

Primulina petrocosmeoides sp. nov. (Gesneriaceae) from Guangxi, China

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Primulina petrocosmeoides Bo Pan & Fang Wen sp. nov. (Gesneriaceae) from Guangxi, China, is described and illustrated. This new species is similar to *P. weii* Mich. Möller & A. Weber, but differs from it in leaf blade ovate to elliptical, 1.0×0.8 to 2.5×2.0 cm, leaf base broadly cuneate, cymes 5–16, 2–6-flowered, bracts narrowly lanceolate, calyx lobes lanceolate, 4.0–6.5 mm long, corolla bluish purple, 1.2–1.5 cm long, pubescent outside but glabrous inside, filaments purple, pubescent, staminodes 3, stigma trapezoid with its apex lobed to the middle and with dense short papillae.

Recently, *Primulina* Hance was enlarged from a monotypic to a medium-sized genus (Wang et al. 2011, Weber et al. 2011a). This genus consists of at least 154 species and 9 varieties (Wei et al. 2010, Wen et al. 2012, 2013, Cai et al. 2013, Chung et al. 2013, Jiang and Li 2013, Ning et al. 2013a, 2013b, Zhao et al. 2013).

Jingxi county is situated in southwest Guangxi, China. Most of the county originates from corrosion of a limestone plateau and has a subtropical monsoon-affected climate. Several special species of Gesneriaceae have been discovered and published in recent years from this region, for example *Hemiboea rubribracteata* Z. Y. Li & Yan Liu (Li and Liu 2004), *Paraboea trispala* W. H. Chen & Y. M. Shui (Chen et al. 2008), *Petrocodon jingxiensis* (Yan Liu, H. S. Gao & W. B. Xu) A. Weber & Mich. Möller (previously *Lagarosolen jingxiensis* Yan Liu, H. S. Gao & W. B. Xu) (Xu et al. 2008, Weber et al. 2011b), *Petrocodon lui* (Yan Liu & W. B. Xu) A. Weber & Mich. Möller (formerly *Lagarosolen lui* Yan Liu & W. B. Xu) (Xu et al. 2010, Weber et al. 2011b), and *Primulina bullata* S. N. Lu & Fang Wen (Lu et al. 2013).

During a botanical survey in 2009, we collected some specimens of an undescribed species of Gesneriaceae from Jingxi County, Guangxi, China, which was different from all known species of *Primulina*. After consulting national floras and relevant literature (Wang et al. 1990, 1998, Li and Wang 2004, Wei et al. 2010, Zhang and Yu 2012), as well as herbarium specimens from ANUB, BJFC, CDBI, GXMG, GXMI, GZTM, HGAS, HGCM, HIB, HITBC, IBK, IBSC, KUN, PE, we concluded that our specimens represent a new species, which is described and illustrated here.

Primulina petrocosmeoides Bo Pan & Fang Wen sp. nov. (Fig. 1–2)

Differs from *Primulina weii* in leaf blade ovate to elliptical, $1.0\text{--}2.5 \times 0.8\text{--}2.0$ cm, leaf base broadly cuneate, cymes

5–16, 2–6-flowered, bracts narrowly lanceolate, calyx lobes lanceolate, 4.0–6.5 mm long, corolla bluish purple, 1.2–1.5 cm long, pubescent outside but glabrous inside, filaments

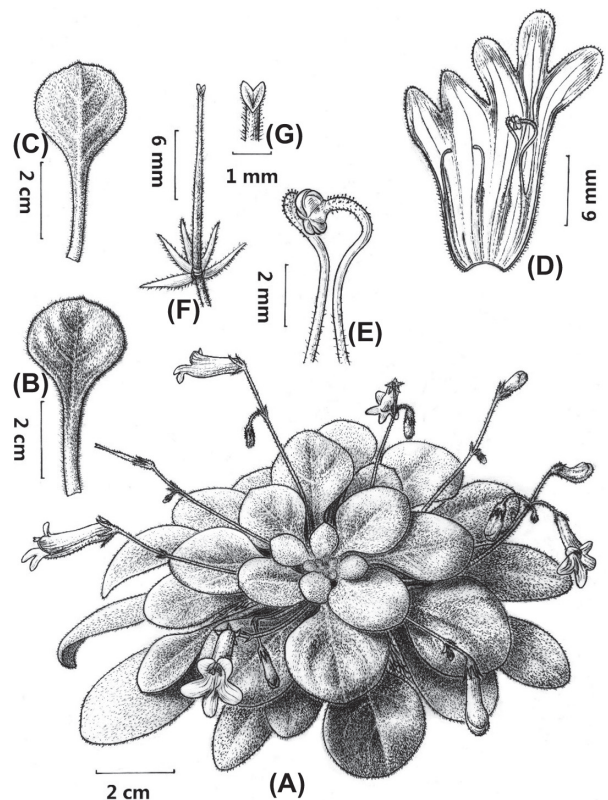


Figure 1. *Primulina petrocosmeoides* sp. nov. (from the holotype, drawn by Y.-X. Zhu). (A) habit, (B) adaxial surface of leaf and petiole, (C) abaxial surface of leaf and petiole, (D) corolla opened with stamens and staminodes, (E) stamens with anthers and filaments, (F) pistil and calyx lobes, (G) stigma.

