



Marsdenia microcarpa, a new species of *Marsdenia* (Apocynaceae, Asclepiadoideae) from montane Guerrero, Mexico

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Abstract

A new species of *Marsdenia* (Apocynaceae; Asclepiadoideae) from montane cloud forest in the state of Guerrero, Mexico, is described and illustrated. *Marsdenia microcarpa* is distinguished from congeners by a gynostegial corona with lobes oblong-ovate, adnate to the gynostegium, apices obtuse, free, erect or divergent, lobe margins connate at base, a corpuscle with rostrate apex, and follicles narrowly fusiform, less than 5 cm long at maturity. A key to the species of *Marsdenia* in the state of Guerrero is presented.

Key words: Malinaltepec, *Pseudomarsdenia*, taxonomy

Introduction

Marsdenia (Brown 1810: 460) contains about 200 species with a subtropical distribution. These are usually woody vines with opposite and entire leaves, umbelliform to racemiform or paniculiform inflorescences, campanulate to sometimes urceolate or tubular flowers that sometimes have a fleshy callus below each sinus (forming the corolline corona), a gynostegial corona with 5 free lobes that are rarely connate at base, and erect pollinia (Stevens 2009). About 60 species of *Marsdenia* are distributed in the Americas, of which 31 are known from Mexico (Juárez-Jaimes *et al.* 2007). The most recent work on *Marsdenia* in Mexico is that of Juárez-Jaimes and Ángeles-Trujillo (2013), who recognized eight species for the state of Guerrero. During fieldwork and a review of herbarium specimens for a taxonomic study of *Marsdenia* in Mexico, we found specimens from the state of Guerrero that could not be referred to any of the known species of the genus. After comparing attributes such as leaf shape, flowers (e.g., gynostegial corona lobes, corpuscles), and fruits, we propose the recognition of a new species of *Marsdenia*.

Marsdenia microcarpa Juárez-Jaimes & Lozada-Pérez *sp. nov.*, Fig. 1 A–G

Marsdenia microcarpa is similar to *M. mayana*; it differs morphologically from the latter by the inflorescence pedunculate, corolla white, urceolate, lobes of the gynostegial corona oblong-ovate, adnate to gynostegium, apex obtuse, erect or divergent, base with margins connate, corpuscle with apex rostrate, and follicles narrowly fusiform, up to 4.5 cm long at maturity.

Type:—México. Guerrero: Municipio Malinaltepec, sobre el camino que conduce a Xochiatenco, 1953 m, 17°08'35.5"N, 98°40'52.8"W, 30 July 2005 (fl), *L. Lozada et al.* 2822 (holotype, FCME!; isotypes, ENCB!, F!, MEXU!, MO!).

Twining vine. Stems glabrescent. Leaves opposite, blades oblong, 6.5–10.5 × 2.05–5.0 cm, adaxial surface glabrous, dark green, abaxial surface glabrous, lateral veins in 8–10 pairs, apex cuspidate, base obtuse, margin entire, colleters 4–5, at the base of the blade on the midnerve; petioles 2.0–2.5 cm long, glabrescent. Inflorescences of paniculiform cymes, 1 per node, much-branched; peduncles 1.5–2.5 cm long, puberulent; pedicels 3.5 mm long, puberulent. Flowers with calyx lobes broadly elliptic, ca. 2.1 × 1.7 mm, apex acute, abaxial surface pubescent, margin ciliolate, colleters 1–2 per sinus; corolla white, urceolate, tube 2.5 mm long, with thin lines of villous pubescence extending

down from the sinuses of the corolla lobes towards the middle of the tube, opposite the lobes, throat glabrous, lobes broadly oblong, ca. 2.5×2.0 mm, apex obtuse with an introrse emargination, adaxial surface pilose, abaxial surface puberulent, margin ciliolate, cilia more distinct on the interior margin; gynostegium almost sessile, narrowly conical, ca. 2.5 mm long; gynostegial corona lobes below the base of the anthers, lobes oblong-ovate, $1.4\text{--}1.6 \times 0.8\text{--}1.0$ mm, adnate to gynostegium, apex obtuse, erect or divergent, free from gynostegium, base with margins connate; anthers ca. 0.4 mm long, anther membranes oblong, ca. $0.7 \text{ mm} \times 0.6 \text{ mm}$ wide, apex obtuse; style-head appendix clavate, $0.9\text{--}1 \times 0.6\text{--}0.7$ mm; apex obtuse slightly divided; corpuscle oblong, ca. $0.4 \text{ mm} \times 0.2 \text{ mm}$, apex rostrate; pollinia narrowly ellipsoid, ca. 0.5×0.1 mm, arms ca. 0.1 mm long. Follicles narrowly fusiform, $2.5\text{--}4.5 \times 0.6\text{--}1.1$ cm, glabrescent, slightly sulcate.

