

**PRIMULINA PURPUREA F. WEN, B. ZHAO & Y.G WEI (GESNERIACEAE),
A NEW SPECIES FROM CHINA**

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Abstract

Primulina purpurea F. Wen, B. Zhao & Y.G Wei, a new species from East Guangxi, China, is described and illustrated. The new species resembles *P. medica* (D. Fang) Y. Z. Wang, but differs from the latter by having broadly ovate to elliptic, left-right slightly asymmetry leaf blade, brightly purple to fuchsia corolla, broadly lanceolate to narrowly ovate bracts with villous hairs outside and pubescent hairs inner, pistil 23.5–26.8 mm long, staminodes 3, capsule 4.5-5.0 cm long.

Introduction

Chirita Buch.-Ham. ex D. Don (1822), belonging to Gesneriaceae consisted of over 150 species and mainly distributed in South China, Indo-China Peninsula, Malay Peninsula, Indonesia, Nepal, Burma (presently Myanmar), Bhutan and India (Wood, 1974; Wei *et al.*, 2010). Its relative, Chinese monotypic genus *Primulina* Hance (1883), has been recently enlarged to include *Chirita* sect. *Gibosaccus* Clarke and *Chiritopsis* W. T. Wang, two species of *Wentsaiboea* based on molecular and morphological data (Wang *et al.*, 2011; Weber *et al.*, 2011). In Gesneriaceae, *Primulina* sensu lato is already a large genus with at least 145 species and 9 varieties (Wang *et al.*, 1998; Wen *et al.*, 2012a).

In May 2009, during an expedition to Zhongshan County, Guangxi for the Karst plants, we collected some unknown specimens belonging to *Primulina*. Although this unknown species looks very like *P. medica* (D. Fang) Y.Z. Wang, after critical examination, consultation of the relevant literatures (Wang *et al.*, 1990, 1998; Ho, 2000; Li and Wang, 2004; Wei *et al.*, 2010; Wen *et al.*, 2012b; Wu *et al.*, 2012; Xu *et al.*, 2012) and study of herbarium specimens (e.g. PE, IBK, IBSC, CDBI, HN, KUN, ANU and BJFU), this species has been described as a new species, *Primulina purpurea* Fang Wen, Bo Zhao & Y.G Wei. The new species is described and illustrated below.

***Primulina purpurea* Fang Wen, Bo Zhao & Y.G Wei, sp. nov.**

(Figs 1-2).

Diagnosis: *Species nova haec P. medicae* (D. Fang) Y.Z. Wang *affinis, sed foliis late ovatis usque ellipticis, leviter asymmetricis, non falcatis, corollo purpurea usque fuchsina, bracteis late lanceolatis usque anguste ovatis, extus villosis, intra pubescentibus, pistillo 2.35–2.68 cm longo, staminodiis 3, capsula 4.5-5.0 cm longo differt.*

Primulina purpurea is similar to *P. medica* (D. Fang) Y.Z. Wang, but it can be distinguished by leaf blade broadly ovate to elliptic, left-right slightly asymmetry, not falcate, corolla brightly purple to fuchsia, bracts broadly lanceolate to narrowly ovate, villous outside, pubescent inside, pistil 2.35–2.68 cm long, staminodes 3 and capsule 4.5-5.0 cm long.

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Type: China, Guangxi Zhuangzu Autonomous Region: Zhongshan County, Gong'an township, on the limestone hills, 24°27'N, 111°9'E, ± 186 m, 07 May 2009, G.Y. Liang & F. Wen 09050701 (holotype: IBK; isotype: BJFC).

