

Spathacanthus magdalenae sp. nov. (Acanthaceae), a riparian forest species from Veracruz, Mexico

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Spathacanthus magdalenae Cast.-Campos (Acanthaceae) is described and illustrated as a new riparian forest species from central Veracruz and from the eastern slopes of the volcano Cofre de Perote, Mexico. The new species is similar to *Spathacanthus parviflorus*, but differs in wider leaves and longer corolla tube. A key to all four species of *Spathacanthus* is provided.

Spathacanthus Baill. is one of the small genera of the Acanthaceae. It comprises only three species, two from southern Mexico and one from Central America (Daniel 1999). In Mexico, this genus is represented by two species *Spathacanthus hahnianus* Baill. and *S. parviflorus* Leonard. Of these, only *S. hahnianus* occurs in Veracruz (Gibson 1974, Daniel 1999).

During recent explorations of the riparian forest in the municipalities Jalcomulco and Coatepec in Veracruz, Mexico (both sites of intensive collections), we have found species that are both rare and characteristic of tropical montane cloud forest, such as *Illicium floridanum* J. Ellis (Illiciaceae) and *Drymis granadensis* L. var. *mexicana* A. C. Smith (Winteraceae). Others, such as *Piper xanthostachyum* C. DC. (Piperaceae) and *Ponthieva brenesii* Schltr. (Orchidaceae) (Castillo-Campos et al. 2009a) were found for the first time in Veracruz. Furthermore, the entirely new species *Psychotria perotensis* Cast.-Campos (Castillo-Campos et al. 2009b) was collected. In this riparian forest, a number of individuals of *Spathacanthus* with white flowers were collected, and because of their characteristics, were considered to belong to an undescribed species.

Spathacanthus magdalenae Cast.-Campos sp. nov. (Fig. 1–2)

Frutices vel arbores valde ramosae radicibus adventitiis ad trunci basem. Folia elliptica vel obovato-elliptica utrinque glabra vel tomentosa praecocis juventute, 7–12 nervorum paribus. Flores albi 5.8 cm longi. Fructus capsularis 4-locularis, 5.2–8.8 cm longus; semina 4 per capsulam, suborbicularia.

Type: Mexico. Veracruz: Municipality of Coatepec, Piedras Blancas, eastern slopes of the volcano Cofre de Perote, riparian vegetation, 1666 m a.s.l., 7 Mar 2012. G. Castillo C. et al. 27235 (holotype: XAL, isotypes: MEXU, ENCB).

Etymology

The new species is dedicated to Magdalena Baizabal Domínguez, the wife of the first author.

Description

Shrubs or highly branched trees 3–12 m in height. Trunks 4.9–10.4 cm in diameter 1 m above the base, with adventitious roots at the base and on terminal branches close to the water. Stems articulate, lenticelate, brown; internodes 8.5–46.0 cm; young branches green, succulent, with swellings at the nodes, which constrict on drying, slightly 4-ribbed, lenticelate mainly on the ridges of the ribs. Leaves opposite, simple, entire, petiolate; petiole 1.8–2.0 cm long, 0.2 cm thick, glabrous; lamina elliptic, obovate-elliptic, 12–28 cm long and 4.2–12.9 cm wide, glabrous on both surfaces or tomentose when very young, decurrent at base; apex apiculate, ca 0.5–1.0 cm long, occasionally emarginate or rotundate (protruding for ca 0.5–1.0 cm); margin slightly repand or wavy; venation camptodromous, prominent on the lower side, imprinted or canaliculate on the upper side, of 7–12 pairs of veins. Inflorescences terminal, pedunculate, peduncle 0.6–0.9 cm long, of 0.2 cm thick, glabrous, consisting of dichasia, or monochasia when one of the buds aborts, simple or composite, or solitary, with 2 bracts on the lower part of the pedicels; bracts triangular to subulate, 0.7 cm long, tomentose. Flowers slightly pedicellate; pedicels 0.6 cm long, 0.2 cm thick, glabrous, with

