

Polygonatum gongshanense (Asparagaceae), a new species from Gongshan, Yunnan, China

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Polygonatum gongshanense L.H. Zhao & X.J. He (Asparagaceae), a new species from Gongshan, Yunnan Province, China, is described and illustrated. It is morphologically similar to *P. cathcartii* in having fleshy roots, an irregularly moniliform rhizome, opposite leaves and a pale-yellow perianth, but it differs by its pink stem, larger flowers, a retrorse spur on each of the staminal filaments, and a different ovary and fruit morphology.

The genus *Polygonatum* (Asparagaceae) comprises approximately 60 species distributed in the northern hemisphere (Utech 2002). Thirty-nine species occur in China, 20 of which are endemic (Tang 1978, Chen & Tamura 2000). During a revisionary work on *Polygonatum* in China, we came across an interesting species from Gongshan, Yunnan Province. After a thorough scrutiny of the specimens kept in SZ, PE, KUN, and CDBI, we realized that it closely resembled *P. cathcartii* in having fleshy roots, an irregularly moniliform rhizome, opposite leaves and a pale-yellow perianth, but it differed by its pink stem, larger flowers, a retrorse spur on each of the staminal filaments, a cylindrical and trifold apex ovary, and a fusiform fruit (cf. Table 1).

***Polygonatum gongshanense* L.H. Zhao & X.J. He, sp. nova** (Figs. 1–3)

TYPE: China. Yunnan Province, Gongshan County, Dulongji-

ang village, alt. 2124 m a.s.l., 29 June 2013 L.H. Zhao 13062903 (holotype SZ; isotype SZ). — PARATYPE: Same locality, 5 Aug. 2012 L.H. Zhao 12080504 (SZ).

ETYMOLOGY: The species is named after the type locality, Gongshan County, Yunnan Province in China.

Perennial, epiphytic herbs. Rhizome irregularly moniliform, 1–2 cm thick, with many fleshy roots. Stem ascendant, 35–60 cm long, simple, glabrous, pink, ca. 2–6 mm in diam., minutely white-spotted, covered with cataphylls at base. Leaves deciduous, simple, opposite or occasionally sub-opposite, ovate or lanceolate, 3 main nerves, apex attenuated, base obtuse, margin entire, glabrous, 6–9 cm long, 2–4 cm wide, leaf blade abaxially grayish glaucous, petiole 2–3 mm long, glabrous. Inflorescences (1)2–3-flowered, axillary, glabrous, peduncle pendulous, 1.2–1.5 cm long, ca. 1 mm in diam., bracts absent. Flowers bisexual, actinomorphic, pendulous, pedicels 0.8–1.4 cm long, glabrous; perianth pale yellow, cylindric, 1.6–2.0 × ca.

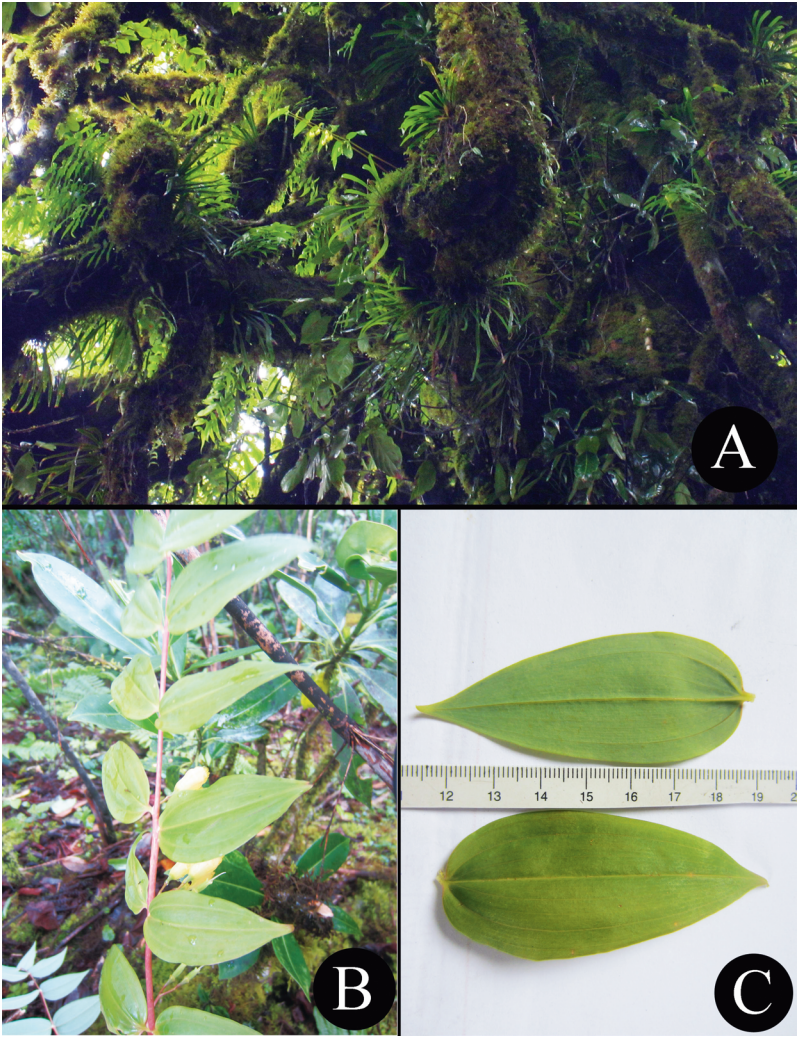


Fig. 1. *Polygonatum gongshanense*. — A: Habitat. — B: Stem. — C: Adaxial (below) and abaxial leaf surface.

