

**ASTER GYPSOPHILUS (ASTERACEAE)  
SEGREGATED AS THE MONOTYPIC GENUS SANROBERTIA**

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**ABSTRACT**

*Aster gypsophilus* is segregated as the monotypic genus **Sanrobertia** Nesom, **gen. nov.**, with the combination **Sanrobertia gypsophila** (Turner) Nesom, **comb. nov.** These plants are distinct from species of *Symphyotrichum* in their combination of diminutive, rhizomatous habit, glandular vestiture, spinulose-tipped leaves and phyllaries, solitary heads at the ends of long, leafy branches, phyllaries with a weakly demarcated green apical patch, alveolate receptacles, accrescent pappus in 2–3 series, and chromosome number of  $2n = 18$ . Molecular data place the species as a basal member of subtribe Symphyotrichinae, along with the monotypic genera *Canadanthus* and *Ampelaster*. *Sanrobertia gypsophila* is rare, known only from gypsum flats and llanos in the vicinity of Entronque San Roberto, south of Monterrey in Nuevo León.

After a period of intense molecular study of American Astereae and corresponding modification of taxonomic concepts (many authors, mostly summarized in Brouillet et al. 2009), issues remain unresolved. This paper and others (in this posting, and to follow) address problems in the Mexican flora, preceding a summary of Mexican Astereae.

**SANROBERTIA** Nesom, **gen. nov.**

Type species, *Sanrobertia gypsophila* (Turner) Nesom  $\equiv$  *Aster gypsophilus* B.L. Turner

Distinct from species of *Symphyotrichum* in its combination of rhizomatous habit, stipitate-glandular vestiture, spinulose-tipped leaves and phyllaries, solitary heads at the ends of long, equably leafy branches, phyllaries usually with a weakly demarcated green apical patch and basal white-indurate zone, elongate disc corollas, alveolate receptacles, accrescent pappus bristles in 2–3 series, and chromosome number of  $2n = 18$ .

**Sanrobertia gypsophila** (Turner) Nesom, **comb. nov.** *Aster gypsophilus* B.L. Turner, Southw. Naturalist 19: 123. 1974. *Symphyotrichum gypsophilum* (Turner) Nesom, Phytologia 77: 283. 1994. **TYPE: MEXICO. Nuevo León.** Ca. 28 mi N of Entroque San Roberto on Hwy 57, near KM 162, white gypseous soil, 5 Sep 1971, *J.D. Bacon 1103* (holotype: TEX!; isotypes: ENCB image!, GH image!, MEXU image!, MICH image!).

Perennial herbs, 4–20 cm tall, arising from slender, woody rhizomes; phyllaries and at least the upper stems and leaves mostly minutely stipitate-glandular to sessile glandular, sometimes also sparsely and loosely strigose with white, sharp-pointed, closely appressed hairs 0.1–0.5 mm long. **Leaves** apparently all cauline, often slightly subclasping, entire, with a spinulose, recurved apiculum, mostly oblong-lanceolate, 4–7 x 1–2 mm, sessile, 1-nerved, even-sized and evenly distributed from stem base to tip, overlapping adjacent nodes. **Heads** terminal, solitary on primary and secondary branches, peduncles bracteate with gradually reduced leaves to immediately below heads. **Involucre**s turbinate-campanulate, 8–11 mm wide; phyllaries strongly graduated in 4–5 series, oblong-lanceolate to oblong-oblongeolate, apex acute to obtuse, outer with a strongly to weakly demarcated apical herbaceous patch and basal white-indurate zone, outer with a distinct apiculum, margins scarious or the innermost nearly completely scarious, inner phyllaries becoming linear-oblong and usually purplish; receptacles flat, weakly alveolate to more conspicuously lacerate-alveolate. **Ray florets** 12–16, pistillate, fertile, ligules lilac, ca. 5–6 mm long, 0.8–1.2 mm wide, coiling. **Disc florets** yellow, tubular, 6–7 mm long with a weakly delimited throat, lobes deltate to triangular-deltate, ca. 0.75 mm long; style branches 1.5 mm long, linear, collecting

appendages ca. 0.8 mm long, apex acute. **Achenes** 3 mm long, fusiform, narrowly cylindrical to somewhat 4-sided with 7–12 ribs, sparsely pubescent with short, ascending hairs, eglandular; pappus of minutely setose bristles in 2–3 series, accrescent and becoming 7–9 mm long. **Chromosome number**,  $2n = 18$  (Turner 1974).

Nue; known only from gypsum flats and llanos in the vicinity of Entronque San Roberto, 1800–2200 m; Aug–Oct.

Entronque San Roberto (San Roberto Junction) is well known to botanists who have studied the flora of Nuevo León. At the junction, from north-south Highway 57, Highway 58 goes east through the mountains toward Linares, providing access to Galeana, Pabillo, and Iturbide, each famously situated in the endemic-rich gypsum habitats of that region.



Figure 1. *Sanrobertia gypsophila* in natural habitat, near the type locality south of Entronque San Roberto. Photos by George S. Hinton, 12 Aug 2017, as posted on iNaturalist. <<https://www.inaturalist.org/observations/7551414>> These plants are (estimated) 10–15 cm tall.

**Additional collections examined.** **Nuevo León.** Mpio. Galeana: Hwy 57, ca. 24 mi N of San Roberto at Km 162, gypsum flats, abundant in small area at edge of hwy, 10 Aug 1976, *Hartman & Funk 4018* (TEX); El Refugio -> west + 3K, gypseous llano, 1795 m, 28 Oct 1976, *Hinton 25991* (TEX-2 sheets); N of Rancho Aguililla, llano, 1840 m, large colony, 19 Jun 1997, *Hinton 27098* (TEX); N of Rancho Aguililla, llano at edge of cultivated field, 1883 m, large colony, 1000's of plants, 3 Aug 2000, *Hinton 27655* (TEX); Hwy 57, 20.6 mi N of San Roberto Junction, desert floor, along E side of road, moist area near culvert, 10 Oct 1984, *Sundberg 3135* (TEX).

