A New Species of Galinsoga (Asteraceae: Millerieae: Galinsoginae) from Northwestern Mexico

Author: Panero, José L.

Source: Lundellia, 2003(6) : 148-151

Published By: The Plant Resources Center, The University of Texas at Austin

URL: https://doi.org/10.25224/1097-993X-6.1.6

A New Species of *Galinsoga* (Asteraceae: Millerieae: Galinsoginae) from Northwestern Mexico

José L. Panero

Section of Integrative Biology and Plant Resources Center, The University of Texas, Austin, Texas 78712

Abstract: Galinsoga crozierae from the state of Durango, northwest Mexico is described and its salient morphological features compared to those of other species in the genus.

Keywords: *Galinsoga,* Asteraceae, Millerieae, Durango, Mexico.

The genus *Galinsoga* Ruiz & Pav. contains between 10–25 species depending on taxonomic authority and is centered about central Mexico. The genus is circumscribed by its trilobed, white-rayed corollas, opposite leaves, and narrowly obconical cypselae. The delimitation of the genus from its closest relatives, the genera *Alloispermum* Willd., *Sabazia* Cass., and *Stenocarpha* S. F. Blake is not satisfactory and has led to considerable confusion in the taxonomy and composition of *Galinsoga.* Results from molecular studies of subtribe Galinsoginae show that *Galinsoga* is not monophyletic and that some of its species are of hybrid origin (Panero and Plovanich-Jones, unpubl. data). My taxonomic preference at this point in the molecular phylogenetic study of subtribe Galinsoginae is to recognize a more inclusive *Galinsoga* by placing in its synonymy the genera *Alloispermum, Sabazia,* and *Stenocarpha.* This preference is subjective but pragmatic because these studies reveal a polyphyletic *Galinsoga* with some of the species sampled sister to *Sabazia,* others sister to *Alloispermum* and a few splitting sequentially and basal to these clades. To maintain *Alloispermum* and *Sabazia* as distinctive genera would require erecting several new genera to accommodate the species of Galinsoga not nested with the type species of the genus, *G. parviflora* Cav. Some of these new genera would be monotypic and difficult if not impossible to differentiate from typical Galinsoga.

Galinsoga crozierae, because of its reduced habit, discoid capitula, epappose cypselae, and herbaceous phyllaries tinged with purple at their distal ends shares the morphology of other alpine genera of the subtribe such as *Alepidocline* S. F. Blake, *Aphanactis* Wedd., and *Cuchumatanea* Seid. & Beaman. Molecular studies based on the Internal Transcribed Spacer (ITS) region of the nuclear ribosomal DNA place this taxon in a clade containing all species of *Galinsoga* and allies endemic to the area of the Sierra Madre Occidental dissected by the Durango-Mazatlán (highway 40) road. *Galinsoga crozierae* is sister to *G. subdiscoidea* Cronquist, a mat-forming species with discoid or radiate heads; when radiate, the ligules of *G. subdiscoidea* are essentially inconspicuous. These two species are sister to the clade containing the white-ligulate species *Galinsoga* (*Stenocarpha*) *filiformis* Hemsl. and *Galinsoga* (*Tricarpha*) *durangensis* (Longpre) J. M. Canne. These four species form a clade sister to the rest of the species of *Galinsoga-Sabazia* and *Alloispermum* (Panero & Plovanich-Jones unpublished data). The placement of this new taxon in *Galinsoga* is based primarily on results from the ITS study as generic limits in the Galinsoginae are poor if not confusing.

Galinsoga crozierae Panero, sp. nov. (Fig. 1).

