A New Species of *Gochnatia* (Asteraceae, Mutisieae) from the Desert Scrubland of the State of Hidalgo, Mexico

Francisco González-Medrano, José L. Villaseñor, and Rosalinda Medina*

Instituto de Biología, Universidad Nacional Autónoma de México, Departamento de Botánica, Apartado Postal 70-367, 04510 México, D. F., México. *Correspondence author: vrios@ibiologia.unam.mx

ABSTRACT. A new species, *Gochnatia hiriartiana* Medrano, Villaseñor & Medina (Asteraceae, tribe Mutisieae), of the desert scrubland of the state of Hidalgo, Mexico, is described. Its distinctive morphological traits are discussed and compared with the other Mexican species of *Gochnatia*. A key to the Mexican species of the genus is provided.

Key words: Asteraceae, *Gochnatia*, Mexico, Mutisieae.

Gochnatia Kunth (Asteraceae, Mutisieae) is a genus of more than 60 species (Cabrera, 1971; Bremer, 1994; Freire et al., 2002) distributed disjunctly in Asia, the Caribbean Region, South America, and North America. The genus is characterized by its actinomorphic, deeply 5-lobed cream or pale yellow corollas; anthers with caudate basal appendages and acute or apiculate apical appendages; short and glabrate (smooth) style branches; achenes pubescent; and a pappus of numerous bristles.

Routine identification of specimens and field exploration in order to document the richness and distribution of Mexican Asteraceae has resulted in the discovery of the following new species.

Gochnatia hiriartiana Medrano, Villaseñor & Medina, sp. nov. TYPE: Mexico. Hidalgo: Municipio Meztitlán, 3 km al E de Milpa Grande, barranca sobre el río Amajac, 19 Sep. 1996, *F. González-Medrano, G. G. Hernández & G. Rodríguez 17920* (holotype, MEXU; isotypes, IEB, MO, TEX, XAL). Figure 1.

Differt a ceteris speciebus mexicanis capitulis solitariis vel 2–3, grandissimis et floribus numerosissimis.

Shrubs 1.0–1.5 m tall, stems densely and finely puberulent, upper branches densely leafy distally, trichomes yellowish, grayish when older. Leaves simple, alternate, coriaceous, ascending, sessile or very short-petiolate, conspicuously discolorous, venation acrodromous suprabasal imperfect, constituted by three main veins borne above the leaf base, conspicuous on both surfaces; petiole when present 1.0–2.0(–3.0) mm long; blades ovate or ovate-lanceolate, (1.0–)2.0–3.5 cm long, 1.0–1.7 (–2.0) cm wide, base rounded or shortly attenuate, apex acute or acuminate, margins entire, revolute, adaxial surface shiny green, glabrous, slightly rugous at touch, abaxial surface yellowish, finely and densely puberulous. Capitula homogamous, solitary at the end of branches or in clusters of 2 to 3, sessile, 3.0–4.5 cm wide including florets, not held above subtending leaves; receptacle naked, slightly alveolate. Involucre turbinate-obconic, 1.5–2.0 cm tall, 2.5–3.5(–4.0) cm wide; phyllaries 1.2–1.4 cm long, firm, in (4)5 to 6 spirally arranged series, conspicuously imbricated, narrowly to broadly lanceolate, acute at apex, pale yellow or pale gray when old, densely puberulous abaxially, glabrous adaxially. Florets 200 to 230 per capitulum, actinomorphic, perfect and fertile, corollas pale yellow or white, glabrous, 5-lobed, 13–22 mm long, the tube 9–12 mm long, the throat 1.5–2.0 mm long, the lobes linear, 6–8 mm long, reflexed in the peripheral florets and conspicuously recurved in the central ones; stamens 5, anthers 0.7–1.0 cm long, base caudate, basal appendages 2.0–2.5 mm long, apical appendage ca. 1.5 mm long, acute or acuminate, slightly incurved, filaments 3.0–4.0 mm long; style 1.8–2.2 cm long, the branches 2.0–3.0 mm long, rounded at apex, without collecting trichomes. Achenes 3.0–4.5 mm long, narrowly obpyramidal, inconspicuously 3- or 4-angled, sericeous, yellow to pale brown with age; pappus of numerous bristles, white or pale yellow, about 1.0 cm long, several of them sometimes shorter, slighty broadened at the apex.