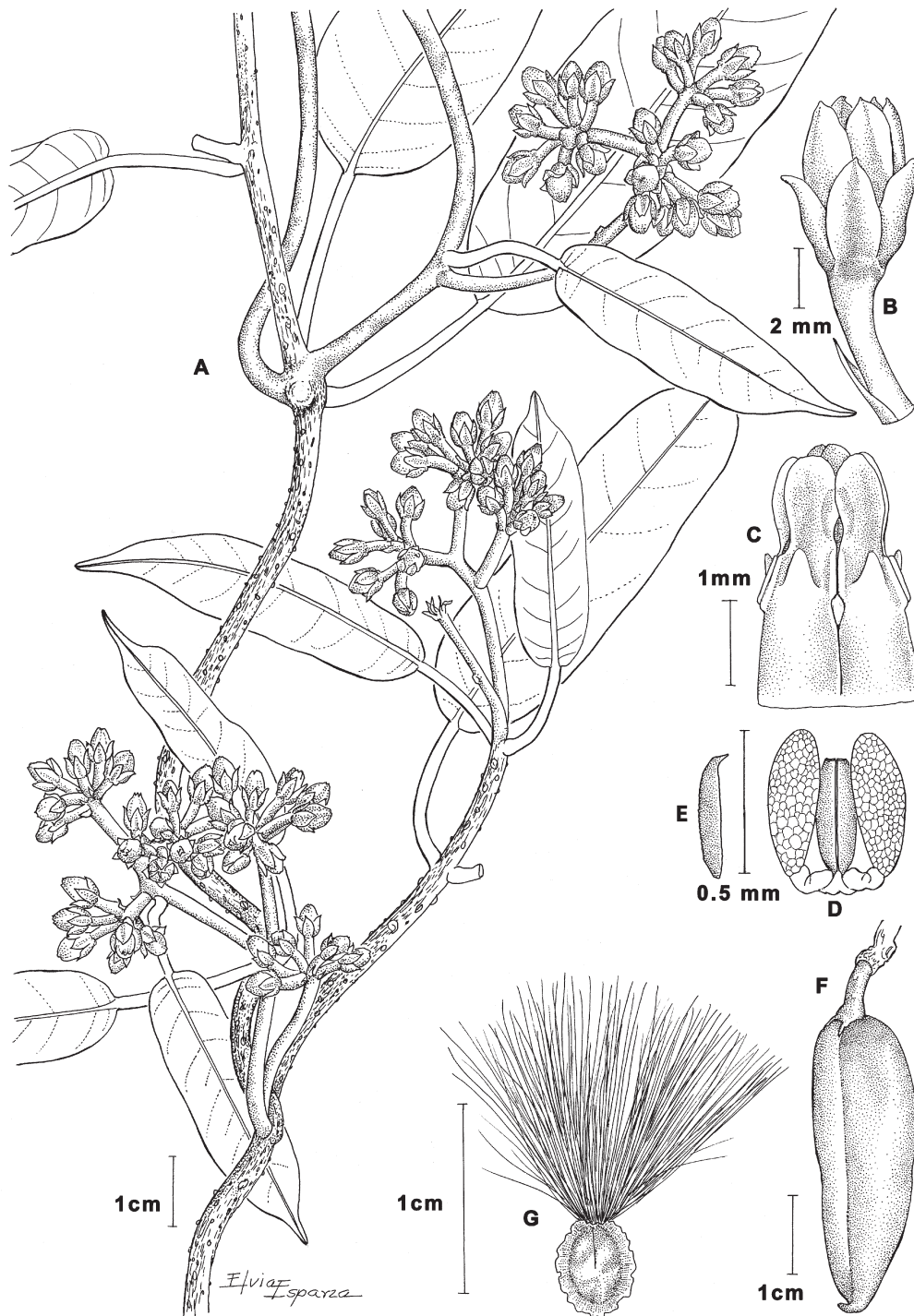


FIGURE 1. *Marsdenia microcarpa* Juárez-Jaimes & Lozada-Pérez. A. Branch with inflorescences. B. Lateral view of the flower. C. Gynostegium showing corona lobes connate at base. D. Pollinia. E. Lateral view of rostrate corpuscle. F. Follicle. G. Seed. A, B, C, D from Lozada *et al.* 2822 (holotype: FCME). F. from Lozada *et al.* 3306 (MEXU). G. from Lozada *et al.* 3143 (MEXU).