TYPE: **MEXICO.** DURANGO: 5.2 mi. al oeste de Revolcaderos sobre la carretera

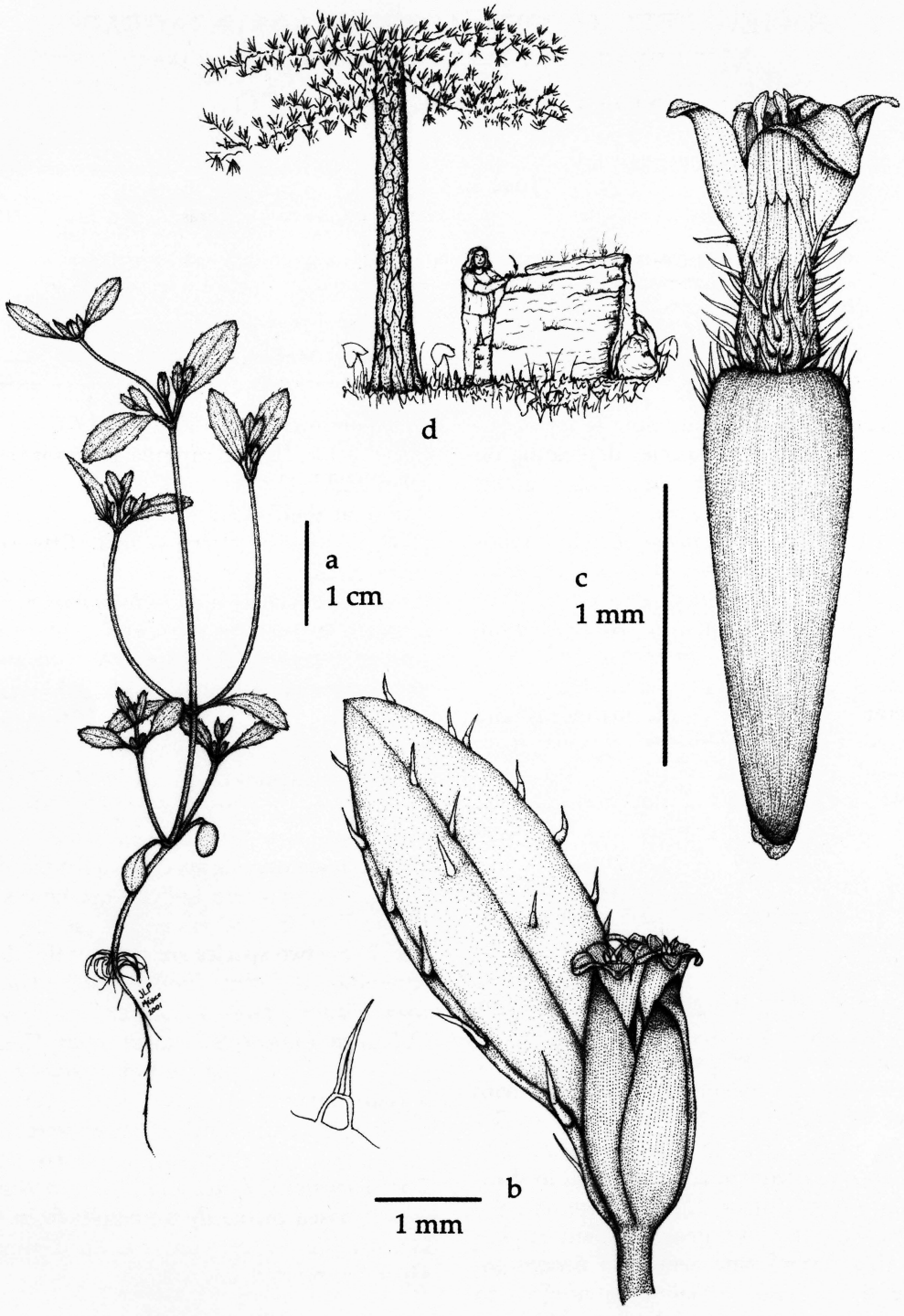

FIG. 1. *Galinsoga crozierae* (*González, Panero and Crozier 6187*, TEX). a. Habit. b. Head with associated leaf. Trichome outline as seen with compound light microscopy, not to scale. c. Disc flower. d. Ms. Bonnie Crozier observing plants of *G. crozierae* growing in moss mats on a ledge of a rock. The cordate leaves drawn in the understory of open pine-oak forest are those of *Psacalium cronquistiorum* B. L. Turner.

Durango-Mazatlán (MEX 40), sobre rocas en bosque de pino-encino, 23° 34.247′ N, 105° 49.951′ W, 2700 m, 19 Agosto 1999, *S. González, J. L. Panero & B. Crozier 6187* (HOLOTYPE: CIIDIR; ISOTYPES: CTES, IEB, IZTA, MA, MEXU, MBM, NY, TENN, TEX, UC, US).

A *Galinsoga subdiscoidea* capitulis minoribus, inflorescentiis minoribus, et floribus disci pauciori-bus differt.

