

**SEVEN NEW SPECIES OF *AGERATINA*
(ASTERACEAE: EUPATORIEAE) FROM MEXICO**

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ABSTRACT

Seven new species of *Ageratina* are described from Mexico: ***A. colimana*** B.L. Turner, ***A. pochutlana*** B. L. Turner, ***A. soejimana*** B.L. Turner, ***A. solana*** B.L. Turner, ***A. spooneri*** B.L. Turner, ***A. textitlana*** B.L. Turner and ***A. yaharana*** B.L. Turner. Their relationships to previously described species are discussed and photographs of their holotypes are provided. *Phytologia* 90(3): 358-374 (December, 2008).

KEY WORDS: Asteraceae, Eupatorieae, *Ageratina*, Mexico, Jalisco, Oaxaca, Veracruz

Ageratina is a speciose member of the family Asteraceae. In my treatment of the genus for Mexico (Turner 1997) 131 species were recognized. Subsequently eight additional species were added (Turner 1996a, 1996b, 2006, 2007). The present contribution brings to 18 the number added to Mexico since my initial treatment, the grand total now numbering 149 species.

AGERATINA COLIMANA B.L. Turner, **sp. nov.** Fig 1

Ageratinae herbaceae (A. Gray) King & H. Rob. similis sed differt foliis glabris, petiolis plerumque 3-4 cm longis (vs. 1.0-2.5 cm), et pedunculis ultimis brevioribus (2-4 mm longis vs. 4-15 mm) trichomatibus glandulosi-pubescentibus (vs. non glandulosis).

Perennial herbs 50 cm high or more. **Stems** terete, ca 3 mm across, minutely pubescent with up-curved hairs. **Leaves** opposite throughout, 6-10 cm long, 4-7 cm wide; petioles of primary leaves mostly 3-4 cm long; blades decidedly deltoid, 3-5 nervate from the base, glabrous and smooth on both surfaces, the margins coarsely dentate and minutely pubescent. **Capitulescence** a terminal congested corymb, the ultimate peduncles 2-4 mm long, clearly glandular-pubescent. **Heads** ca 6 mm high, each containing ca 15 florets; involucre bracts 4-5 mm long. **Corollas** white, ca 3 mm long, glabrous, the lobes 5, ca 0.8 mm long. **Achenes** 2.0-2.5 mm long, sparsely pubescent; pappus of 20-30 readily deciduous white bristles ca 3 mm long.

TYPE: **MEXICO. JALISCO:** E slope of Nevada de Colima; "12.7 km W of JCT to Route 110, on lumber road to Fresnito. Roadside, in open pine-oak forest," 2150 m, 7 Mar 1998, *T. Yahara, A. Soejima & T. Kajita 1451* (Holotype: TEX).

Ageratina colimana, in habit and leaf shape, resembles *A. herbacea*, as noted in the above diagnosis, the latter seemingly restricted to northeastern Mexico and closely adjacent U.S.A. In the treatment of *Eupatorium* (including *Ageratina*) by McVaugh (1984), the novelty is not accounted for, nor will it key in my treatment of *Ageratina* for Mexico (Turner 1992). In short, the species is quite distinct and deserving of specific status.

The species is named for the Nevada de Colima, along whose eastern slopes the type was collected.

AGERATINA POCHUTLANA B.L. Turner, *sp. nov.* Fig 2

Ageratinae acevedoanae B.L. Turner similis sed differt foliis laminis ovatis (vs. cordatis vel subdeltatis), petiolis brevioribus (1.5-2.5 cm longis vs. 4-6 cm), et trichomatibus glandulosis multo brevioribus (ca 0.2 mm altis vs. 0.6-1.3 mm).

Perennial herbs to 70 cm high. **Mid-stems** pubescent with crinkly hairs ca 0.5 mm high, beneath these a minute array of glandular-pubescent hairs. **Leaves** opposite throughout; blades broadly ovate, 3-5

palmate from above the base, 8-11 cm long, 4-6 cm wide, moderately pubescent above and below, especially along the ribs, the margins crenulate; petioles 1.5-2.5 cm long, grading into the blades. **Capitulescences** both terminal and axillary, 4-6 cm high, 7-10 cm across, the ultimate peduncles 8-10 mm long, glandular-pubescent. **Heads** numerous, ca 6 mm high; involucral bracts linear-lanceolate, ca 5 mm long, glandular-pubescent, their apices acute. **Florets** 30-40 per head (estimated); corollas white, ca 3 mm long; tubes ca 2 mm long, their lobes bearing at least a few spreading hairs. **Achenes** ca 1.5 mm long, sparsely hispid; pappus of ca 20 readily disarticulating bristles 3 mm long.