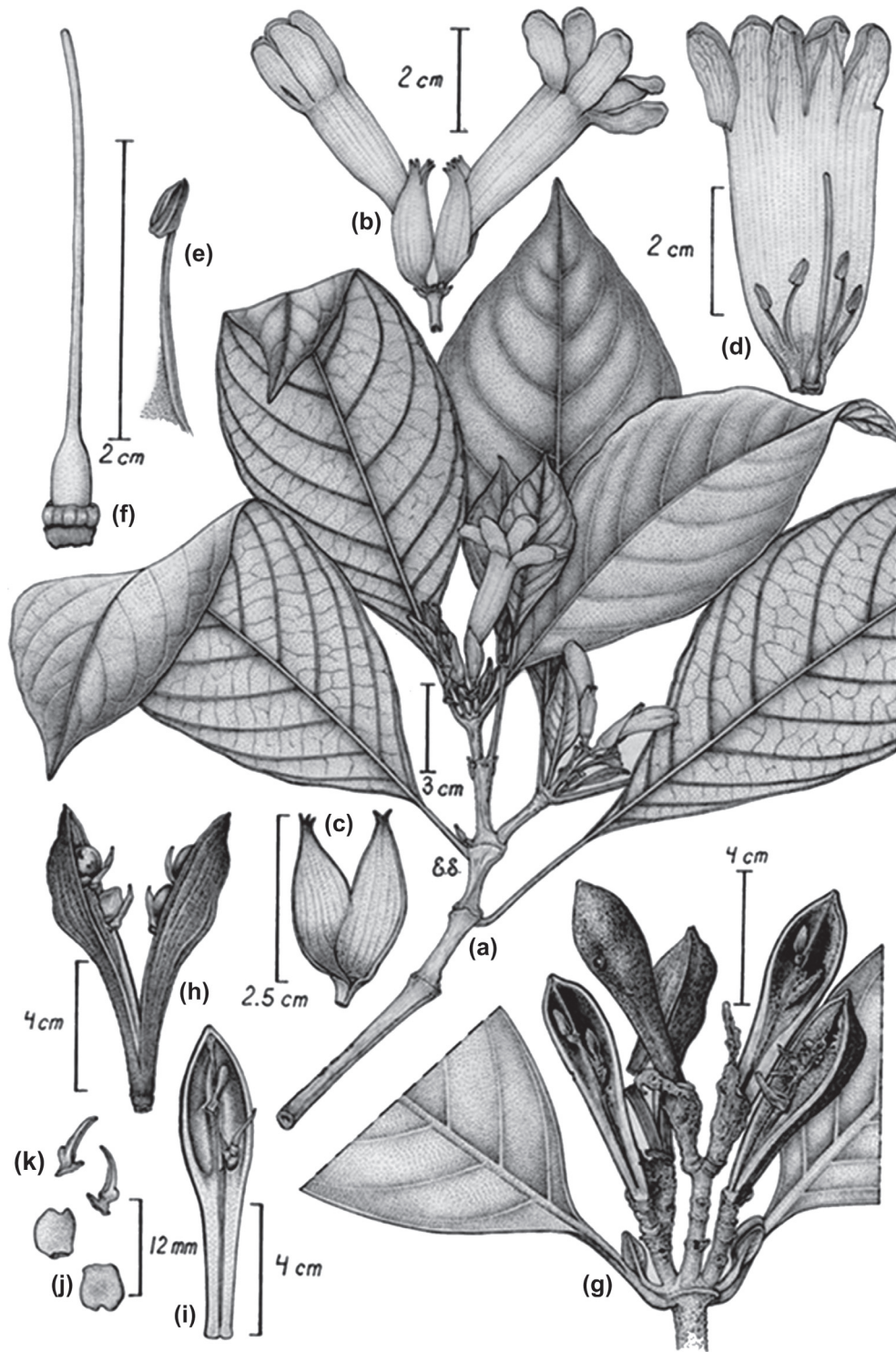


Figure 1. *Spathacanthus magdalenae* sp. nov. (a) branch showing insertion of the leaves and position on the branch, with flower and buds, (b) flowers, (c) calyx, (d) open flower with stamens and style, (e) stamens, (f) style, (g) branch with open capsules, (h) open capsule with seeds, (i) interior of half of a capsule, (j) seeds, (k) spur of the interior of the capsules. Collector: G. Castillo-Campos 27325, G. Castillo-Campos, P. Zamora, E. Montes de Oca 8206. Illustration: E. Saavedra.

2 bracteoles; bracteoles opposite at the base, triangular to subulate, green, 0.35 cm long, entire, tomentose. Calyx green or yellowish, spathaceous, 1.8–2.5 cm long, 1.3 cm wide on flowers in anthesis, up to 4.2 cm long in mature capsules, glabrous, divided into two equal or unequal

segments, apically bifid or trifid. Corolla white, 5.8 cm long, 1.0–1.2 cm wide at the throat; tube distally expanded, 3.8–4.4 cm long; limb bi-labiate, 5-lobate, with 2 upper and three lower lobules, imbricate; lobules 1.0–1.7 cm long, externally and internally glabrous, with the exception