ANNUALS 3–10 cm tall. LEAVES opposite, sessile or with a very short petiole, blades 0.2–1.1 cm long, 1.0–3.0 mm wide, ovate to elliptic. CAPITULESCENCES solitary or simple cymes of 1–3 heads. HEADS discoid, tubular to narrowly campanulate, ca. 3.0 mm tall, 1–1.5 mm wide, sessile or on very short peduncles. PHYLLARIES 4–5, narrowly ovate to elliptic, herbaceous or chartaceous, unequal, green with deep purple distal ends, 2.1–2.8 mm long, 0.6–1.2 mm wide, one of the phyllaries (pale?) chartaceous and bilobed. RAY FLOWERS absent. DISC FLOWERS 4, perfect; corollas yellow, campanulate, 1.0–1.2 mm long, tube ca. 0.4 mm long, ca. 0.25 mm wide, sparsely to densely puberulent, throat 0.60–0.65 mm long, ca. 0.8 mm wide with a few scattered trichomes, lobes 5, triangular, 0.22–0.23 mm long; style ca. 0.9 mm long, style branch ca. 0.2 mm long; anther thecae ca. 0.35 mm long, yellow, anther appendage ovate to round (when flattened) or ovate in outline in live specimens, ca. 0.1 mm long. CYPSELAE 1.4–1.6 mm, obovate, essentially glabrous, black. Chromosome number, n = 8 (Strother and Panero, 2001). Fig. 1.

Galinsoga crozierae is a summer rain ephemeral that grows in wet moss mats on rocks. Plants of this species are the smallest in the genus. The sister species, *G. subdiscoidea* grows approximately 5 m from the type collection locality in gravelly soil along the road. *Galinsoga crozierae* differs from *G. subdiscoidea* in having smaller heads, fewer flowers per head, and smaller leaves.

The species epithet honors Ms. Bonnie Crozier, a student at the University of Texas and an expert on the Cactaceae who found the plant and brought it to my attention.

Key to the species of *Galinsoga* found along highway 40 in northern Mexico [REMIB database of CONABIO (Panero, 2003) was consulted for locality data; summary of morphological features for some species taken from Canne (1977)].

1. Heads discoid.
   2. Heads with 10–20 flowers ..... *G. subdiscoidea*
   2. Heads with 4 flowers ..... *G. crozierae*
1. Heads radiate.
   3. Cauline leaves filiform, 0.5–1.5 cm wide.
      4. Heads with 10–20 disc flowers ..... *G. subdiscoidea*
      4. Heads with 40–70 disc flowers ..... *G. filiformis*
   3. Cauline leaves ovate, 3–10 cm wide.
      5. Ligules 8–13, usually 3–7 mm long ..... *G. durangensis*
      5. Ligules (0) 3–8, usually 5, 0.2–2.8 mm long.
         6. Inner phyllaries and attached pales deciduous ..... *G. quadriradiata*
         6. Inner phyllaries and attached pales persistent ..... *G. parviflora*

ACKNOWLEDGEMENTS

I thank Bonnie Crozier for help in the field and for transmitting to me her constant enthusiasm and curiosity for the Mexican landscape, which in this case resulted in the discovery of the taxon described herein. I thank Socorro González

of CIIDIR for logistical support in the state of Durango; her hospitality is magnanimous and her passion for the flora of Durango contagious. The REMIB (World Biodiversity Information Database System; http://www.conabio.gob.mx/remib/doctos/remib_esp.html) database created and maintained by CONABIO, Mexico was consulted for species locality data. Funds for fieldwork studies in Mexico were provided by NSF grant 99-03800.

Literature Cited

Canne, J. M. 1977. A revision of the genus *Galinsoga* (Compositae: Heliantheae). Rhodora 79: 319–389.

Panero, J. L. 2003. REMIB, CONABIO. http://www.conabio.gob.mx/remib/doctos/remib_esp.html Node: Herbarium of the University of Texas at Austin, Herbaria (TEX-LL). **Version 1.** A database of 191,807 records of Mexican specimens deposited at the University of Texas Herbaria (TEX-LL).

Strother, J. L. and J. L. Panero. 2001. Chromosome studies: Mexican Compositae. Amer. J. Bot. 88: 499–502.