TYPE: **MEXICO. OAXACA: Mpio. San Miguel del Puerto**, "Oreja de Leon, Selva mediana subperennifolia. con cafe, suelo colorado." ca 1378 m, 3 Nov 2004, (15 58 47.8 N, 96 0725.5 W), *Jose Pasqual 1053* (Holotype: TEX).

Because of its glandular-pubescent capitulescence, this novelty will key to the more northern *A. acevedoana* in my treatment of Mexican *Ageratina* (Turner 1997), with which it is compared in the above diagnosis. *Ageratina pochutlana* might also be reasonably compared with the superficially similar, more widespread, highly variable, *A. pichinchensis* (H.B.K.) King & H. Rob, the latter lacking glandular hairs and having smaller, mostly non-tapering blades and shorter ultimate peduncles (3-5 mm long vs. 8-10 mm).

The species name derives from Distrito Pochutla, whence the type.

AGERATINA SOEJIMANA B.L. Tuner, **sp. nov.** Fig 3

Ageratinae ovillae (Standl. & Steyerf.) King & H. Rob. similis sed differt habitu (frutices (?) erecti vs. vineae scandentes), involucris minoribus (4-5 mm altis vs. 7-8 mm) flosculis numerosioribus (ca 15 vs. 8-10), et acheniis hispidis (vs. glandululosi-pubescentibus) trichomatibus ascendentibus.

Shrub to 1 m (?) high. **Stems** terete, 2-3 mm across, minutely puberulent to glabrate. **Leaves** opposite throughout, 6-8 cm long, 3-4

cm wide; petioles 1.0-1.5 cm long; blades ovate, glabrous above, sparsely pubescent and reticulately veined beneath, the margins serrulate. **Capitulescence** a leafy terminal corymbose panicle, ca 10 cm high and 15 cm across, the ultimate peduncles mostly 3-5 mm long. **Heads** 8-9 mm high, ca 5 mm wide, each containing ca 15 florets; receptacle plane, ca 0.8 mm across, glabrous. **Involucre**s ca 4 mm high; bracts ca 10, all very similar and uniseriate, abruptly acute apically, beneath these 1-3 linear bracts somewhat longer than the involucre. **Corollas** white, glabrous, 4-5 mm long, the throats indistinct; apical lobes 5, ca 1 mm long. **Achenes** ca 2 mm long, pubescent with stiff ascending hairs; pappus of 40-50 persistent uniseriate bristles 3-4 mm long.

TYPE: MEXICO. OAXACA: Mpio. Diaz Ordaz, along "road to Cuajimoloyas. In edge of oak and Acacia thicket," 2300 m, 17 01.8 N, 96 28.3 W, 9 Nov 1997, T. Yahara, M. Mishima, T. Kajita & K. Ooi 1070 (Holotype: TEX).

In my treatment of *Ageratina*, subgenus *Neogreenella* for Mexico, this novelty, because of its 8-10 involucral bracts will key to or near *A. ovilla*, a clambering shrub of Chiapas. *Ageratina soejimana* is clearly a shrub, much resembling in habit a species of *Koanophyllon* but having floral features of *Ageratina*.

The species name honors Akiko Soejima of Osaka Prefecture Univ., Osaka, Japan. He has been part of the remarkable *Stevia* team associated with Prof. Yahara (cf. *Ageratina yaharana*, described below, and Watanabe et al. 2001.).

AGERATINA SOLANA B.L. Turner, **sp. nov.** Fig 4

Ageratinae leptodictyon (A. Gray) King & H. Rob. similis sed differt statura minore, foliis midcaulinibus minoribus (1-2 cm longis vs. 2-5 cm), capitulis majoribus flosculis numerosioribus (50 vel plures vs. 10-15), et involucris majoribus (6-7 mm longis vs. ca 4 mm).

Perennial herbs to 50 cm high. **Stems** pubescent with both crinkly hairs and spreading glandular-pubescent trichomes. **Mid-stem leaves**

much-reduced, opposite throughout, their internodes 4-8 cm long; blades 1-2 cm long, 0.5-1.5 cm wide; petioles 1-4 mm long. **Lower leaves** 3-4 cm long, 1.5-4.0 cm wide, essentially glabrous above and below, their margins irregularly serrate; petioles 1-2 cm long. **Capitulescence** terminal, bearing 5-6 heads on ultimate peduncles 2-7 cm long, pubescent like the stems. **Heads** 6-7 mm high; involucre bracts linear-lanceolate, 6-7 mm long, their apices acute. **Florets** 50 or more per head; corollas white, glabrous, ca 4 mm long. **Achenes** ca 2 mm long, hispidulous; pappus of ca 30 bristles ca 5 mm long.

