

# A new species of *Solanum* subgen. *Leptostemonum* (Solanaceae) from Argentina

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Chiarini, F. E. (Instituto Multidisciplinario de Biología Vegetal, CONICET—Universidad Nacional de Córdoba, C.C 495, 5000 Córdoba, Argentina; e-mail: chiarini@imbiv.unc.edu.ar). A new species of *Solanum* subgen. *Leptostemonum* (Solanaceae) of Argentina. *Brittonia* 56: 284–287. 2004.—***Solanum homalospermum*** (*Solanum* subgen. *Leptostemonum*) is described and illustrated from central Argentina. *Solanum homalospermum* is characterized by having heteromorphic gynoecia, strongly flattened seeds, unequal anthers, and gemmiferous roots.

**Key words:** Solanaceae, *Solanum*, *Leptostemonum*, Argentina, female sterility.

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*Solanum* L., which comprises ca. 1250 species (Nee, 1999), is one of the largest and most complex genera of the Angiospermae. About 150 species are reported in Argentina (Morton, 1976; Barboza & Romanutti, 1999). The systematics of this genus is still in flux, and many species are yet to be described. The subgen. *Leptostemonum* (Dunal) Bitter is particularly interesting for many reasons, such as its reproductive strategies or phenotypic plasticity, which make it suitable for different kinds of studies.

A recent revision of the Argentine species of this subgenus (Matesevach, 2002) has revealed that knowledge of its taxonomy is far from complete and more research is needed. On the basis of recent collections from central Argentina, a new species is described here.

***Solanum homalospermum*** Chiarini, sp. nov. (Fig. 1)

TYPE: REPÚBLICA ARGENTINA. **Córdoba:** Depto. Sobremonte, ca. 6 km from San Francisco del Chañar, on the road to Lucio V. Mansilla, 29°46'34"S, 63°59'59"W, 700 m, 29 Nov 2001, F. Chiarini, G. Barboza, & M. Matesevach 505 (HOLOTYPE: CORD; ISOTYPE: NY).

Herba perennis, rhizomatosa. Lamina folii hispida,

integra vel leviter sinuata, inermis, interdum parce spinosa, supra pilis stellatis, subsessilibus, (5)–9-radiatis, radiis 0.1–0.3 mm longis, subtus pilis stellatis, stipitatis, 9-radiatis, radiis 0.4–0.6 mm et stipitibus 0.3–0.4 mm longis. Inflorescentia cymosa, extraaxillaris, generaliter omnibus floribus perfectis, interdum aliquot floribus gynoeciis reductis. Stamina inaequalia. Fructus immaturus calyce ampliato subcooperatus; fructus maturus sphaericus, viridi-griseus, 2.5 cm diam. Semina numerosa, valde compressa, 5–6 mm longa et 2.5 mm lata, subtiliter verrucosa.

Perennial herb, with gemmiferous roots. Stems erect, 15–30 cm tall, terete, unarmed or rarely with some yellowish, acicular prickles ca. 3 mm long, stellate-pubescent when young, the hairs stalked, 9-rayed, the rays 0.2–0.5 mm long; sympodial units difoliate or trifoliate. Leaves alternate, hispid; petiole 1–3.5 cm long, stellate-pubescent, unarmed or sometimes with a few prickles; leaf blade commonly unarmed or occasionally with some prickles abaxially on the midvein, ovate, elliptic or long-elliptic, 5–7.5 × 1.5–3 cm, margin entire to obscurely sinuate, with 5–8 pairs of pinnate veins, the apex obtuse or acute, the base truncate or cuneate, upper surface stellate-hairy, the hairs hispid, subsessile to short-stalked, (5)–9-rayed, the 8 lateral rays 0.1–0.3 mm long and the central ray shorter; lower surface covered by stalked hairs, the stalk 0.3–0.4 mm long, the 8 lateral rays 0.4–0.6 mm long and the central one shorter. Inflorescence an extra-axillary monochasial cyme,