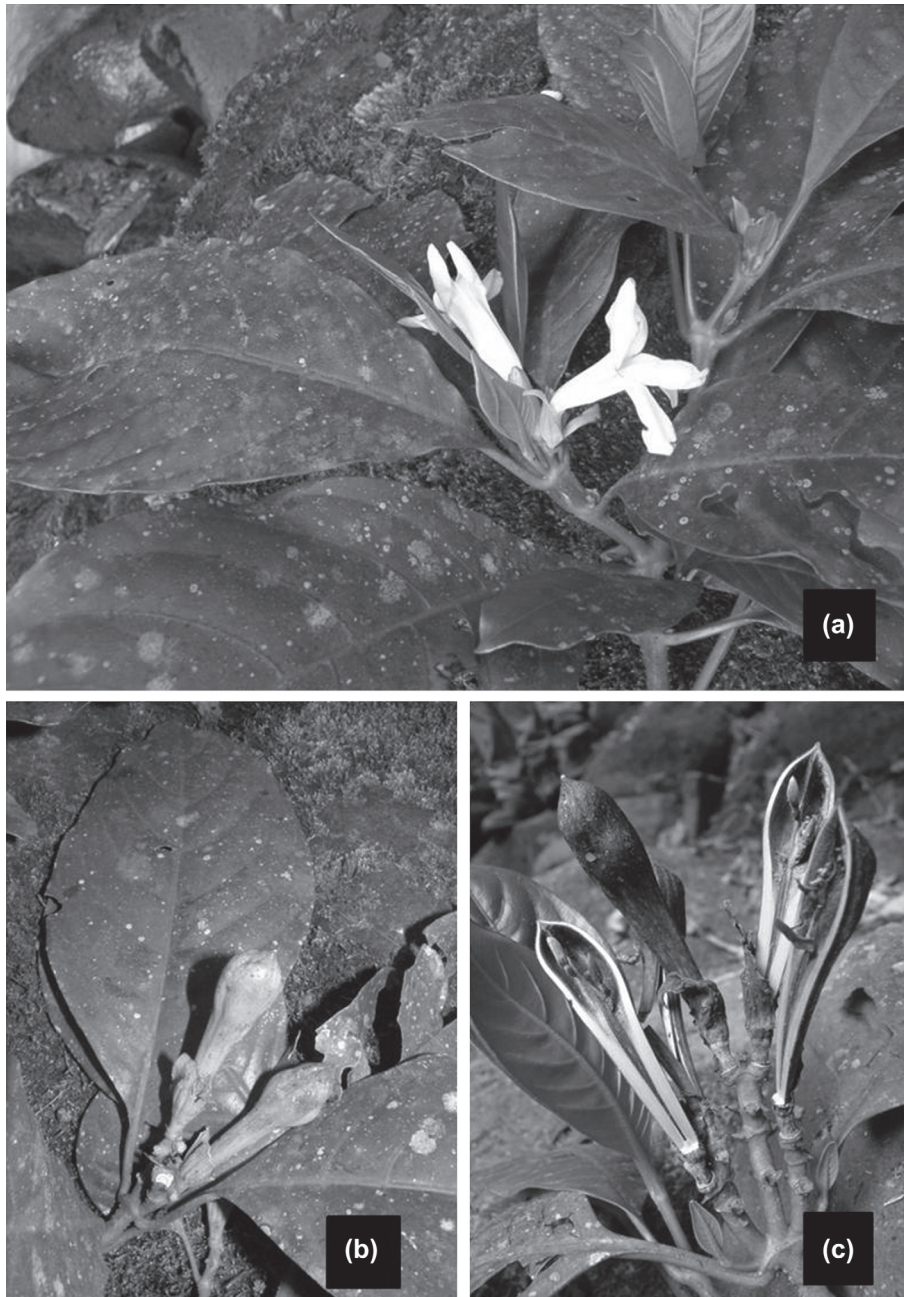


Figure 2. Photographs showing different structures of *Spathacanthus magdalenae* sp. nov. (a) leaves and flowers, (b) immature fruits, (c) open mature fruits showing the seed locules. Photos by G. Castillo-Campos.

of the stamen base which is tomentose. Stamens 4, epipetalous, in 2 unequal pairs, the largest 1.6 cm long, the smallest 1.0 cm long; filaments glabrous; anthers monothecal, uni-locular, 3.5 mm long. Ovary glabrous, 5 mm long, 2 mm in diameter; style glabrous, 2.6 cm long. Fruit capsular, pedicellate; pedicel 0.9 cm long, 0.2 cm thick; woody capsules, 4-loculate, 6.0–8.6 cm long, 1.2–1.3 cm wide, glabrous, green, brown on drying; stipe 4.9–4.5 cm long; head 3.5 cm long; apex acute. Seeds 4 per capsule, subglobular, 1-loculate, with appendix, brown, 0.8 cm long, 0.9 cm wide, the majority parasitized or perforated by insects (Fig. 1, 2c). Flowering from January to March and sets fruit from March to June.