Gochnatia hiriartiana is known only from two collections, in vegetation of desert scrubland in the state of Hidalgo, Mexico, at about 1700 m elevation, on northeastern slopes with *Acacia berlandieri* Bentham (Mimosaceae), *Agave xylonacantha* Salm-Dyck (Agavaceae), *Ageratina espinosarum* (A. Gray) R. M. King & H. Robinson (Asteraceae), *Gymnosperma glutinosum* (Sprengel) Lessing (Asteraceae),

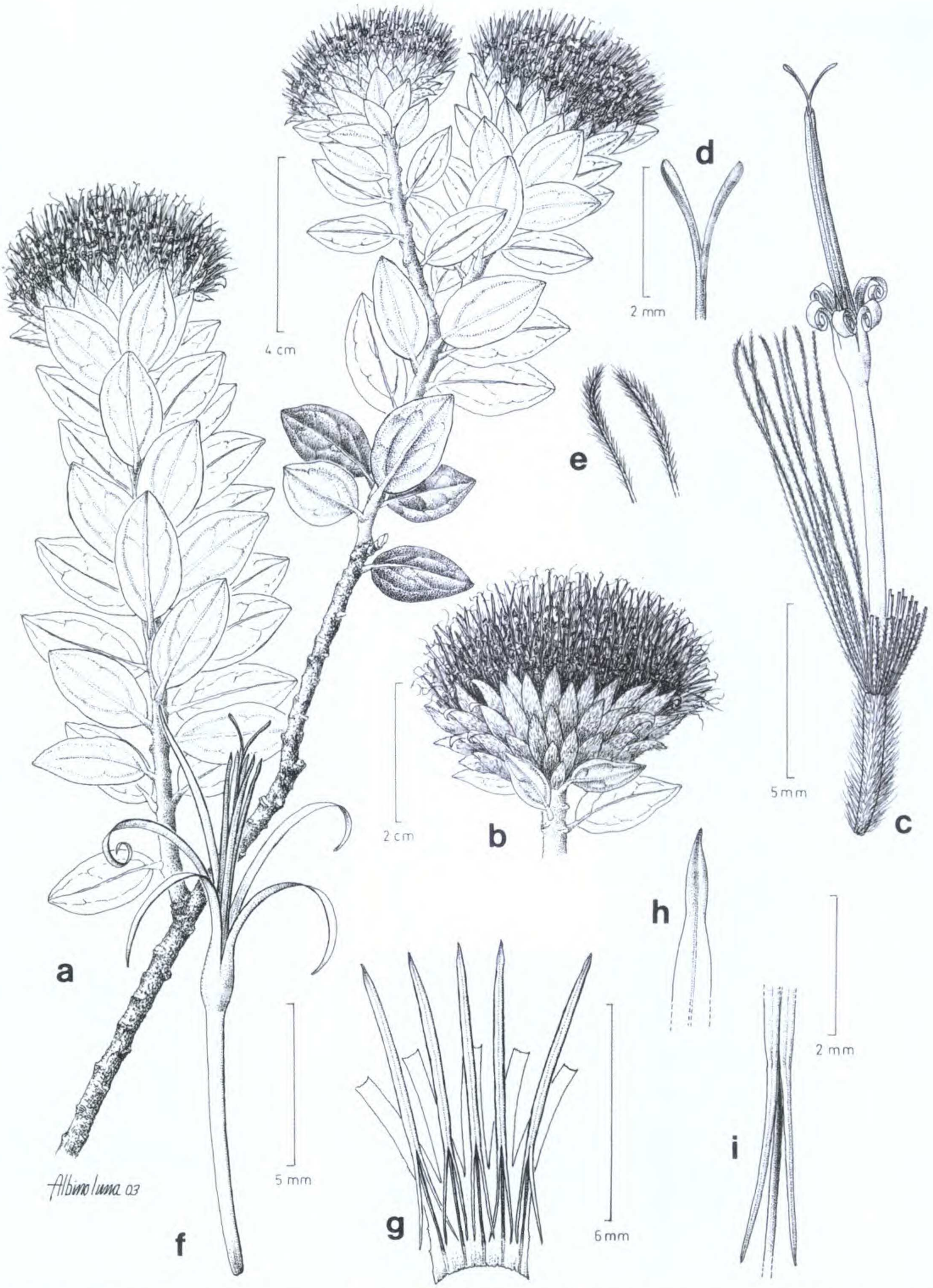

Figure 1. *Gochnatia hiriartiana* Medrano, Villaseñor & Medina. —a. Branches with capitula. —b. Capitulum. —c. Central floret. —d. Style branches. —e. Apical portion of the pappus bristles. —f. Peripheral floret with the lobes recurved. —g, h, i. Details of the anthers showing the caudate bases (i) and the apical appendage (h). Drawn from the holotype at MEXU (*González-Medrano et al. 17920*).

