
Swartzia mexicana (Fabaceae, Swartzieae), a New Species from Oaxaca, Mexico

Mario Sousa S.

Departamento de Botánica, Instituto de Biología, Universidad Nacional Autónoma de México, Apdo. Postal 70-367, 04510 México, D.F. México. sousa@servidor.unam.mx

Rosaura Grether

Departamento de Biología, División de Ciencias Biológicas y de la Salud, Universidad Autónoma Metropolitana-Iztapalapa, Apdo. Postal 55-535, 09340 México, D.F. México. rogg@xanum.uam.mx

ABSTRACT. *Swartzia mexicana*, a new legume species from the State of Oaxaca, Mexico, is described and illustrated. It is presently known only from the districts of Ixtlán and Tuxtepec. The new species belongs to section *Swartzia*, subsection *Swartzia*, and is assigned to series *Tounateae*. Within that series, it is closely related to *S. sumorum* by the leaflets not prominently reticulate, the style uncinata, and the stigma truncate, as well as by the legume elliptic in shape. A key to distinguish the new species from *S. sumorum* and *S. wurdackii* is provided.

RESUMEN. Se describe e ilustra *Swartzia mexicana*, una especie de leguminosas nueva para la ciencia, del estado de Oaxaca, México. Hasta ahora se conoce sólo de los distritos de Ixtlán y Tuxtepec. La especie nueva corresponde a la sect. *Swartzia*, subsect. *Swartzia* y se incluye en la serie *Tounateae*. Dentro de esa serie, se relaciona estrechamente con *S. sumorum* por los foliolos sin nervación reticulada prominente, el estilo uncinado y el estigma truncado, así como por la legumbre de forma elíptica. Se presenta una clave para distinguir a la especie nueva de *S. sumorum* y de *S. wurdackii*.

Key words: Fabaceae, Mesoamerica, Mexico, Oaxaca, series *Tounateae*, *Swartzia*.

Swartzia is a neotropical genus of about 155 species, most of them found in South America. Only two species are known to occur elsewhere, in tropical Africa, according to Cowan (1981). Species of the genus vary from small trees or shrubs (1.5–3–18 m high, such as *S. invenusta* Barneby and *S. alato-sericea* Barneby, to large trees up to 35–40 m high, such as *S. gigantea* R. S. Cowan and *S. polyphylla* DC. Some slender trees, such as *S. palustris* Barneby, have occasionally sarmentose branches, but the only species with a clambering

habit is *S. froesii* R. S. Cowan. The genus is a common component of lowland forests, especially along rivers and in swampy forests, but in the Andean area it can be found from sea level up to 2100 m elevation, as *S. amplifolia* Harms var. *colombiana* R. S. Cowan (Cowan, 1968; Barneby, 1991, 1996).

In Mexico, *Swartzia* is found from Nayarit to Chiapas along the Pacific slope, and it extends eastward to Veracruz, Tabasco, and the Yucatán Peninsula. *Swartzia* habitats include tropical rainforests, semideciduous and deciduous forests, as well as cloud forests. Besides *Swartzia mexicana*, three other species of the genus are known to occur in Mexico: *S. cubensis* (Britton & Wilson) P. C. Standley (Chiapas, Tabasco, Campeche, Yucatán, and Quintana Roo), *S. myrtifolia* J. E. Smith (Veracruz, Oaxaca, Chiapas, Tabasco), and *S. simplex* (Swartz) Sprengel (Nayarit, Jalisco, Michoacán, Guerrero, Veracruz, Oaxaca, and Chiapas). In the State of Oaxaca, the latter two are allopatric to the new species; they are found along the Pacific slope in the districts of Jamiltepec, Pochutla, and Juchitán, growing mainly in lowland forests, 200 to 780 m.s.m., although *S. simplex* has been collected up to 1660 m elevation in the District of Pochutla.

Swartzia cubensis also belongs to series *Tounateae*; it is distinguished from *S. mexicana* by its marginate to winged leaf rachis, shorter inflorescences, and yellow to orange, long stipitate, subglobose or ovate, rostrate fruits. *Swartzia myrtifolia* and *S. simplex* are members of series *Possira*. They are distinguished from the new species by their petaliferous flowers, by the narrowly margined or winged petiole and leaf rachis, and by the subglobose or oblong fruits, very similar to those of *S. cubensis*.