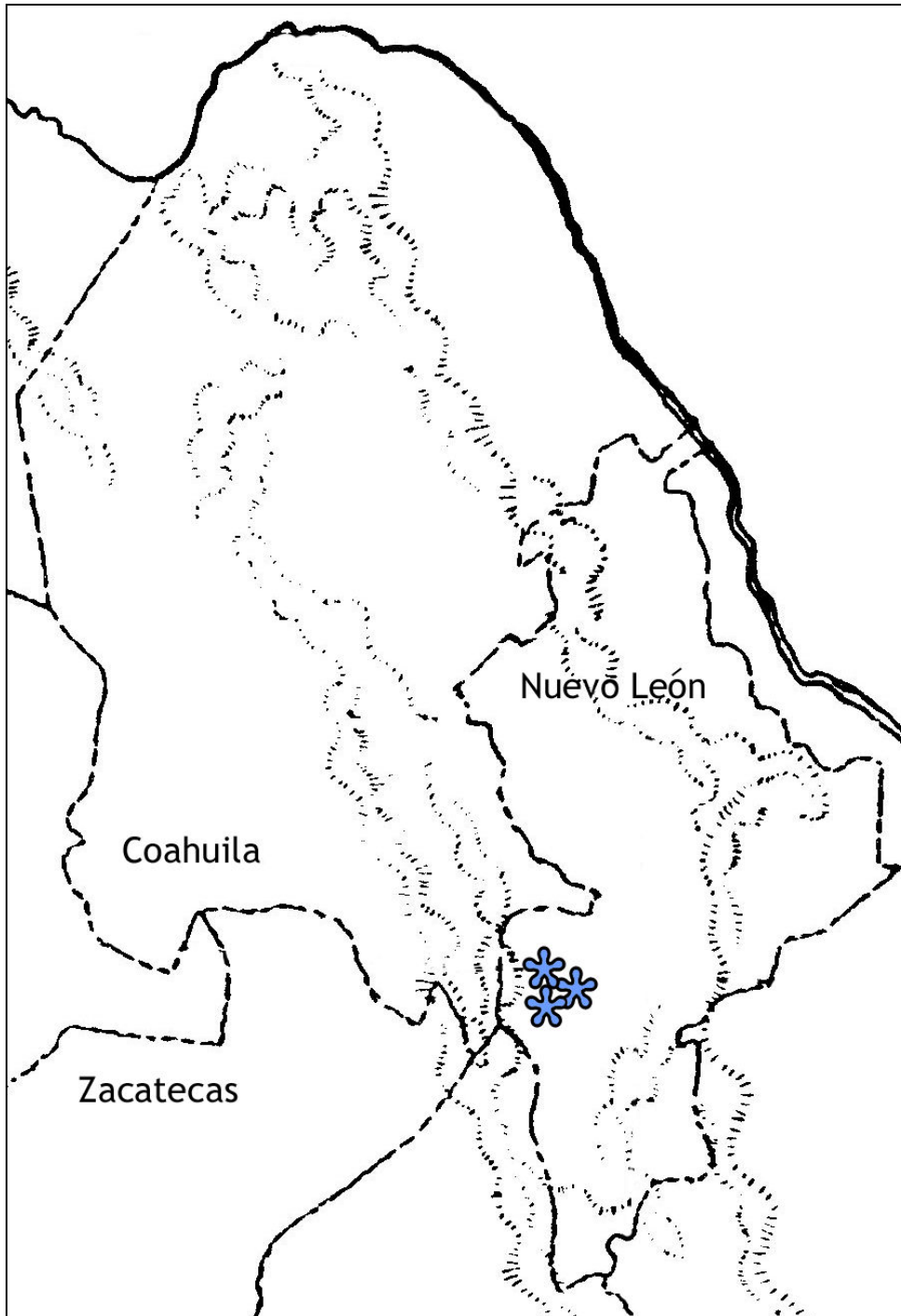


Figure 2. Distribution of *Sanrobertia gypsophila*, known only from the type locality and close vicinity.





Figure 3. *Sanrobertia gypsophila*, from GH isotype.



Figure 4. *Sanrobertia gypsophila*, from MICH isotype.





Figure 5. *Sanrobertia gypsophila*, from MICH isotype.



Figure 6. *Sanrobertia gypsophila* heads, from GH isotype. Note accrescent pappus, alveolate receptacles, and phyllaries with a more or less sharply delimited apical patch and basal white-indurate zone.

Turner (1974) reckoned that *Aster gypsophilus* was most closely related to *Leucosyris carnosa* (subtr. Machaerantherinae), a species of desert habitats in the southwestern USA and adjacent Mexico. I hypothesized (Nesom 1989, 1994) that the closest relatives of *A. gypsophilus* were the  $x=5$  virguloid species of *Symphyotrichum*, despite the different chromosome number, emphasizing similarities in glandular vestiture and the sessile, even-sized, oblong leaves, apiculate phyllaries, and subterete, multinerved achenes. Molecular data, however, unequivocally place *A. gypsophilus*, along with *Canadanthus modestus* ( $x=9$ ) and *Ampelaster carolinianus* ( $x=9$ ) as "the earliest diverging members of Symphyotrichinae" (Morgan & Holland 2012).

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