Distribution and habitat:—The new taxon is only known from the state of Guerrero, Mexico, in the region known as “La Montaña” (The Mountain) in montane cloud forest between 1900–2400 m. This region is considered floristically diverse and to have a high number of endemic species (Villaseñor & Gual-Díaz 2014).

Phenology:—Flowering in June and July; fruiting in October.

Etymology:—The specific epithet refers to the small fruit of this species, which does not exceed 4.5 cm in length at maturity.

Additional specimens examined:—México. Guerrero: Municipio Malinaltepec. Tres Mariás, Bosque mesófilo de montaña, 2205 m, 17°7'31.6"N, 98°41'28.4"W, 10 October 2006 (fr), *L. Lozada, R. de Santiago & J. Rojas 3306* (FCME!, MEXU!, MO!); Al oeste de Tres Mariás, Bosque mesófilo de montaña, alt. 2400 m, 25 June 2006 (fl), *L. Lozada, J. Rojas & R. de Santiago 3143* (FCME!, MEXU!, MO!).

Discussion:—*Marsdenia microcarpa* can be referred to section *Pseudomarsdenia* (Baill.) Rothe (1915:404), due to its much-branched paniculiform inflorescences, simple corona lobes that do not protrude from the anthers, and shortly clavate stylar appendix (Rothe, 1915). It is vegetatively similar to *M. mayana* Lundell (1940: 23–24) by presenting oblong leaves. However, it differs by having 4–5 colleters at the base of the blade, much-branched, paniculiform inflorescences, an urceolate, white corolla lacking a fleshy callus below each sinus, a corpuscle with rostrate apex, and narrowly fusiform follicles up to 4.5 cm long at maturity. *Marsdenia mayana* differs from the new species in that it does not exhibit colleters at the base of the blade and the inflorescence is a congested panicle. In addition, its corolla is campanulate and purple with a fleshy callus below each sinus, the corpuscle has a conical apex, and the follicles are 8–10 cm long at maturity. Furthermore, *M. microcarpa* is found in the montane cloud forest of a restricted area of the region known as “La Montaña” (The Mountain) in the state of Guerrero at elevations of 1900–2400 m. In contrast, *M. mayana* grows in tropical deciduous forest, between 30–1400 m, from the state of Nayarit to the Yucatan Peninsula and Guatemala.

We would like to highlight that of the 31 species of *Marsdenia* known from Mexico, *M. microcarpa*, together with *M. rzedowskiana* Juárez-Jaimes & Stevens (1995: 337–339) from Oaxaca, Puebla and Veracruz, and *M. pringlei* S. Watson (1890: 158) from Nuevo León, Querétaro, San Luis Potosí and Tamaulipas, are the only species that grow in montane cloud forest; most species are found in tropical and subtropical vegetation.

Key of the species of *Marsdenia* in the state of Guerrero

1	Leaf blades oblong to oblong-ovate	2
-	Leaf blades elliptical, ovate to suborbicular	3
2	Leaf blades without colleters at the base of the middle nerve; inflorescences congested-paniculiform, peduncle 1–2 mm long; corolla campanulate, purple to blackish, with a fleshy callus below the sinuses	<i>M. mayana</i>
-	Leaf blades with colleters at the base of the middle nerve; inflorescences loosely paniculiform, peduncle 15–25 mm long; corolla urceolate, white, without a fleshy callus below the sinuses	<i>M. microcarpa</i>
3	Gynostegial corona absent	<i>M. lanata</i>
-	Gynostegial corona present	4
4	Inflorescences umbelliform	5
-	Inflorescences paniculiform or racemiform	7
5	Corolla without a fleshy callus in the petal sinuses; tube 3–4.2 mm long	<i>M. zimapanica</i>
-	Corolla with a fleshy callus in the petal sinuses; tube up to 2.3 mm long	6
6	Flowers creamy white; callus pubescent; corona lobes sagittate; style-head appendix conical-rounded, apex obtuse, not bifid	<i>M. callosa</i>
-	Flowers white with red or purple lines; callus glabrous; corona lobes rounded to obtuse; style-head appendix attenuated, apex deeply bifid	<i>M. trivirgulata</i>
7	Inflorescences racemiform; corolla tubular	<i>M. propinqua</i>
-	Inflorescences paniculiform; corolla urceolate to campanulate	8
8	Inflorescences 1 per node, peduncles 3–7 mm long; corolla urceolate	<i>M. astephanoides</i>
-	Inflorescences 2 per node, peduncles 20–25 mm long; corolla campanulate	<i>M. mexicana</i>

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