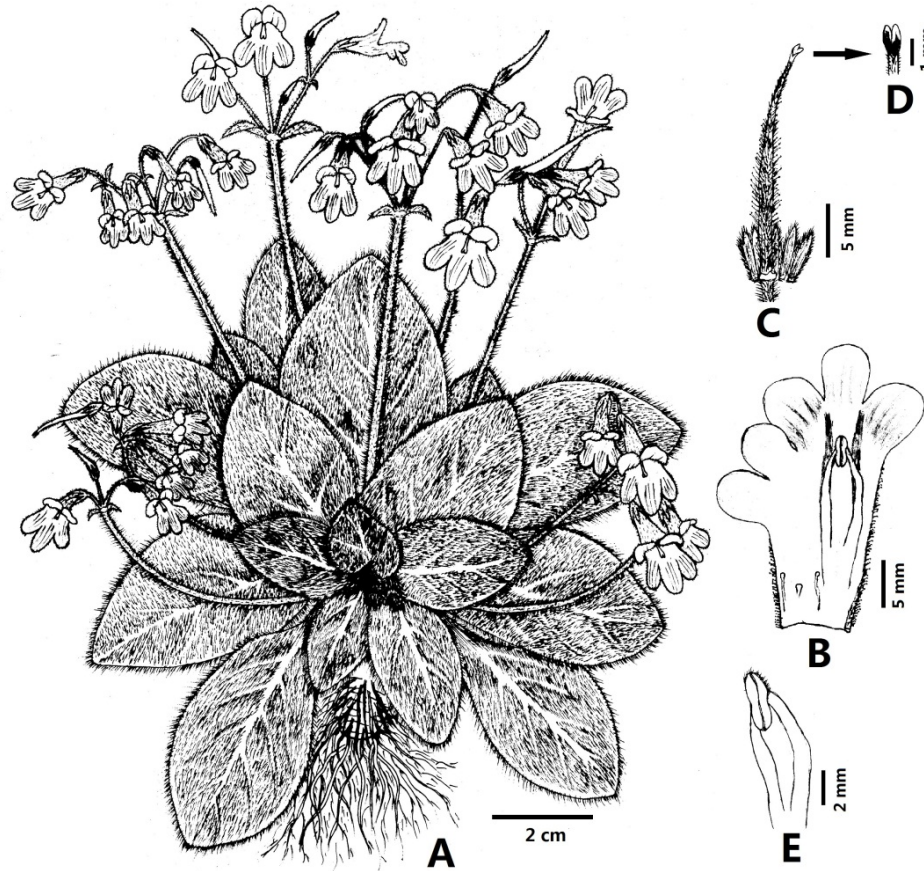


Fig. 1. *Primulina purpurea* Fang Wen, Bo Zhao & Y.G Wei, **sp. nov.** A. Habit; B. Opened corolla; C. Pistil and opened Calyx lobes; D. Stigma; E. Anthers and filaments.

Perennial, stemless herb. Rhizome internodes inconspicuous. Leaves basal, whorled, rarely opposite; petioles 5-25 × 5-8 mm; leaf blade broadly ovate to elliptic, left-right slightly asymmetric, but not falcate, 3.5-7 × 2-3.5 cm, chartaceous to herbaceous, adaxially with dense, short and long hairs, eglandular, abaxially densely pubescent, base slightly oblique or symmetrical, cuneate, margin entire, occasionally repand, apex acute; lateral veins c. 5 on each side of midrib, conspicuous. Cymes 6-9 or more on one stem, 10-12-flowered or more; peduncle 9.0-12.5 cm long, villous and glandular puberulent; bracts 2, free, broadly lanceolate to narrowly ovate, 4.5-9.5 × 2.5-5.0 mm, outside villous, inner pubescent, margin entire, apex acute; bracteoles 2 when cyme 1-branched, opposite, narrowly ovate to linear, 7 × 1 mm, acute at apex, hairs same as bracts. Pedicels 5-16 mm long, villous and glandular puberulent. Calyx 5-partite to near base, and slightly united at base; segments equal, lanceolate-linear, 3.5-4 × 0.8-1 mm, outside and inside

