
A New Species of *Rothmannia* (Rubiaceae) from Yunnan, China

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ABSTRACT. A new species in Rubiaceae (Gardenieae), *Rothmannia daweshanensis* Y. M. Shui & W. H. Chen, is described from Yunnan, China. Its diagnostic characters and close relationship with *Rothmannia vietnamensis* Tirvengadam are discussed.

Key words: China, *Rothmannia*, Rubiaceae, Yunnan.

During a phytogeographic study in the Daweshan range, southeastern Yunnan, and the revision of Rubiaceae for the *Flora of Yunnan* in 2001, Chen Wei-Chiu found a collection of Rubiaceae in young fruit, *Y. M. Shui & W. H. Chen 12242*, unrecorded for China (Chen, 1999). Later, another collection in both flower and fruit, *Y. M. Shui, C. X. Pu & Z. L. Nie 14496*, confirmed that a new species in Rubiaceae had been discovered.

In accordance with studies of the tribe Gardenieae (Ixoroideae) in southern and southeastern Asia (Tirvengadam, 1983; Robbrecht & Puff, 1986) and Africa (Bridson, 1983, 1988), we place the new species in the genus *Rothmannia* Thunberg, albeit provisionally because of the difficulty of delimitation of the genera of Gardenieae. This is thus the first record of the genus for China and Yunnan. Because this genus is known only from tropical Asia and Africa, its discovery in Yunnan adds weight to the opinion that the flora of the Daweshan range has a tropical element and is allied to the flora of the Paleotropical Region (Wu & Wu, 1998).

Rothmannia occurs in tropical and southern Africa, east into the Seychelles as well as in southern and southeastern Asia, with 63 species recognized as valid in the International Plant Names Index ((www.ipni.org)). According to Jarvie and Ermayanti (1996), together with Tirvengadam (1983), the diagnostic features of the genus are: shrubs or large trees (generally 4–15 m tall), spines absent; bud terminal and nude; inflorescences terminal, paniculi-

form; flowers coming from a single point on the stem, or on a branched axis; petals 5, joined together, not fleshy, entire; corolla sometimes large, purple speckled inside the tube; stamens 5, subsessile, not fused, adherent to the perianth, equal in size; styles solitary, with 2-lobed stigmas; carpels connate, 2 (or 3), with 2 (or 3) locules; fruit berry-like, globular or spherical, fleshy, sometimes up to 5–6 cm in diameter; seeds flat, sunk in a pulpy matrix. Some species have been cultivated for horticulture, such as *Rothmannia capensis* Thunberg ((nature.jardin.free.fr/arbre/ft-rothmannia.html)) and *Rothmannia globosa* (Hochstetter) Keay ((www.shop.sunshine-seeds.de/d_11159_Rothmannia_globosa34658.htm)).

Rothmannia daweshanensis Y. M. Shui & W. H. Chen, sp. nov. TYPE: China. Yunnan: Maguan County, Gulinqing community, Woody Station nearby Nanxi Community of Hekou County, 22°40'N, 103°53'E, 500–600 m, 20 Nov. 2000 (fl & fr), *Y. M. Shui, C. X. Pu & Z. L. Nie 14496* (holotype, KUN; isotypes, KUN, MO). Figure 1.

Species *Rothmannia vietnamensis* similis, sed calycis lobis lineari-oblongis, 1.4–1.6 cm longis (nec 0.7 cm) et corollis campanulatis 5–5.5 cm longis (nec tubaeformibus ca. 2.2 cm) differt.