TYPE: **MEXICO. OAXACA: Mpio. Santiago Textitlan**, "Paraje El Tambor, Bosque de pino-encino. Suelo blanco." (16 42 57.2 N, 97 19 42.5 W), ca 1922 m, 13 Nov 2006, *Idalia Trujillo Olazo* 902 (Holotype: TEX).

In my treatment of Mexican *Ageratina* (Turner 1997) *A. solana* will key to or near the more northern *A. leptodictyon*, to which it is compared in the above diagnosis. It differs from the latter in being a much smaller plant with smaller leaves and having larger heads with more numerous florets. It should be noted that the type is composed of three mounted sprigs, one of these possessing glandular trichomes, the other two not so.

The novelty is named, in part, for the Distrito Sola de Vega, whence the type.

AGERATINA SPOONERI B.L. Turner, **sp. nov.** Fig 5

Ageratinae triangulatae (DC.) B.L. Turner similis sed differt lobis corollarum, caulibus, et foliis pubescentibus (vs. glabris) et capitulis minoribus (ca 5 mm altis vs. 6-7 mm).

Stiffly erect perennial herbs to 1 m (?) high. **Stems** purple, evenly pubescent with minute up-curved hairs. **Leaves** opposite throughout, mostly 6-10 cm long, 4-6 cm wide; petioles 2-3 cm long; blades broadly ovate to deltoid, 3-nervate from the very base, sparsely pubescent on both surfaces, especially along the nerves. **Capitulescence** a terminal stiffly divaricate corymbose panicle ca 5-8

cm high and as wide, the ultimate peduncles 10-20 mm long, pubescent like the stems. **Heads** ca 5 mm high, 4 mm wide, each with 15-20 florets. **Involucres** ca 3 mm high, the bracts linear-lanceolate, subequal. **Receptacles** plane, ca 1 mm across. **Corollas** ca 2 mm long with well defined tubes and throats, the lobes clearly pubescent. **Achenes** black, ca 1.5 mm long, sparsely pubescent along the ribs; pappus of ca 20 white fragile awns ca 2 mm long.

TYPE: **MEXICO. VERACRUZ: Mpio. Villa Aldama,** " In pine forests on S side of Jalapa-Veracruz RD., ca. 4 mi. W of Prof. R. Ramirez." 2450 m, 9 Dec 1984, *David M. Spooner 2875* (Holotype: TEX).

While not technically positioned in the subgenus *Neogreenella*, the present novelty seems best compared with *A. triangulata* (DC.) B.L. Turner of that taxon, under which name it has resided for many years at TEX, due to my neglect of the sheet concerned. In my key to the species of *Ageratina* for Mexico (Turner 1997), the present novelty, due to poor key construction on my part, will key to the widespread *A. pasquarensis*, which it resembles not at all. The name honors the collector of the type, Prof. Spooner of the Univ. of Wisconsin, extraordinary scholar of the genus *Solanum*, not to mention his expertise in yet other groups. On top of that he is an excellent field collector, having wide interests in plants generally, or else he would not have gathered the present novelty. In short, his eponymous immortality offered here is well deserved

AGERATINA TEXTITLANA B.L. Turner, **sp. nov.** Fig 6

Ageratinae oaxacanae (Klatt) King & H. Rob. similis sed differt foliis tenuioribus angustioribus marginibus paene integris (vs. manifeste serratis), capitulis minoribus (5-6 mm altis vs. 7-8 mm), et setis pappi brevioribus (ca 3 mm longis vs. 5-6 mm) monomorphis (vs. dimorphis).

Perennial herbs, reportedly 0.5-1.0 m high. **Stems** glabrous. **Leaves** opposite throughout, pinninervate, linear-lanceolate, 8-14 cm long, 1-2 cm wide, glabrous, the margins entire or weakly dentate; petioles 1-2

cm long, grading into the blades. **Capitulescence** terminal, more or less flat-topped, 5-8 cm high, 5-10 cm across, the ultimate peduncles 5-10 mm long. **Heads** 5-6 mm high; involucral bracts linear-lanceolate, 3-4 mm long, ca 0.8 mm wide, glabrous, their apices rounded. **Florets** ca 25 per head; corollas white, glabrous, 2.0-2.5 mm long, the lobes deltoid, 1.0-1.5 mm long. **Achenes** hispid, ca 2.5 mm long; pappus of ca 50 monomorphic deciduous bristles ca 3 mm long, these arranged in a single series.

TYPE: MEXICO. OAXACA: Mpio. Santiago Textitlan, "Paraje Rio Aguacate. Bosque de pino-encino secundario. Guamil. Orilla de arroyo o rio." ca 1875 m, 14 Dec 2006, *Idalia Trujillo Olazo* 1128 (Holotype: TEX).