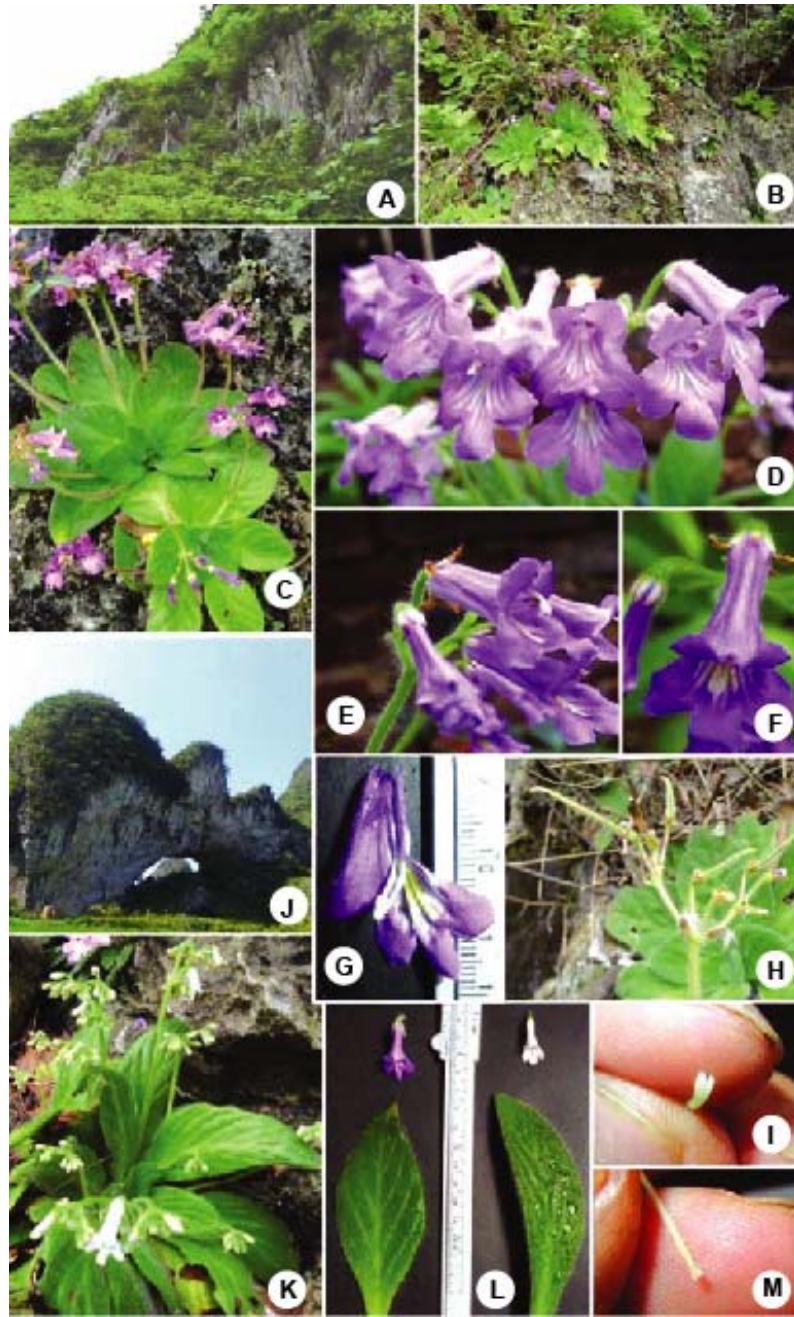


Fig. 2. *Primulina purpurea* Fang Wen, Bo Zhao & Y.G Wei, sp. nov. and *P. medica* (D. Fang) Y.Z. Wang. A-H & L: *P. purpurea* A, Full view of the collection locality; B, Habitat; C, Habit; D, Cyme and frontal view of flower; E, Later view of flower; F, Top view of flower; G, Opened corolla; H, Infructescence and young capsule; I, Stigma; J-M: *P. medica* J, Full view of the collection locality; K, Habit; L, Flower and leaf comparison of two related species; M, Stigma.

puberulent, margin entire, apex acute. Corolla brightly purple to fuchsia, throat with two distinctly brightly yellow strips, 2.5-3.0 cm long, outside with densely spreading glandular hairs, inside glabrous, but adaxial lobes base sparsely puberulent; tube nearly tubular or infundibuliform, 20-25 × 6.8-7.5 mm; limb distinctly 2-lipped, adaxial lip 2-partite to middle or slightly over middle, lobes slightly oblique, linguiform or ovate, adaxial lobes c. 3 mm; abaxial lip 3-partite to base, lateral lobes obliquely ovate, c. 5 × 4 mm, the central one oblong, 5 × 3 mm. Filaments c. 9 mm long, glabrous; anthers dorsifixed, connate at adaxial surfaces, c. 2.2 mm long, pubescent; staminodes 3, lateral ones short, linear, apex capitate, glabrous, 1.2-1.5 mm long, adnate to corolla 1.6-1.8 mm above base, the central one 0.4-0.5 mm long, adnate to corolla 3.0-3.1 mm above base; disc white, annular, margin apparently repand, glabrous, 0.8-1.0 mm high. Pistil 23.5-26.8 mm long; ovary cylindrical, 16-18 mm long, c. 1.5 mm in diam., densely puberulent and glandular puberulent; style 6-7 mm long, c. 1.8-2.0 mm in diam., densely puberulent and glandular puberulent, the part close to stigma with densely eglandular-puberulent hairs. Stigma translucent to white, obtrapeziform, apex 2-lobed to the middle, 1.5-1.8 mm long, lobes linguiform. Capsule cylindrical, 4.5-5.0 cm long, 3.0-3.2 mm in diam., densely erectly puberulent and glandular puberulent.

Phenology: Flowering in April-May. Fruit matured in July-August.

Etymology: The specific epithet of the new species refers to its purple corolla.