Mesoamerica is a more diverse region: about 9 to 12 species of *Swartzia* have been found from northern Oaxaca and the Isthmus of Tehuantepec,



Figure 1. *Swartzia mexicana* M. Sousa & R. Grether. —A. Branch with leaves and inflorescences. —B. Close-up of stipules. —C. A group of inflorescences in bud. —D. Floral bud and bract. —E. Flower. —F. Stamens. —G. Gynoecium

and in Tabasco, Chiapas, and the Yucatán Peninsula in Mexico, to Panama. The new species is described from the northwestern phytogeographic limit of the Mesoamerican region, as part of the ongoing Flora Mesoamericana project coordinated by the Missouri Botanical Garden, the Instituto de Biología, Universidad Nacional Autónoma de México, and The Natural History Museum (London) (Davidse et al., 1994).

Swartzia mexicana M. Sousa & R. Grether, sp. nov. TYPE: Mexico. Oaxaca: Distrito de Ixtlán, Municipio de Ixtlán de Juárez, 12 km NE de Vista Hermosa, carretera de Ixtlán a Valle Nacional, 17 Apr. 1982, R. Cedillo-Trigos 1234 & R. Torres-Colón (holotype, MEXU; isotypes, BM, MEXU, MO, UAMIZ). Figures 1–3.

Arbor 20–40 m alta; stipulae 1–2.5 mm longae, 0.4–1 mm latae, axis foliaris (petiolus cum rachis) 8–18(–20) cm longus; foliola (5–)7, lanceolato-oblonga, raro elliptica, utrinque glabra, apice acuminata; racemi cauliflori (7–)9–16(–20) cm longi, bracteae 0.6–0.9 mm longae; pediceli 3–7 mm longi, alabastra ad 6 × 5 mm; legumen oblique ellipticum, base attenuata, verrucosum, brunneum, semine uno, elliptico.

Trees 20–40 m high, the bark striate to rugose, grayish brown, with prominent lenticels; branchlets strigulose, rufous, glabrescent. Leaf buds strigose, rufous; young leaves purple, strigulose; mature leaves green, glabrous; stipules 1–2.5 × 0.4–1 mm, subulate to deltoid, strigose to strigulose, deciduous; petioles (1–)2.5–5 cm long, terete to flattened or slightly sulcate on the upper surface, glabrous; rachis (3.5–)5.5–13(–15) cm long, flattened to sulcate on the upper surface, very sparsely strigulose to glabrous, not stipellate; leaflets (5 to)7, the petiolules 3–5 mm, sulcate, glabrous, the blades of the lowermost pair (3.5–)4.5–10 × (2–)2.5–4.5(–5.5) cm, the other pairs (6–)7–14.5(–16) × (2.5–)3–5(–5.5) cm, lanceolate-oblong, rarely elliptic, glabrous on both surfaces, venation tenuous, the main vein prominent on the lower surface, very sparsely strigulose at the base, glabrescent, the base cuneate, the margins entire, thickened, sometimes very slightly revolute, the apex acuminate. Inflorescences racemose, (7–)9–16(–20) cm long, strigose, rufous, cauliflorous, the young racemes growing on very compressed brachyblasts, and disposed in groups of (3 to)6 to 9(to 12), rarely axillary, and solitary; peduncle (0.3–)0.5–1.5(–2) cm long, the peduncle and the floriferous axis strigulose, rufous;

bracts 0.6–0.9 × 0.4–0.6 mm, deltoid, strigose, rufous, caducous; bracteoles lacking; pedicels 3–7 mm long, strigose, rufous; floral buds 3.5–6 × 3–5 mm, almost globose, strigulose, rufous, the apex shortly apiculate. Flowers apetalous, calyx 5–5.5 mm long, strigulose, with 4(or 5) irregular lobes, free or shortly fused at the base, green, persistent; corolla lacking; stamens numerous (29 or 30), the longer filaments 6.5–8 mm, free to base, the smaller ones 4–5 mm, white, exceptionally fused in groups of 2 or 3 at the base (Fig. 1F), glabrous, anthers 1.5–2 × 0.8–1.2 mm, oblong to elliptic, nearly basifixed; gynoecium glabrous, ovary stipitate, 4–6 mm long, including the gynophore, the latter 2 mm long, sparsely strigulose at the base, with 4 or 5 campylotropous ovules, obliquely disposed, style 1.5–2 mm, arcuate, glabrous, stigma truncate to obliquely truncate. Legume 4.5–5 × 2–2.3 cm, obliquely elliptic, the base attenuate, the valves 2–5 mm thick, ligneous, verrucose, dark brown, 1-seeded, the apex obliquely obtuse. Seed 3.2 × 1.7 × 1.4 cm, elliptic, the testa chartaceous, rugose, brown, brilliant, the aril probably red, thin.

Common names. “Jarrito silvestre,” “palo de jarrito de monte.”