ADDITIONAL SPECIMENS EXAMINED: MEXICO. OAXACA. Mpio Santiago Textitlan, "Paraje El Cajon," ca 1921 m, 13 Nov 2006, *Olazo* 968 (TEX); ca 1921 m, 13 Nov 2006, *Olazo* 968 (TEX); "Paraje portillo de Cerro Espino," ca 1936 m, 25 Nov 2006, *Salinas* 1091 (TEX); "Arriba de Barranca Nube," ca 1891 m, 27 Dec 2006, *Salinas* 1307 (TEX); "Camino rumbo a Nuevo Leon," ca 1842 m, 29 Dec 2006, *Vasquez* 1066 (TEX).

This very distinctive species belongs to the subgenus *Neogreenella* and will key to or near the more northern *A. oaxacana* (cf Fig 4, this based upon specimens at TEX) in my treatment of the Mexican species (Turner 1997). It differs from the latter in leaf shape, head size and pappus structure, as noted in the above diagnosis. Indeed, the relationship of *A. textitlana* to taxa within the subgenus is moot; I have compared it to *A. oaxacana* more out of convenience than conviction. In short, *A. textitlana* has a decidedly different pappus than that of *A. oaxacana*, and does not belong within or near the phyletic grouping to which the latter belongs (*A. mairetiana* and cohorts; cf. Turner 2006).

Ageratina textitlana is presumably relatively common in the area concerned, to judge from the specimens assembled to date. The species is named in part from the Municipio from which the type was collected.

AGERATINA YAHARANA B.L Turner, **sp. nov.** Fig 7

Ageratinae rubricauli (H.B.K.) King & H. Rob. similis sed differt laminis foliorum minoribus, crassioribus, infra magis subtiliter reticulatis et globulis aureis numerosis vestitis.

Perennial herbs. **Stems** terete, ca 3 mm across, minutely puberulent to white-tomentose, amongst the vestiture an abundant array of minute golden globules. **Leaves** (upper) opposite throughout, markedly thickened, 5-7 cm long, 3.0-4.5 cm wide; petioles 2-3 cm long, pubescent like the stems; blades ovate-deltoid, the lower surfaces 5-nervate from the base, puberulent, especially along the veins, markedly fine-reticulate and well endowed with golden globules, the margins irregularly crenate. **Capitulescence** a terminal corymbose panicle ca 7 cm high, 9 cm across, the ultimate peduncles mostly 1-3 mm long. **Heads** ca 8 mm high, each containing ca 15 florets; receptacle plane, glabrous. **Involucres** ca 4 mm high; bracts subequal, 2-3 seriate, pubescent like the stems and well endowed with golden globules. **Corollas** white, glabrous, ca 5 mm long, the 5 lobes ca 0.8 mm long. **Achenes** (immature) ca 2.5 mm long, sparsely pubescent; pappus of 40-50 persistent bristles ca 4 mm long.

In my treatment of *Ageratina* subgenus *Neogreenella* for Mexico (Turner 1997) the present novelty will key to or near *A. rubricaulis* but the latter possesses very different leaves, both in shape and texture, not to mention yet other characters. In short, I find it difficult to relate *A. yaharana* to any of the Mexican *Ageratinas* known to me, hence its description here.

The species is named for Prof. Tetsukazu Yahrara of Kyushu Univ., Fukuoka, Japan, who assembled a team of workers to study the genus *Stevia* in North and South America, the present novelty a product of that venture.