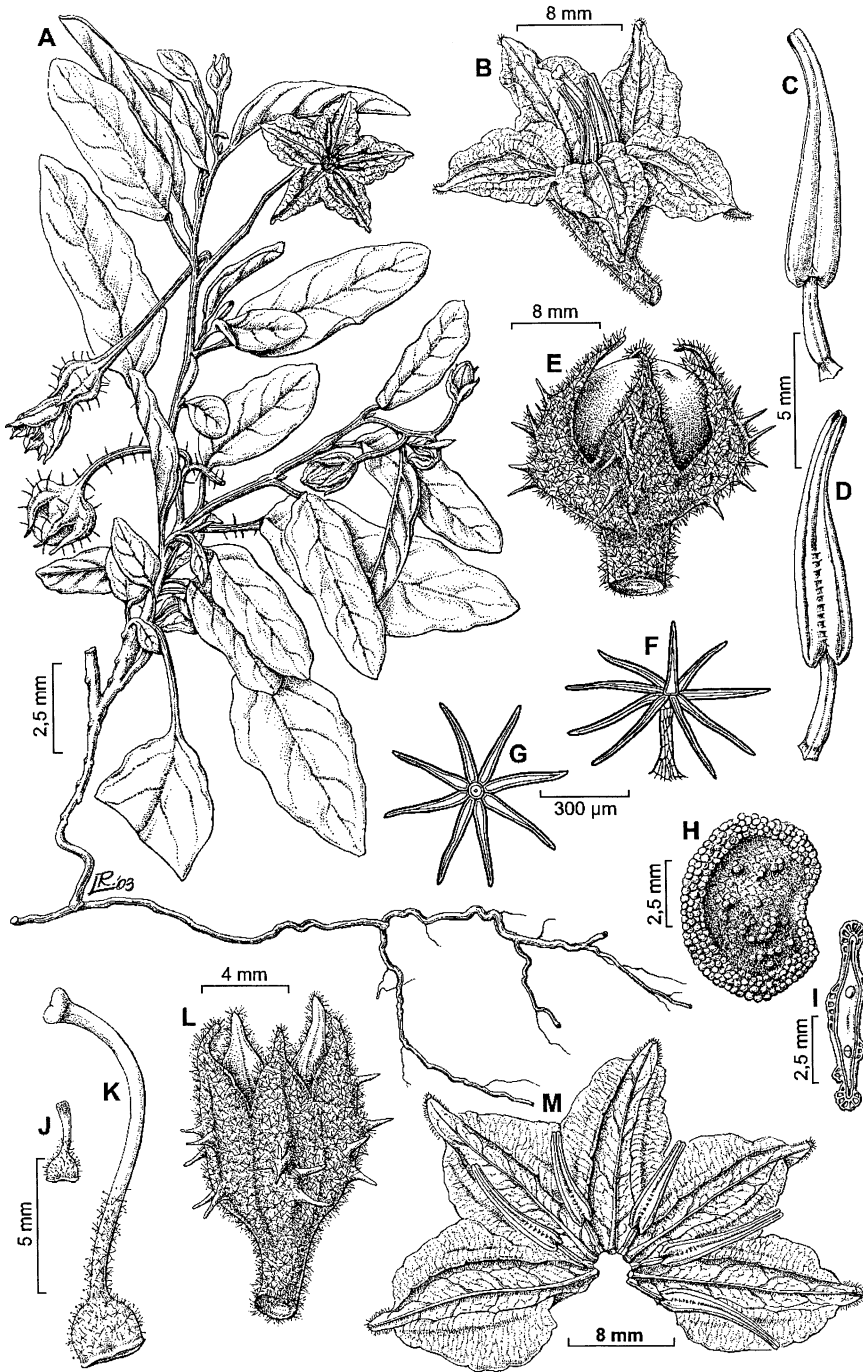


FIG. 1. *Solanum homalospermum*. A. Habit. B. Long-styled flower. C, D. Long stamen, dorsal and ventral views, respectively. E. Fruit, lateral view. F, G. Stellate hair from the underside of leaf, lateral and upper views respectively. H, I. Seed, lateral view and transverse section, respectively. J, K. Short-styled and long-styled gynoecia, respectively. L. Calyx. M. Inside view of corolla. (From Chiarini et al. 505, CORD).

2–5-flowered, all flowers long-styled or occasionally, some flowers short-styled; peduncles 1.5–4 cm; pedicels 1.5–3 cm long, with indument similar to the leaf, unarmed or with a few prickles ca. 2 mm long. Calyx 5-lobed, the tube 3–4 mm long, the lobes 2–6 mm long, ovate, with a prominent midvein prolonged into an acumen 1–2 mm long, covered outside by stellate hairs, the hairs with a stalk that is 0.15 mm long, 8 lateral rays, 0.2–0.3 mm long, and a central ray, unarmed or with acicular, glabrous, yellowish prickles, 1–3 mm long. Corolla 3.6–4.2 cm diam., white, stellate, 5-lobed, the lobes elliptic, acute, 14–18 mm long, pubescent outside on the plicae, the hairs like those of the calyx. Stamens unequal in short- and long-styled flowers: 2 adaxial stamens with anthers 7–8 mm long, and the 3 abaxial stamens with recurved anthers, 10 mm long; filaments 2.5–3 mm long, glabrous. Gynoecium heteromorphic: 2–3 basal flowers of the inflorescence long-styled, style ca. 12 mm long, ovary 2-locular, stigma minutely 2-lobed, the ovary and basal half of the style with simple glandular hairs and some stellate hairs; 2–3 distal flowers short-styled, style ca. 2 mm long, ovary very reduced, apparently female-sterile. Pedicels deflexed in fruit, furrowed in herbarium specimens, enlarging to 4 mm diam. Immature fruit light green with darker bands, almost completely enclosed by the enlarged calyx. Mature fruit dry, spherical, 1.3–2.5 cm diam., greenish gray. Seeds brown-black, strongly flattened, rimmed, 5–6 × 2.5 mm, slightly verrucose.