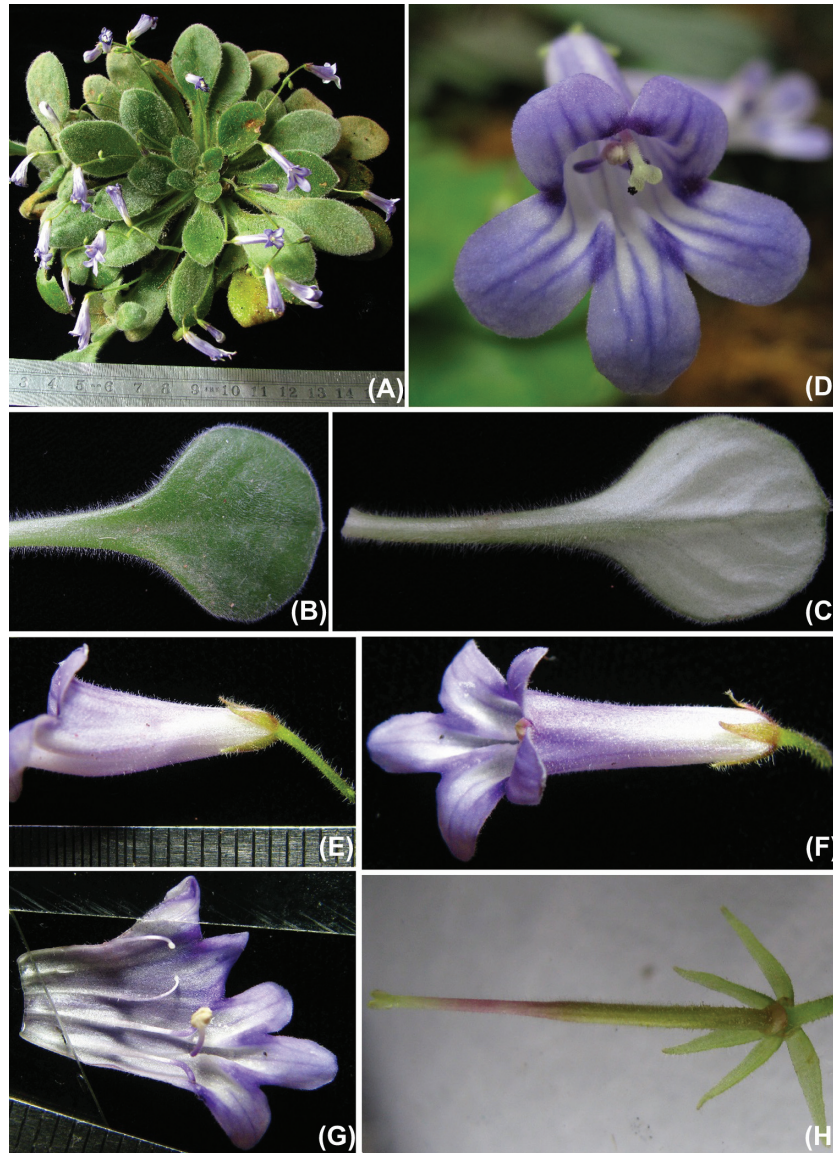


Figure 2. *Primulina petrocosomeoides* sp. nov. (A) habit, (B) adaxial surface of leaf and petiole, (C) abaxial surface of leaf and petiole, (D) frontal view of flower, (E) lateral view of flower, (F) top view of flower, (G) corolla opened with stamens and staminodes, (H) pistil and calyx lobes.

purple, pubescent, staminodes 3, stigma trapezoid, its apex lobed to the middle and with densely viscidulous puberulent hairs.

Type: China. Guangxi, Jingxi County, Hurun town, on moist rock face of cliff, in a limestone canyon, rare, ca 900 m a.s.l., 1 July 2009, BP & FW 101131-1 (holotype: IBK, isotype: IBK).

Etymology

The specific epithet is derived from the shape and high number of leaves that may remind of some species of *Petrocosmea*.