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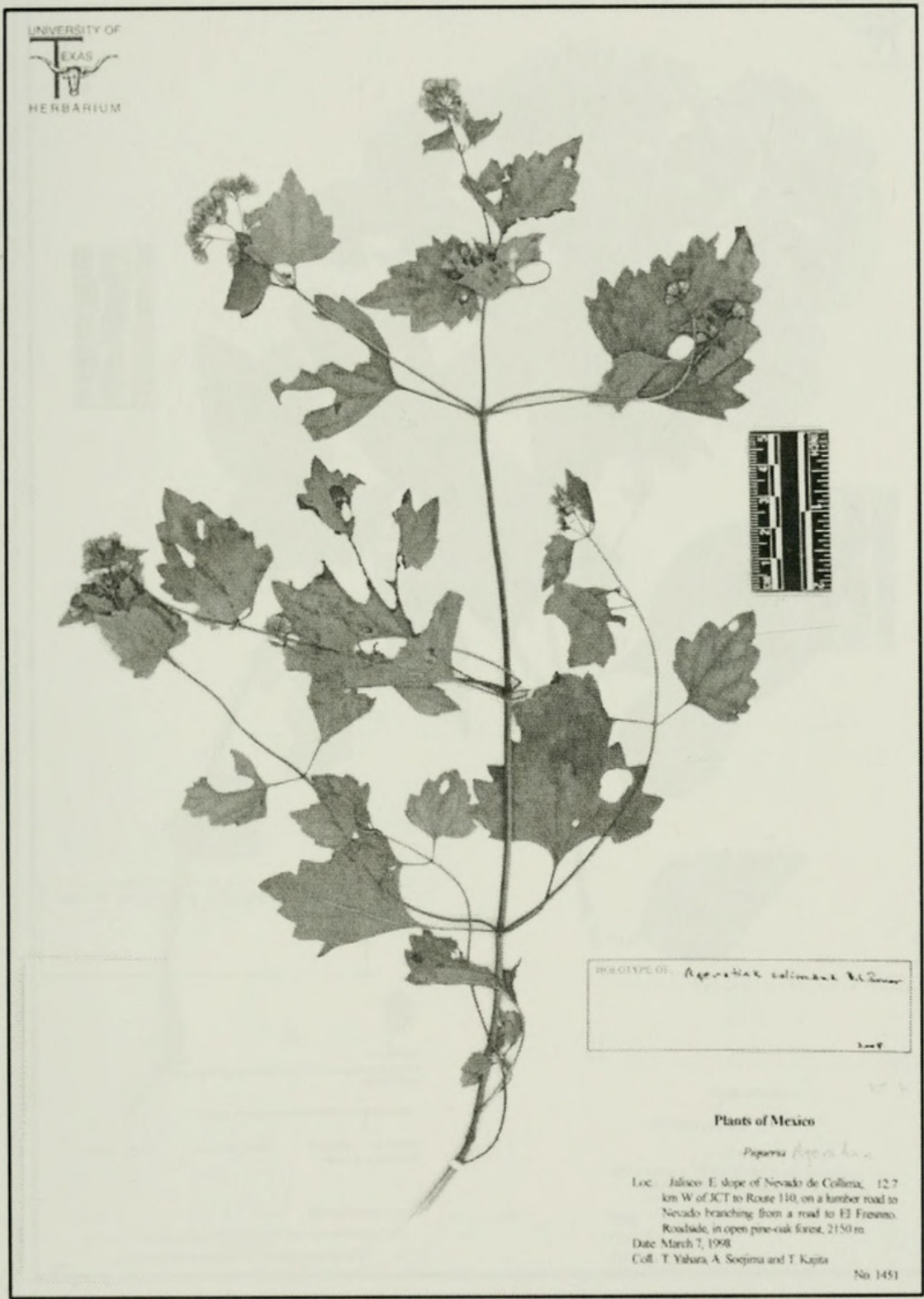


Fig. 1. Holotype of *Ageratina colimana*.