Tree 10–15 m, glabrous throughout; bark lenticellate, gray-shaded; young twigs dichotomous. Leaves: blades chartaceous, ovate, 10–14 × 4–5 cm, attenuate slightly from the middle to narrowly cuneate at the base, slightly decurrent on the petiole, apex distinctly acuminate, tip obtuse, both surfaces green-brown and glossy, midrib shallowly canaliculate at adaxial surface, prominent at abaxial surface, lateral nerves 5 or 6 pairs; secondary nerves faintly visible adaxially, slightly prominent abaxially, almost all in 32–35° angle to the midrib; petiole 0.3 cm long; stipules broadly triangular-ovate, 1.5–2.0 × 2–3 mm, distinct at base, acuminate at apex. Inflorescence uniflorous, protruding



Figure 1. *Rothmannia daweishanensis* Y. M. Shui & W. H. Chen. —A. Habit. —B. Corolla. —C. Calyx lobes and pedicel. —D. Fruit. —E. Transverse section of fruit and seeds. Drawn by Liu Yi-Tao from the holotype (Y. M. Shui, C. X. Pu & Z. L. Nie 14496).

from a very reduced branch above a pair of leaves, superficially terminal or axillary; reduced branch ca. 5 mm long; pedicels 2.0–2.5 cm long with 3 bracteoles; bracteoles alternate and triangular, 1.5 × 1.0 mm, glabrous outside, sericeous inside. Calyx lobes linear-oblong, 14–16 × 0.7–0.9 mm, obtuse at apex, 1-nerved, deciduous. Calyx tube 2–2.5 mm long, 5–6 mm diam., sparsely sericeous outside, densely long-pubescent, and with short colleters inside. Corolla campanulate, tubes glabrous, 5–5.5 cm long, 3 cm diam. at mid-point, white outside, striated, and mottled purple inside, abruptly contracted at base into a slender tube 6–7 mm long and 5 mm diam.; corolla lobes 5, glabrous, broadly ovate, 1.8–2.0 × 2.2–2.3 cm, obtuse at apex, white outside, with purple mottling inside, deciduous and not evident on fruit. Stamens 5, alternate to corolla lobes, subsessile, inserted on the upper part of corolla tube; anthers linear, 1.9–2.0 × 0.1 cm, longitudinally dehiscent, tapered to 0.5 mm; ovary parietal, seemingly 2-locular, ovules numerous in each row on placentas, placentas amalgamating at the center of the ovary. Style 5 cm long, stigmatic surface up to 2.0 cm long, ca. 0.1 cm diam., oblong-lanceolate. Fruit elongate when young, ca. 3.5 × 1.6 cm, spherical at maturity, ca. 4–5 cm diam., slightly inflated and decurrent at base. Seeds numerous, lenticular, 1.2 cm long, 0.8 cm wide, 0.4 cm thick, sunk in a pulpy matrix.

Habitat and distribution. Among the rocky crevices in the limestone rainy forests, 300–600 m; known only from Yunnan, China.

Phenology. Flowering from October to December; fruiting from December throughout the following year until the next March.

Etymology. *Rothmannia daweishanensis* is named after the Daweishan mountain range located in southeastern Yunnan, which is one of the richest floras noted for Yunnan as well as China (Shui, 2000).

Although it is difficult to delimit the genera of Gardeniaceae, the solitary flower, slightly lobate corolla tubes to 5–5.5 cm long, as well as the obovoid or obovoid-oblong fruits, are all similar to the characters noted for *Rothmannia* (Tirvengadam, 1983). Within this genus, *Rothmannia daweishanensis* is similar to *Rothmannia vietnamensis* Tirvengadam

in the shape of the fruits, but the latter differs mainly in its wider, broadly triangular calyx lobes to 0.7 cm and in its shorter corolla tubes to only 2.2 cm long.

Paratypes. CHINA. **SE Yunnan:** Maguan County, Gulinqing, Arboretum-examining Station, in tropical seasonal rainy forest, 2 Oct. 2002, Y. M. Shui, W. H. Chen & J. S. Sheng 30098 (KUN, PE); Maguan, Gulinqing, Xintian-cun, alt. 500–600 m, in subtropical montane forest of limestone area, 18 Aug. 1994, S. K. Wu, X. Cheng, Y. P. Yang, J. Murata, T. Sugawara, T. Kawahara & H. Nagamasu 2524 (KUN); Hekou County, Nanxi, Huayudong National Forestry Park, 300 m, 22 Apr. 2000, Y. M. Shui & W. H. Chen 12242 (KUN); Nanxi, 24 Nov. 1982, S. Q. Xiao & P. X. He 3222 (SWFC).

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