Description

A perennial herb. Central axis compressed, cylindrical or subterete, 2.0–5.5 cm long, 0.5–1.0 cm in diameter. Leaves

basal, 8–22; petiole tomentose, 9–18 mm long, 1–3 mm wide; leaf blade chartaceous, ovate to elliptic, 1.0 × 0.8 to 2.5 × 2.0 cm, green, broadly cuneate at base, with entire margin and obtuse or rounded apex; lateral veins 2–3 on each side of midrib, inconspicuous. Cymes axillary, 5–16, 2–6-flowered; peduncle 5–12 cm long, densely pubescent; bracts 2, opposite, narrowly lanceolate, persistent in flowering, 2.0–2.5 mm long, 1–2 mm wide at base, adaxially and abaxially puberulent, with entire margin and acute apex; pedicel 1.5–2.0 cm long, pubescent. Calyx 5-parted from base; segments nearly equal, lanceolate, 4.0–6.5 mm long, ca 2 mm in diameter at base, with both surfaces puberulous, its margin entire and apex acute. Corolla bluish purple, 12–15 mm long, ca 4 mm wide, ca 3.5 mm in diameter at the middle, pubescent outside, glabrous inside; tube narrowly infundibuliform; limb distinctly 2-lipped; adaxial lip 2-parted to the middle or more, with lobes slightly oblique

Table 1. Comparison of the diagnostic characters of *Primulina petrocosomeoides* sp. nov. and *P. weii*.

Characters	<i>P. petrocosomeoides</i>	<i>P. weii</i>
Leaf blade	ovate to elliptical, 1.0 × 0.8 to 2.5 × 2.0 cm, its base broadly cuneate; lateral veins 2–3 on each side of midrib	lanceolate, narrowly oblong, 2–1 cm to 7 × 2 cm, its base very narrowly cuneate; lateral veins 3–4 on each side of midrib
Cyme	5–16, 2–6-flowered	1–6, 1–4-flowered
Bracts	narrowly lanceolate	narrowly oblong
Calyx lobes	lanceolate, 4.0–6.5 mm long	triangular-lanceolate or linear, 3–4 mm long
Corolla	bluish purple, 1.2–1.5 cm long, outside pubescent, inside glabrous	purple, 4.0–4.4 cm long, sparsely pubescent and glandular-puberulous
Filaments	purple, pubescent	fuchsia, upper half glandular-puberulous
Staminodes	3	2
Stigma	trapezoid, apex lobed to the middle, with dense short papillae	oblong, apex lobed, glabrous

ovate; abaxial lip 3-parted to the middle or more, with lobes oblong and apex rounded, 6.0 × 4.5 to 9 × 6 mm. Stamens 2, adnate to ca 5 mm above the corolla base; filaments purple, geniculate from the middle, ca 9 mm long, puberulent; anthers 2, yellowish, elliptic to reniform, ca 3.5 mm long, glabrous, adhering to each other; staminodes 3, the lateral ones glabrous, ca 2 mm long, adnate to ca 6 mm above the corolla base, its apex rolled, the central one ca 0.5 mm long, adnate to the corolla base; disc annular, its margin slightly erose, ca 1 mm high. Pistil 1.2–2.0 cm long, densely glandular-puberulent and puberulent; ovary linear, 6.0–8.0 mm long. Stigma trapeziform, its apex lobed to the middle, with dense short papillae. Capsule linear, 10–13 mm long, 1.5–2.0 mm wide.

Phenology

Flowering occurs from middle to late November and early December, fruiting occurs in January to February of the following year.

Distribution, ecology and conservation status

Primulina petrocosomeoides is endemic to China (Jingxi County), grows only on outcrops of shaded moist limestone under subtropical evergreen broadleaved shrubs in one big gorge, 900–1000 m a.s.l. We have visited the type locality of this new species many times. All plants, not more than 1200 individuals, are clustered together in a fairly narrow area at the top of a cliff. They grow in a popular scenic spot near the town of Hurun, but they are protected from tourists by their elevated location. We propose that *P. petrocosomeoides* should be provisionally considered as 'Endangered' (EN, B2a) according to the IUCN red list criteria (IUCN 2012).

Similar species

Morphologically, *Primulina petrocosomeoides* resembles *P. weii* (published by Fang et al. 1999 as *Chirita mollifolia* D. Fang, Y. G. Wei & J. Murata) (Weber et al. 2011a), from Napo County, where it adjoins Jingxi County. However, the new species is distinct from *P. weii* in shape and size of leaf blades and calyx lobes, number of cymes and flowers, color, size and indumentum of corolla, filaments and stigma (Table 1). Both species require shaded and damp conditions, below the canopy of cliffs or in the mouth of limestone caves, but can endure long droughts,

which usually last for three to four months in the dry season from March to June.

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