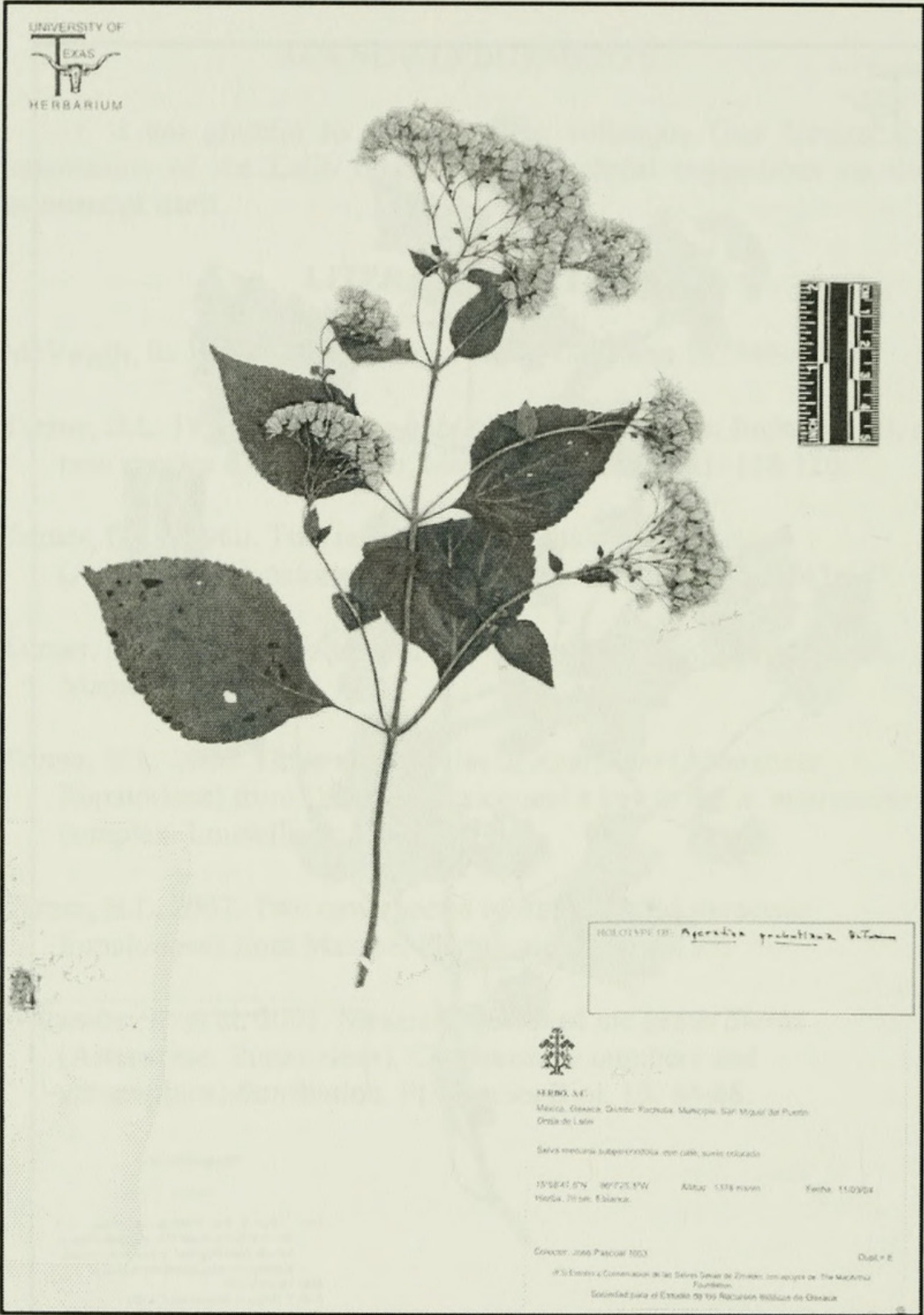


Fig. 2. Holotype of *Ageratina pochutlana*.