Distribution and habitat. As far as we know, the new species is endemic to northern Oaxaca. It occurs in cloud forest with Lauraceae and *Rheedia*, premontane wet forest, and montane tropical rainforest, at elevations of 725–1300 m.

Phenology. It has been collected in flower during March and April, and the fruits have been found in May.

The new species belongs to section *Swartzia*, subsection *Swartzia*, and is assigned to series *Toungateae*, which is characterized by the floral buds usually 5 mm or less in diameter, as well as by the lack of a petal and bracteoles.

Swartzia mexicana is closely related to *S. sumorum* A. R. Molina. Both species share the leaflets not prominently reticulate, the style uncinat, and the stigma truncate, as well as the legume elliptic in shape. It is distinguished from *S. sumorum* by the narrower leaflets, the larger stipules and floral buds, the larger number of leaflets, as well as the longer racemes and pedicels (see key). The new species is also related to *S. wurdackii* R. S. Cowan by the leaf rachis lacking wings or stipels, and the gynoecium glabrous; the latter can be distinguished by the longer stipules, the leaflets with prominent

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Figure 2. *Swartzia mexicana* M. Sousa & R. Grether. Close-up of racemes, floral buds, and flowers (photographed from R. Cedillo-Trigos 1234 & R. Torres-Colín).

reticulate venation, and the shorter racemes (see key).

Series *Tounateae* comprises 22 species, including *Swartzia mexicana*. Other species of this group with leaf rachis lacking wings or stipels but having a densely pubescent gynoecium are *Swartzia amazonica* Moore occurring in Brazil, *S. bannia* Sandwith known from Suriname and Guyana, and *S. caribaea* Grisebach from the West Indies.

The new species can be distinguished by adding it to Cowan's key to species of series *Tounateae*

(1968: 23–24) in his treatment for *Flora Neotropica*, at couplet 11 (p. 23), in the following way:

11. Gynoecium glabrous or sparsely strigose basally.
 12. Stipules 5 mm long; leaflets with prominent reticulate venation; racemes 5–6.5 cm long; Venezuela *S. wurdackii*
 12. Stipules 0.4–2.5 mm long; leaflets with one prominent vein and tenuous, pinnate venation on the lower surface; racemes (7–)8–16(–20) cm long.
 13. Stipules 0.4–0.5 mm long; leaflets (3 to)5; racemes 8–10 cm long; floral buds



Figure 3. *Swartzia mexicana* M. Sousa & R. Grether. Close-up of open fruit and seed (photographed from *P. Osorio-Hernández* 142).

- 3 × 3 mm; pedicels 1–1.5 mm long; 2, rarely 1, globose seeds, 1–1.5 cm diam.; Nicaragua *S. sumorum*
13. Stipules 1–2.5 mm long; leaflets 7 (less often, to 5); racemes (7–)9–16(–20) cm long; floral buds 3.5–6 × 3–5 mm; pedicels 3–7 mm long; 1 elliptic seed, 3.2 × 1.7 × 1.4 cm; Mexico . . . *S. mexicana*

Paratypes. MEXICO. **Oaxaca:** Distrito de Ixtlán, Mun. Comaltepec along trail that descends from Hwy. 175 at 1280 m elevation (Puerto Antonio) to settlement of Cuaje, 2–6 Dec. 1994, *B. Boyle & S. Acosta* 3960 (MEXU, MO, OAX), *B. Boyle & S. Acosta* 4011 (MEXU, MO); Puerto Antonio, 25 Mar. 1989, *R. López-Luna* 0438 (MEXU); Distrito de Tuxtepec, Mun. San Felipe Usila, Monte Pan, 3.1 km en línea recta al SE (135°) de Santa Cruz Tepetotutla, 11 Apr. 1994, *P. Osorio-Hernández* 37 (MEXU), 7 May 1994, *P. Osorio-Hernández* 142 (MEXU), *P. Osorio-Hernández* 152 (MEXU); 5.1 km en línea recta al SE (154°) de Santa Cruz Tepetotutla, 29 Mar. 1995, *A. Rincón-Gutiérrez* 607, *C. Gallardo & E. Pérez-García* (MEXU).

Acknowledgments. We express our gratitude to Fernando Chiang, Instituto de Biología, UNAM, for the Latin translation of the diagnosis, to Lawrence M. Kelly, Instituto de Biología, UNAM, for his re-

view of the English version of the manuscript, to Gloria Andrade, Instituto de Biología, UNAM, and to Elvia Esparza, Instituto de Biología, UNAM, for the excellent illustration. Special thanks are given to Victoria C. Hollowell, Missouri Botanical Garden, and David A. Neill, Missouri Botanical Garden, Herbario Nacional de Ecuador, for critical comment improving the manuscript.

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