Habitat

Spathacanthus magdalenae is a frequent species in the arboreal stratum of the riparian vegetation in Piedras Blancas, where it is in a good state of conservation. The site has a semi-warm humid climate, the warmest of the temperate areas, with a mean annual temperature of 18°C (García 1988). It is also found in the subdeciduous tropical forest (Rzedowski 1978) of central Veracruz, in the humid canyons of Jalcomulco where it is associated in the arboreal stratum with *Aphananthe monoica* (Hemsl.) Leroy, *Brosimum alicastrum* Sw., *Manilkara zapota* (L.) van Royen, *Astronium graveolens* Jacq. and *Resinanthus aromaticus* (Cast.-Campos & Lorence) Borhidi, among others (Castillo 1995). In the

riparian vegetation that borders the tropical montane cloud forest, it is mainly associated in the arboreal stratum with *Alchornea latifolia* Sw., *Bernardia interrupta* (Schltdl.) Müll. Arg., *Clethra mexicana* DC., *Cinnamomum effusum* (Meisn.) Kosterm., *Meliosma alba* (Schltdl.) Walp., *Myriocarpa longipes* Liebm. and *Guarea glabra* Vahl. In the shrub stratum, the most common taxa are *Deppea grandiflora* Schltdl., *Hoffmannia psychotriifolia* (Benth.) Griseb., *H. excelsa* (Kunth) K. Schum., *Messenia deppeana* (Schltdl. & Cham.) Hanst., *Parathesis melanosticta* (Schltdl.) Hemsl. and *Phenax urticifolius* (Poir.) Wedd. The herbaceous stratum is characterized by a diversity of ferns among which the most common are *Arachniodes denticulata* (Sw.) Ching, *Asplenium auriculatum* (Thunb.) Kuhn and *Blechnum falciforme* (Liebm.) C. Chr.

Distribution

Despite thorough and intensive exploration of other areas of riparian vegetation in Veracruz, specimens collected to date limit the distribution of *S. magdalenae* to riparian vegetation in central Veracruz, from the tropical to the temperate zone of the eastern slopes of the volcano Cofre de Perote. Thus, it is likely that the new species is endemic to this area.

Similar species

Within *Spathacanthus*, only *S. habnianus* (Daniel 1999) is previously known to occur in the state of Veracruz. However, the key shows that *S. habnianus* is most similar to *S. parviflorus*, which is located in the Pacific regions of Mexico. Furthermore, based on the similarities and differences in the key, we observed that the taxon closest to *S. magdalenae* was *S. parviflorus* from the Pacific regions. *Spathacanthus magdalenae* differs from *S. parviflorus* in that the corolla tube is longer and the leaves are wider. Moreover, the flowers of *S. parviflorus* are also white, but leaves, flowers, fruits and seeds are smaller and the pedicel is longer.

Spathacanthus habnianus is the most widely distributed species, reaching from Mexico to Guatemala and Honduras. The other two species in this genus (*S. parviflorus* and *S. hoffmannii* Lindau) have a more limited distribution on the Mexican Pacific slopes and in Central America, respectively.

Additional specimens examined (paratypes)

Mexico. Municipality of Coatepec. Piedras Blancas, altitude 1666 m a.s.l., eastern slope of the volcano Cofre de Perote, Castillo-Campos et al. 27180, 27377, (XAL, MEXU, ENCB). Jalcomulco. Barranca de Actopan, road to Buena

Vista, 1 km after Jalcomulco, 500 m a.s.l., Castillo-Campos et al. 8206 (XAL).

Key to *Spathacanthus* species

1. Calyx subdivided in 2 equal segments at anthesis; corolla 7.3–9.7 cm long, corolla tube 1.8–3.0 cm long, distributed in Costa Rica *S. hoffmannii*
– Calyx divided in 2 unequal segments (seldom more) at anthesis; corolla tube 2.3–7.0 cm long 2
2. Corolla tube 3.8–4.0 cm long *S. magdalenae*
– Corolla tube 0.7–2.0 cm long 3
3. Flowers yellow; corolla tube 1.3–2.0 cm long *S. habnianus*
– Flowers white; corolla tube 0.7–1.4 cm long *S. parviflorus*

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