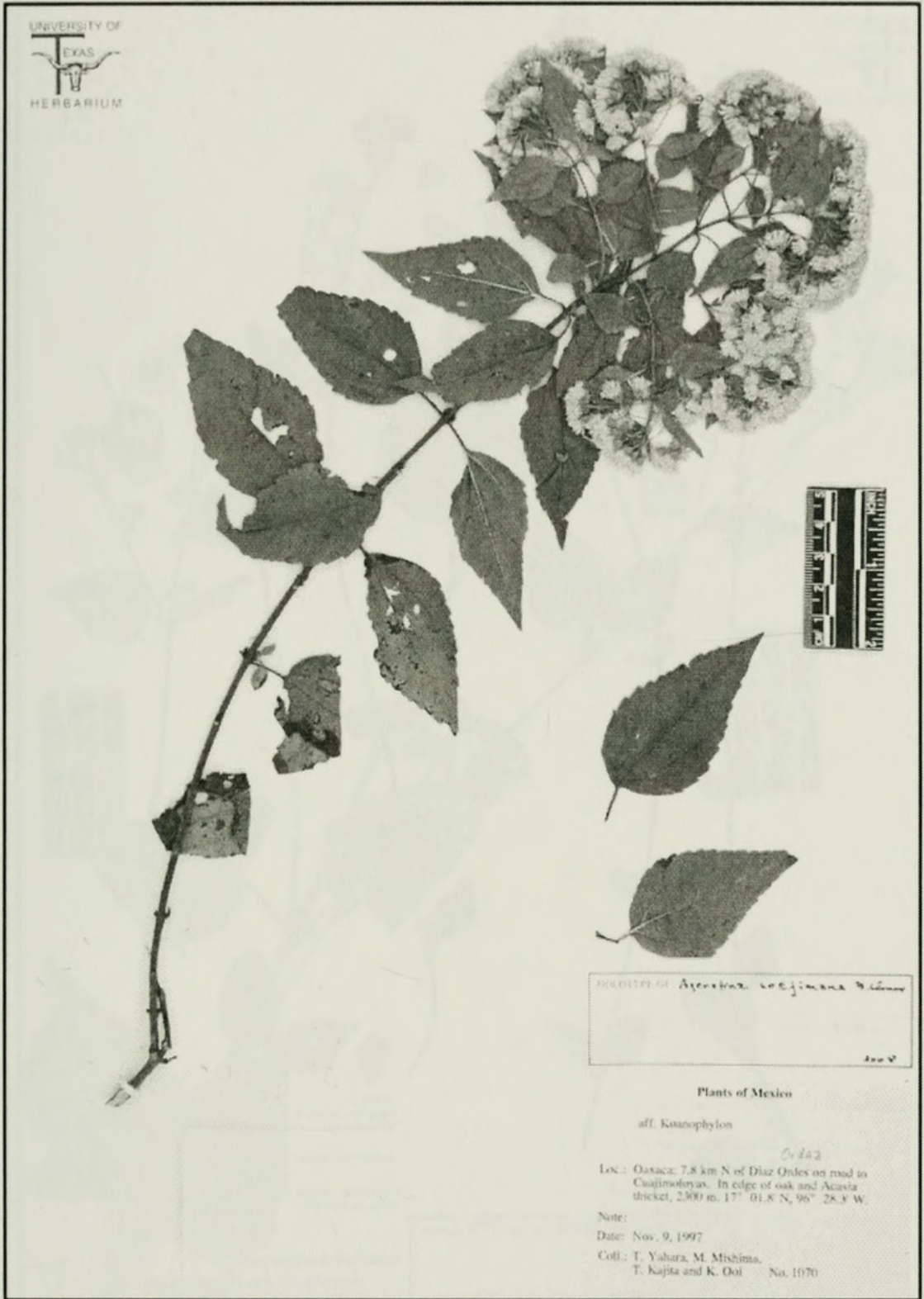


Fig. 3. Holotype of *Ageratina soejimana*.

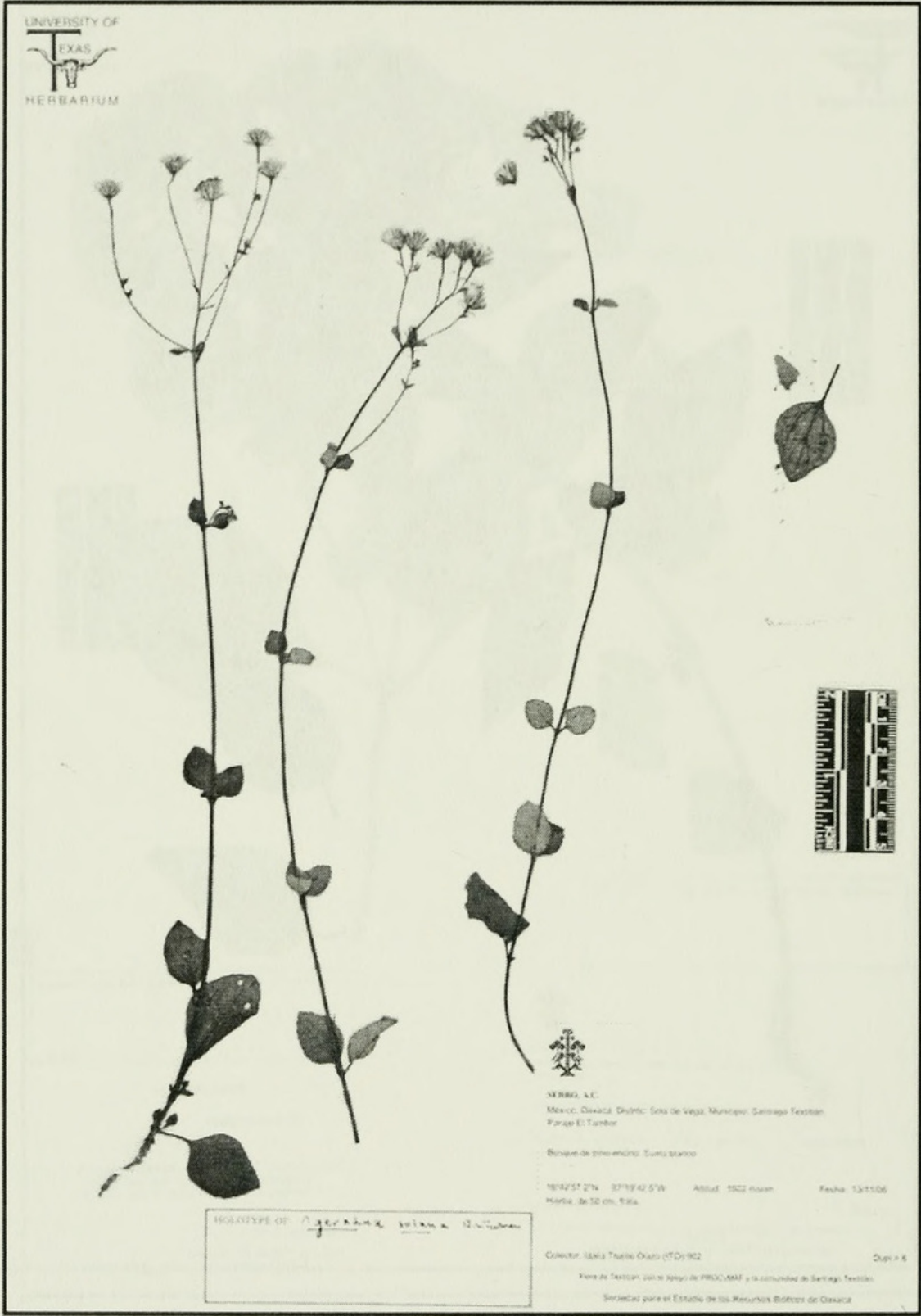


Fig. 4. Holotype of *Ageratina solana*.



