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Polygonatum campanulatum (Asparagaceae), a new species from Yunnan, China

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Polygonatum Miller (1754: without pagination) is characterized by thick fleshy creeping sympodial rhizomes with elongated aerial stem and fleshy berries (Tamura *et al.* 1997). This genus contains 60 or more species in the world and widely distributed in the warm-temperate to boreal zones of the Northern Hemisphere with five species in Europe and three species in North America and concentrated (about 50 species) in East Asia (from Russia and Japan to Himalaya) (Tang 1978, Conran & Tamura 1998, Chen & Tamura 2000, Utech 2002, Judd 2003, Ohara *et al.* 2007). Chen & Tamura (2000) recognized 39 species for China, 20 of them being endemic to the country (see also Tang 1978). Since then, Floden (2014) and Zhao & He (2014) described two new taxa, both from Yunnan, China.

One of the authors (GWH) carried out field exploration in western Yunnan in 2011, and collected an unknown flowering *Polygonatum*. After consulting relevant literature (Tang 1978, Chen & Tamura 2000, Floden 2014, Zhao & He 2014), detailed comparison with representative collections (*T. L. Dai 101043* PE!; *Z. D. Chen 961208* PE!; *H. J. Li 1108, 2259* PE!; *Y. Liu 575* PE!; *Hubei Shennongjia G. s.n.* PE!; *L. H. Zhao 13062903* SZ!; *M. X. Nie 08775* LBG!; *R. P. Farges s.n* IBSC!) and previously described species, several unique morphological characteristics clearly distinguish these plants from other species and we here describe them as a new species, *Polygonatum campanulatum*.

Description of the new species

Polygonatum campanulatum G.W.Hu, *sp. nov.* (Fig. 1).

The new species differs from *Polygonatum gongshanense* by alternate phyllotaxy, lamina shape, campanulate perigone, adnation of the peduncle base to stem and obovoid ovary; from *P. franchetii* in having epiphytic habit, subulate bracts, part of the peduncle adnate to stem, campanulate perigone and obovoid ovary.

Type:—CHINA. Yunnan Province: Xima Town, Yingjiang County, on the trunks of large trees mixed with epiphytic mosses and ferns in tropical mountain rainforest, 24°47′N, 97°40′E, elev. 1500 m, 27 October 2011, *G. W. Hu HGW-00905* (holotype, HIB!; isotypes, HIB!, HNNU!)

Perennial, epiphytic herbs. Rhizome subglobose, dorsiventrally compressed, 2.4–4.1 cm in diameter, several ones connecting head to tail into moniliform rootstock with many fleshy roots. Stem ascendant, arching, 58–72 cm long, simple, glabrous, ca. 1.5–6 mm in diam., green, sometimes with black sparse dots at lower part. Leaves 6–12, alternate, simple, leaf lamina green to olive green, lustrous, narrowly lanceolate or elliptic-lanceolate, apex caudate, base cuneate, margin entire, glabrous, 12–16.8 cm long, 2.1–3.2 cm wide, petiole short, 2–3 mm long, glabrous. Inflorescences 2–3-flowered, peduncle pendulous, 2.5–4.2 cm long, basal 7–13 mm adnate to stem. Pedicels 8–18 mm long, bracts subulate, ca. 1.5 mm long, membranous, borne about middle of pedicel. Flowers bisexual, actinomorphic, pendulous; perigone yellowish green, or greenish white, 13–20 mm long, campanulate, tube 11–15 mm long, constricted around the ovary in the proximal third, lobes 6, elliptic-ovate, 4–6 mm long, 4–5 mm wide, apex acute; stamens 6, adnate to perigone tube; filaments incurved and connivent around the stigma, 4–4.5 mm long, inserted approximately at the middle of perigone tube, cylindrical, introrse, apex with a retrorse spur, spur 2–2.5 mm long, papillose; anthers lanceolate, yellowish white, 4–5 mm long, 1–1.2 mm wide, apex acute, 2-loculed, longitudinally dehiscent; ovary obovoid, sessile, 4.5–6 mm long, glabrous, 3-loculed, style 5.5–7 mm long, stigma glabrous. Fruit a berry, young fruit obovoid, ca. 6 mm in diameter. Pollen grains are single, navicular in equatorial view, bilateral symmetry, monocolpate, perforate reticulate ornaments and 42.8–45.9 × 18.9–20.2 μm in size. Shape and size of mesh irregular.

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