Distribution and ecology: So far known only from some limestone hills range of Gongnan township, Zhongshan County, Guangxi Zhuangzu Autonomous Region in China. The geographic distributions of this new species and its relative site are adjacent to each other (Fig. 3). *Primulina purpurea* grows in crevices or coarse faces of rocks of limestone hills at altitudes of c. 180 m associated with the other plants of Gesneriaceae, *P. pseudoheterotricha* (T.J. Zhou, B. Pan & W.B. Xu) Mich. Möller & A. Weber, *P. lutea* (Yan Liu & Y.G. Wei) Mich. Möller & A. Weber, *Petrocodon hancei* (Hemsl.) A. Weber & Mich. Möller and *Paraboea dictyoneura* (Hance) B. L. Burt.

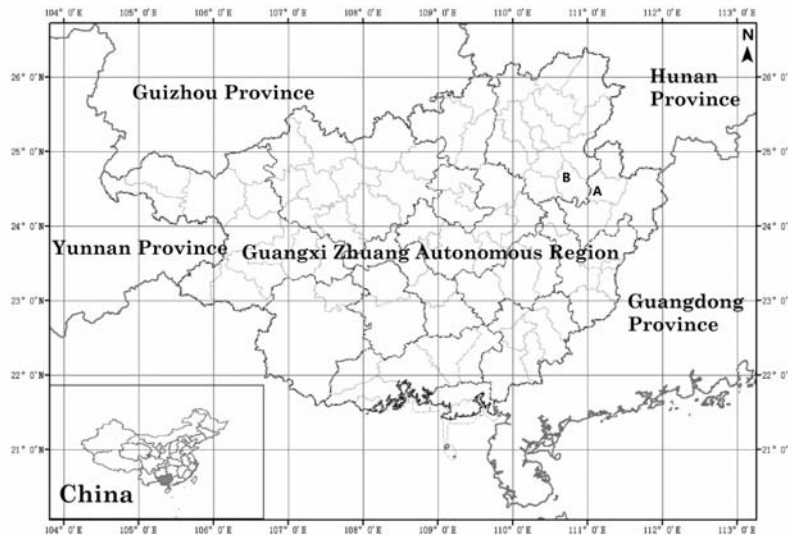


Fig. 3. Distribution of *Primulina purpurea* Fang Wen, Bo Zhao & Y.G. Wei, **sp. nov.** (A) and its related species, *P. medica* (D. Fang) Y.Z. Wang (B) in China.

Conservation status: The species was collected only from one site and it face the danger of extinction due to human activities. The population of this new species is small, scattered along those limestone hill ranges and is restricted to 15 sq. km area. It is considered Critically Endangered [CR B2ab (iii, iv, v) + E] category by following IUCN criteria (IUCN, 2007). Its related species, *P. medica*, was also assessed as Critically Endangered [CR B1ab (i, ii, v)]. However, the current status of the threatened new one is more serious than *P. medica*.

Primulina purpurea is allied to *P. medica* (D. Fang) Y.Z. Wang, but distinctly differs from the latter by the main characters given in Table 1.

Table 1. Diagnostic morphological characters of *Primulina purpurea* and *P. medica*.

Characters	<i>P. purpurea</i>	<i>P. medica</i>
Leaves	Broadly ovate to elliptic, left-right slightly asymmetry, but not falcate.	Narrowly ovate-falcate to elliptic-falcate, asymmetry.
Peduncle length	9.0-12.5 cm long.	15-25 cm long.
Bracts	Broadly lanceolate to narrowly ovate, 4.5-9.5 × 2.5-5 mm, outside villous, inner pubescent.	Lanceolate-linear, 4-7 × 1.0-1.2 mm, outside villous, inner glabrous.
Corolla colour	Brightly purple to fuchsia.	White or tinged pink.
Corolla size	2.5-3.0 cm long.	1.7-2.1 cm long.
Corolla tube size	2.0-2.5 cm × 6.8-7.5 mm.	1.3-1.5 cm × 5-6 mm.
Disc	White, margin apparently repand, 0.8-1.0 mm high.	Green, margin entire, 0.4-0.5 mm long.
Pistil length	2.3-2.7 cm long.	c. 1.8 cm long.
Ovary	16-18 mm long, densely villous.	c. 7 mm long, densely puberulent.
Style	6-7 mm long, densely glandular-pubescent and puberulent.	11-12 mm long, sparsely glandular-pubescent and puberulent.
Staminodes	3	2
Mature capsule	4.5-5.0 cm long.	c. 1.5 cm long.

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