Fig. 5. Holotype of *Ageratina spooneri*.



Fig. 6. Holotype of *Ageratina textitlana*.

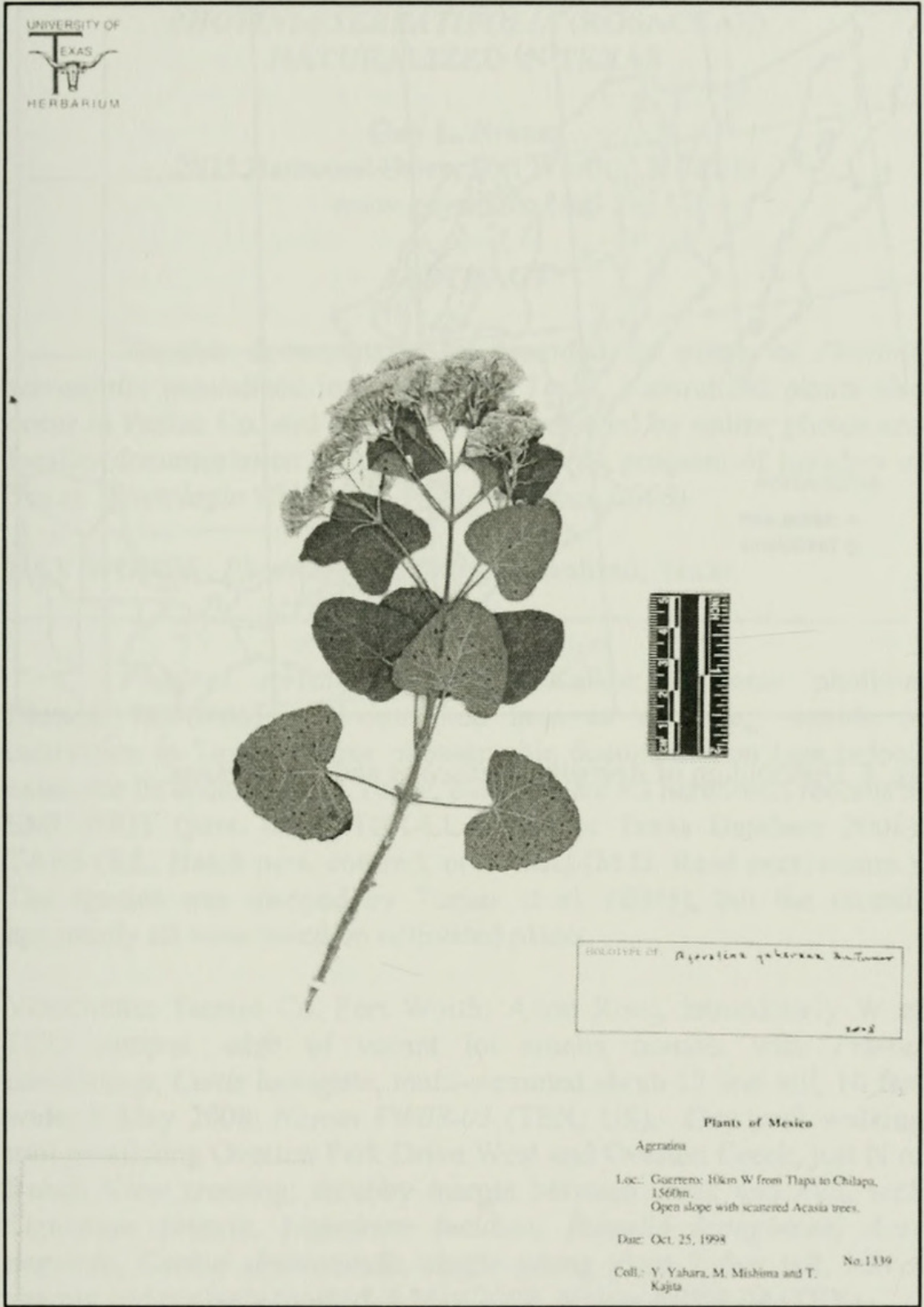


Fig. 7. Holotype of *Ageratina yaharana*.



Fig. 8. Distribution of *Ageratina oaxacana* and *A. textitlana*.



Turner, B. L. 2008. "Seven new species of Ageratina (Asteraceae: Eupatorieae) from Mexico." *Phytologia* 90(3), 358–374.

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