Helietta parvifolia (A. Gray ex Hemsley) Bentham (Rutaceae), *Leucophyllum ambiguum* Bonpland (Scrophulariaceae), *Machaonia coulteri* (Hooker f.) Standley (Rubiaceae), and *Turnera diffusa* Willdenow ex Schultes (Turneraceae).

The new species is outstanding among the other Mexican species of the genus because of its larger capitula (involucre 2 cm or more wide), solitary or in a cluster of 2 or 3 by branch, sessile and covered at the base by the leaves. All the other known Mexican species have smaller capitula (involucre 1.5 cm or less wide), generally arranged in glomerules or congested cymes. Another feature of this new species is the number of florets per capitulum (200 or more); no other Mexican species has capitula with this many florets, generally counting 60 or less.

By its number of florets and the arrangement of the heads, *Gochnatia hiriartiana* belongs to *Gochnatia* sect. *Glomerata* S. E. Freire, L. Katinas & G. Sancho (Freire et al., 2002). Among the features that characterize the members of this section are their heads solitary or 2 to 3 by branch, the number of phyllary series (mostly 5 or 6), and the pappus with several short outer bristles. It differs from the other species of the section (all Mexican) by its large number of florets per capitulum: this new species has more than 200 florets, while the other species rarely reach 60 per capitulum.

Etymology. The epithet honors Patricia Hiriart-Valencia (1947–1991), botanist and student of the flora of the dry regions, especially from central Mexico where this new species was found.

Paratype. MEXICO. **Hidalgo:** Arriba de Chalmita, 2 Nov. 1946, *F. Miranda 4027* (MEXU).

Key to the Mexican Species of *Gochnatia*

1a. Florets 200 or more per capitulum; involucre 2 cm or more wide; state of Hidalgo . . *G. hiriartiana* Medrano, Villaseñor & Medina
1b. Florets 60 or fewer per capitulum; involucre 1.5 cm or less wide.
2a. Florets 10 or more per capitulum; involucre 5 mm or more wide.
3a. Leaf blade 3.0 cm or less long; state of Puebla . . . . . *G. purpusii* Brandegee
3b. Leaf blade 3.5 cm or more long.
4a. Florets 25 or less per capitulum; state of Baja California Sur . . . . . *G. arborescens* Brandegee
4b. Florets 35 to 60 per capitulum; states of Guanajuato, Hidalgo, Querétaro, San Luis Potosí, Tamaulipas . . . . . *G. magna* M. C. Johnston
2b. Florets 8 or fewer per capitulum; involucre 4 mm or less wide.
5a. Capitula in terminal rounded glomerules; leaves gray pubescent abaxially; state of Oaxaca . . . . . *G. smithii* B. L. Robinson & Greenman
5b. Capitula not in rounded glomerules, mostly in axillary or terminal glomerate cymes; leaves mostly yellow-pubescent abaxially.
6a. Leaf blade 2.0–5.0 cm long, generally lanceolate or elliptic-lanceolate; involucre 5–6(–7) mm long; Chihuahuan Desert, from Texas to the states of Hidalgo and Querétaro . . . . . *G. hypoleuca* (DC.) A. Gray subsp. *hypoleuca*
6b. Leaf blade 0.4–2.0 cm long, ovate or elliptic ovate; involucre 6–8 mm long; states of Oaxaca, Puebla, Veracruz . . . *G. hypoleuca* (DC.) A. Gray subsp. *obtusata* (S. F. Blake) Cabrera

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Literature Cited

Bremer, K. 1994. Asteraceae: Cladistics and Classification. Timber Press, Portland, Oregon.

Cabrera, A. L. 1971. Revisión del género *Gochnatia* (Compositae). Revista Mus. La Plata, Nueva Serie 12: 1–160.

Freire, S. E., L. Katinas & G. Sancho. 2002. *Gochnatia* (Asteraceae, Mutisieae) and the *Gochnatia* complex: Taxonomic implications from morphology. Ann. Missouri Bot. Gard. 89: 524–550.