Table 1. A morphological comparison of *Polygonatum cathcartii* and *P. gongshanense*.

| Species | <i>P. cathcartii</i> | <i>P. gongshanense</i> |
|----------------|--|---|
| Stem | arching | ascendant, pink |
| Leaves | opposite or in 3s | opposite |
| Inflorescences | 2–3(4)-flowered | (1)2–3-flowered |
| Peduncle | very slender, about half length of subtending leaf | ca. 1 mm in diam, 1.2–1.5 cm long pale yellow, cylindric, 1.6–2.0 × ca. 0.7 cm, |
| Perianth | pale yellow or white, cylindric or ± campanulate, 1.1–1.5 cm; lobes 2–3 mm | lobes 6, oblong–ovate, pale green, ca. 2–3 × 2–3 mm; apex acute, penicillate–papillose adaxially |
| Filaments | 2–3 mm, apically dilated and saccate; anthers 3–4 mm | whole length of filament from perianth wall to apex where attached to anther 3.0 mm, lanceolate, apex acute |
| Ovary | ellipsoid, 4–5 × 1.8–3 mm; style 3.5–4.5 mm | cylindrical, 8–10 mm × 2.5 mm; style 8 mm |
| Fruit | 7 mm in diam. | fusiform, 1.5–2.0 cm × 5–7 mm |
| Seeds | 2–4 or 9–15 per fruit | numerous per fruit |

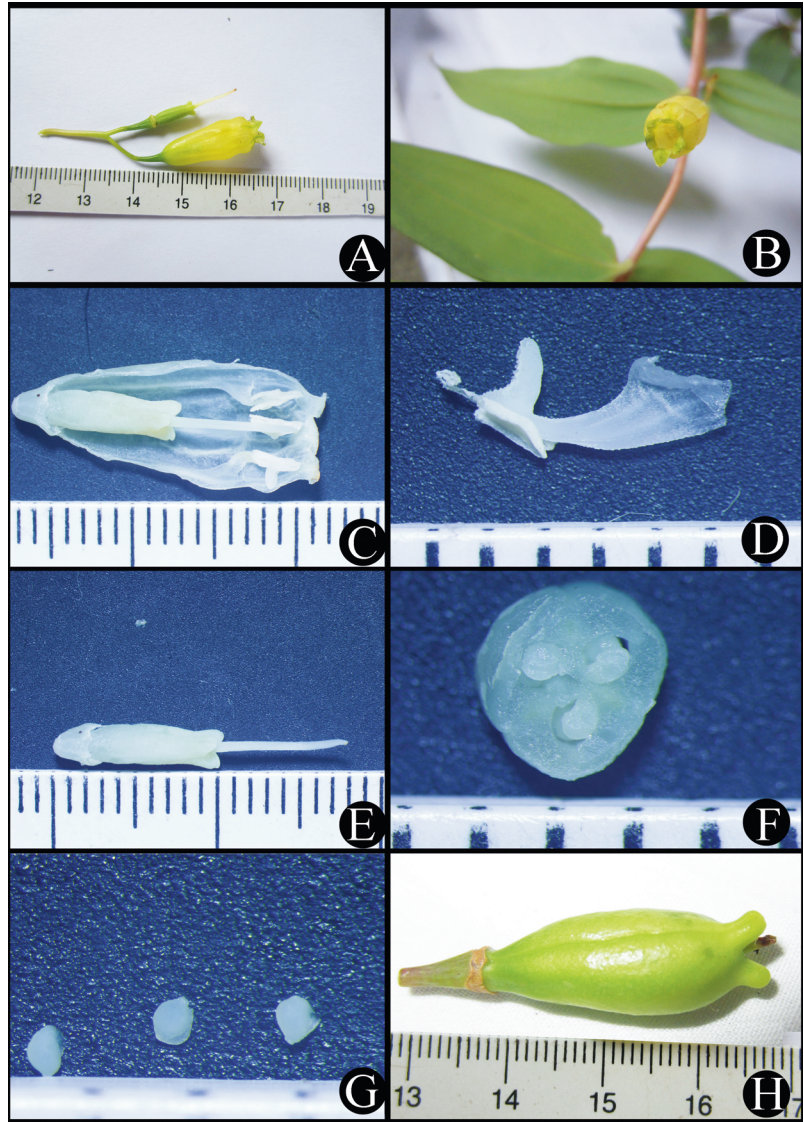


Fig. 2. *Polygonatum gongshanense* (from the holotype). — **A** and **B**: Complete flower. — **C**: Flower inside. — **D**: Stamen. — **E**: Pistil. — **F**: Ovary cross-section. — **G**: Ovules. — **H**: Fruit.

0.7 cm, lobes 6, oblong-ovate, pale green, ca. $2\text{--}3 \times 2\text{--}3$ mm; apex acute, penicillate-papillose adaxially. Stamens 6, adnate to perianth lobes, filaments slightly curved, inserted in distal fourth of tube, compressed, papillose, introrse, apex with a retrorse spur ca. 1.0 mm; whole length of filament from perianth wall to apex where attached to anther 3.0 mm, anthers lanceolate, 3.0 mm long, 1.0 mm wide, apex acute, 2-loculed, longitudinally dehiscent. Ovary cylindrical, sessile, 8–10 mm long, 2.5 mm in diam., glabrous, apex trifid, 3-loculed, ovules more than

5 per locule, style 8 mm long, stigma glabrous. Fruit a berry, fusiform, 1.5–2.0 cm long, 5–7 mm in diam, apex trifid. Seeds sub-globose, numerous. Flowering June–July, fruiting July–September.

We found approximately 60 individuals, which were growing epiphytically on some big trees in old-growth forests in a narrow altitude range. Survey of the adjacent forests and long-term monitoring of the type locality is required to obtain more information about this species.



Fig. 3. Holotype of *Polygonatum gongshanense* (SZ).

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