*Distribution and ecology.*—This species has been found only at a small area in southern Catamarca and northern Córdoba, which belongs to the Chaco region of Argentina (Cabrera and Willink, 1980). According to Zak and Cabido (2002), the vegetation at the type locality is a *Trithrinax* palm woodland-grassland cover type, modified by human activity. Flowering in October to December.

Additional specimens examined. REPÚBLICA ARGENTINA. **Córdoba:** Depto. Sobremonte, Sierra del Norte, ca. 6 km W of the central square of San Francisco del Chañar, on the road to Lucio V. Mansilla, 700 m, 20 Jan 1987, *Hunziker & Subils 24942* (CORD, NY); Depto. Sobremonte, at about 5 km from San

Francisco del Chañar, on the road to Lucio V. Mansilla, 700 m, 29°46'28"S, 64°00'02"W, 28 Feb 2002, *Chiarini, Barboza & Matesevach 566* (CORD). **Catamarca:** Depto. La Paz, Km 981, 4 Apr 1950, *Brizuela 1164* (LIL = CORD photo s.n.).

*Etymology.*—From Greek, “homalos” (ομαλοζ) = flattened, and “sperma” (σπερμα) = seed.

This species is undoubtedly allied with the *Multispinum* group of Whalen (1984), on the basis of its reduced inflorescences, short-styled flowers presumably female-sterile, and prickly calyx that conceals the globose berries. In the last synopsis of *Solanum* (Nee, 1999), this group falls into *Solanum* sect. *Melongena* subsect. *Lathyrocarpum*, a group that includes several andromonoecious species. *Solanum homalospermum* has a complex root system which facilitates vegetative propagation, important in disturbed areas where this species is found. This feature is shared with *S. juvenale* Thell., but the latter is distinguished by its fruit and seeds. The new species is also closely related to *S. elaeagnifolium* Cav., but is readily distinguished by its hairs (lateral rays connate at the base vs. free lateral rays).

In order to differentiate *S. homalospermum* from other allied species growing in central Argentina, an original key is given.

1. Pubescence silvery, lepidote, hairs stellate with 12–14(20) lateral rays connate at the base and the central ray reduced or absent ..... *S. elaeagnifolium* Cav.
1. Pubescence whitish or yellowish, not lepidote, hairs stellate with free lateral rays and a central ray well developed
  2. Leaf blades discolorous, whitish below, covered by a dense, velvety pubescence, the leaf surface much darker above because of fewer hairs *S. mortonii* Hunz.
  2. Leaf blades concolorous or nearly so; pubescence neither whitish nor velvety, the density of hairs similar on both surfaces or hairs a little more profuse below
  3. Leaf blades hispid; margins entire or sometimes obscurely sinuate. Mature fruit greenish gray; seeds brownish black, strongly flattened, rimmed, 5–6 mm long, slightly verrucose; anthers unequal in short and long-styled flowers, 3 anthers longer than the rest ... *S. homalospermum* Chiarini

3. Leaf blades not hispid, margins sinuate or lobed, rarely entire. Mature fruit yellow; seeds yellowish or tan, lenticular, 2–3 mm long, smooth; anthers all about the same length .....  
.....*S. juvenale* Thell.

Studies of some species of subgen. *Leptostemonum* have shown that generally, the short-styled flowers are female-sterile while the long-styled flowers are hermaphroditic (Anderson & Symon, 1988; Baksh & Iqbal, 1978, 1978; Hossain, 1973; Whalen & Costich, 1986). This seems to be the case of *S. homalospermum*, which has heteromorphic gynoecea. Further studies, such as crosses among the different flower types, are needed to confirm the sterility.

Another particularity of the new species is the presence of bridles on the ventral face of the anthers. These structures have already been reported in other species of subgen. *Leptostemonum*, such as *S. elaeagnifolium* and *S. juvenale* (Petenatti & Del Vitto, 1991), but their function and taxonomic value are not yet clear.

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