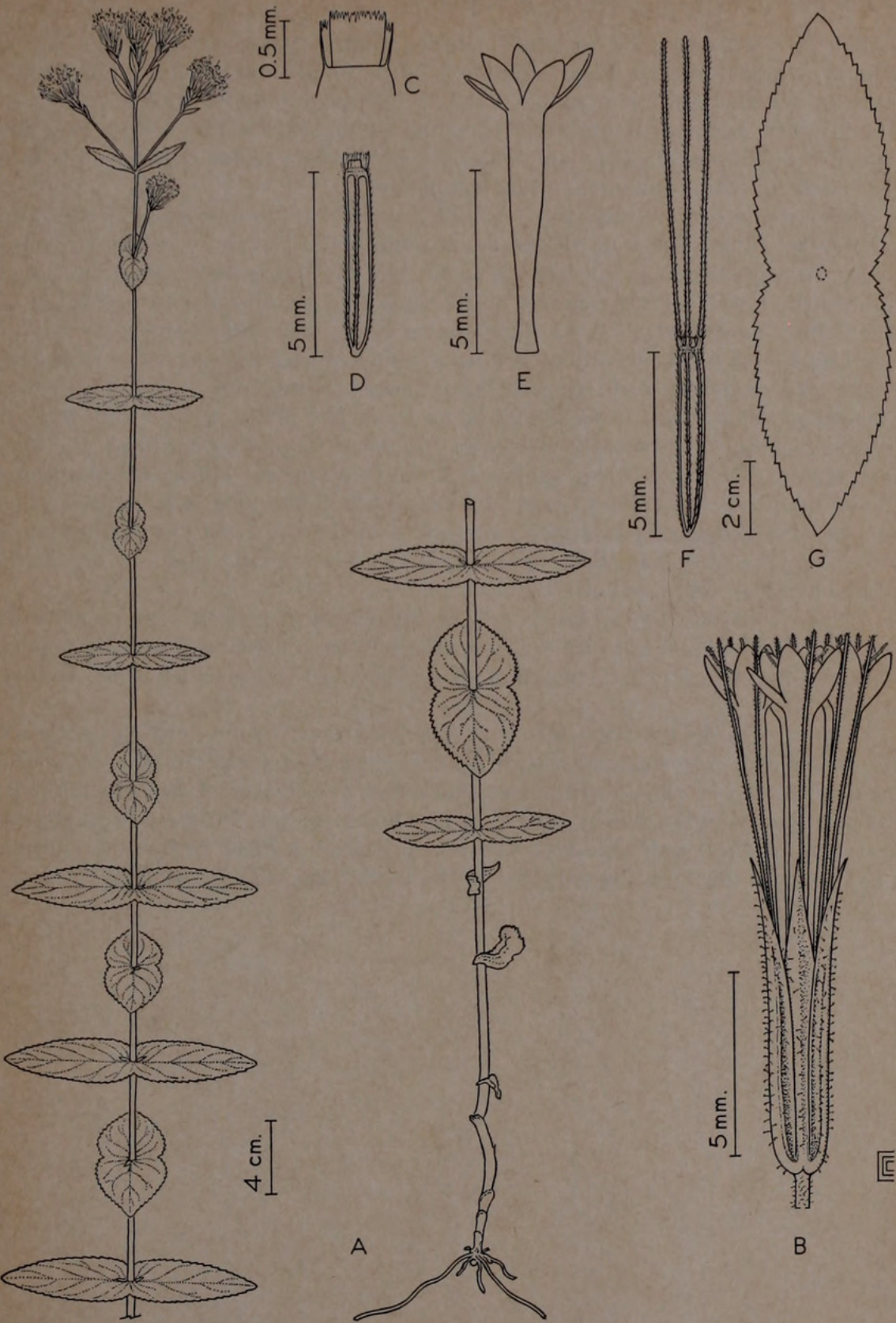


FIG. 4. *Stevia perfoliata*, holotype. A, habit. B, head. C, D, achene with pappus scales but no awns. E, disk corolla. F, achene with both pappus scales and pappus awns. G, vertical view of outline of a single pair of leaves.

***Stevia perfoliata* Cronquist, sp. nov. Fig. 4.**

Herba perennis ca. 1 m alta omnino glanduloso-pubescens, foliis serratis oblongo-ovatis usque ad 7 cm longis 4.5 cm latis perspicue connato-perfoliatis; capitula plurima conferta sessilia vel breviter pedunculata, involucri 8–9 mm alto bracteis anguste cecuminatis; floribus purpureis corolla fere 1 cm longa, achaeniis 5 mm longis pappo quattuor ex aristis longis tribus et squamellis brevibus tribus, quintius squamellis solis composito.

Fibrous-rooted perennial about 1 m tall, the solitary stem evidently spreading-hairy throughout, many of the hairs, especially the shorter ones, gland-tipped; leaves firm, glandular-hairy like the stem, but the pubescence somewhat shorter and, on the lower surface, sparser; lowermost leaves reduced and deciduous, the others well developed, about a dozen pairs below the inflorescence, up to 7 cm long and 4.5 cm wide, sharply serrate, ovate-oblong, scarcely narrowed at the base, sessile and evidently connate-perfoliate; heads crowded in a round-topped inflorescence about 1 dm wide, sessile or on short peduncles up to 5 mm long; involucre 8–9 mm high, shortly glandular-hirsute or stipitate-glandular, the bracts firm, strongly carinate below, tapering above to a narrow, almost subulate point; corolla purple, 8–9 mm long (dry); achenes black, 5 mm long, hirtellous-scabrous; pappus of 4 achenes in each head composed of 3 long awns about equaling the corolla and 3 alternating short, broad, hyaline scales only 0.5 mm long, of the fifth achene awnless, composed of short scales only.

Type. *Cronquist 9715*, steep, east-facing, calcareous slopes in open, grassy oak-pine woods; Sierra Madre del Sur, about 10 road miles west of Chilpancingo, state of Guerrero, Mexico. Elevation about 5400 feet. October 21, 1962. Holotype at NY.

This species differs from all other *Stevias* known to me, and certainly from all other North American species, in its evidently connate-perfoliate leaves. Both the general aspect and the technical characters are clearly of *Stevia*, but it does not seem particularly closely related to any other species. Only a few plants were seen, and of these only one was suitable to become a good herbarium specimen. The species is therefore represented in the herbarium only by its holotype.



Cronquist, Arthur. 1965. "Studies in Mexican Compositae. I. Miscellaneous new species." *Memoirs of the New York Botanical Garden* 12(3), 286–292.

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