

Primulina guangxiensis sp. nov. (Gesneriaceae) from a karst cave in Guangxi, China

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Primulina guangxiensis Yan Liu & W. B. Xu, a new species of Gesneriaceae from Guangxi, China, is described and illustrated. The new species is related to *Primulina tabacum* Hance, but differs in the leaf blade being obliquely ovate to obliquely oblong-ovate, 2.5–6.0 × 1.3–4.3 cm, eith margin entire to repand and base inequilateral, petiole slimly terete, 1.5–6.0 cm long, ca 2–3 mm across, cymes 1–2-branched, 1–5-flowered and corolla tube hypocrateriform, 20–25 mm long, 2 mm across. The new species is rare, currently known only from one site in a karst cave in western Guangxi.

The genus *Primulina* Hance was first described as a monotypic genus in 1883 and typified by *P. tabacum* (Wang et al. 1990). *Primulina tabacum* Hance (Fig. 1) is a rare species of special value in scientific research. It is endemic to northern Guangdong, southern Hunan and eastern Guangxi of China (Wu et al. 2010). It is recognized as ‘Critically Endangered’ (CR) according to IUCN categories and criteria (IUCN 2001) because of its narrow distribution range and small population size.

In recent years, we have done some floristic investigations in limestone areas of Guangxi, China, and several new species of Gesneriaceae have been described from karst caves (Liu et al. 2006, 2010, Xu et al. 2008, 2009, 2010a, 2010b, Huang et al. 2010, Nong et al. 2010). In the course of an investigation of karst cave plants in 2005, we discovered a rare plant belonging to *Primulina* in Fengshan County, western Guangxi, China. After morphological research, consultation of relevant literature (Wang et al. 1990, 1998, Li and Wang 2004) as well as herbarium specimens, we propose it as a new species, which is described and illustrated here.

Primulina guangxiensis Yan Liu & W. B. Xu sp. nov. (Fig. 2 and 3)

A P. tabaco differt follis oblique ovatis usque oblique oblongo-ovatis, 2.5–6.0 cm longis, 1.3–4.3 cm latis, margine integris usque repandis, bisi inaequalibus; petiolis cylindricis mucosis, 1.5–6.0 cm longis, ca 2–3 mm diam; cymis semel-bis-ramosis,

1–5-floris; tubo corallae hypocrateriformi, 20–25 mm longo, 2 mm diam.

Type: China, Guangxi, Fengshan County, Paoli Town, in a karst cave, rare, 600 m a.s.l., 17 Apr 2009, Wei-Bin Xu and Yan Liu 09352 (holotype: IBK, isotype: PE).

Etymology

The specific epithet is derived from the type locality, Guangxi.

Herbs perennial. Rhizome subterete, 0.7–4.0 cm long, 4–7 mm thick. Leaves basal, petiolate; petiole 1.5–6.0 cm long, ca 2–3 mm thick, pubescent; leaf blade herbaceous, obliquely ovate to obliquely oblong-ovate, 2.5–6.0 × 1.3–4.3 cm, pubescent on both surfaces, apex obtuse, base inequilateral, truncate to cordate, rarely broadly cuneate, margin entire to repand, lateral veins 3–5 on each side. Cymes 3–5, axillary, 1–2-branched, 1–5-flowered; peduncle 2–6 cm long, ca 1.5 mm thick, pubescent; bracts linear, 4–5 × ca 1 mm, apex acute, margin entire, pubescent on both surfaces, pedicel 2–5 mm long, ca 0.7 mm thick, pubescent. Calyx 5-parted nearly to the base, lobes linear-lanceolate, 7–10 × ca 1 mm, abaxially pubescent, adaxially sparsely puberulent, apex acute to obtuse, margin entire. Corolla pale purple, 2.2–3.0 cm long, puberulent outside, sparsely puberulent inside, tube salverform, 20–25 mm long, ca 5 mm in diameter at the mouth, ca 2 mm in diameter at the middle, swollen at base and there ca 3.5 mm in diameter; limb extremely indistinctly

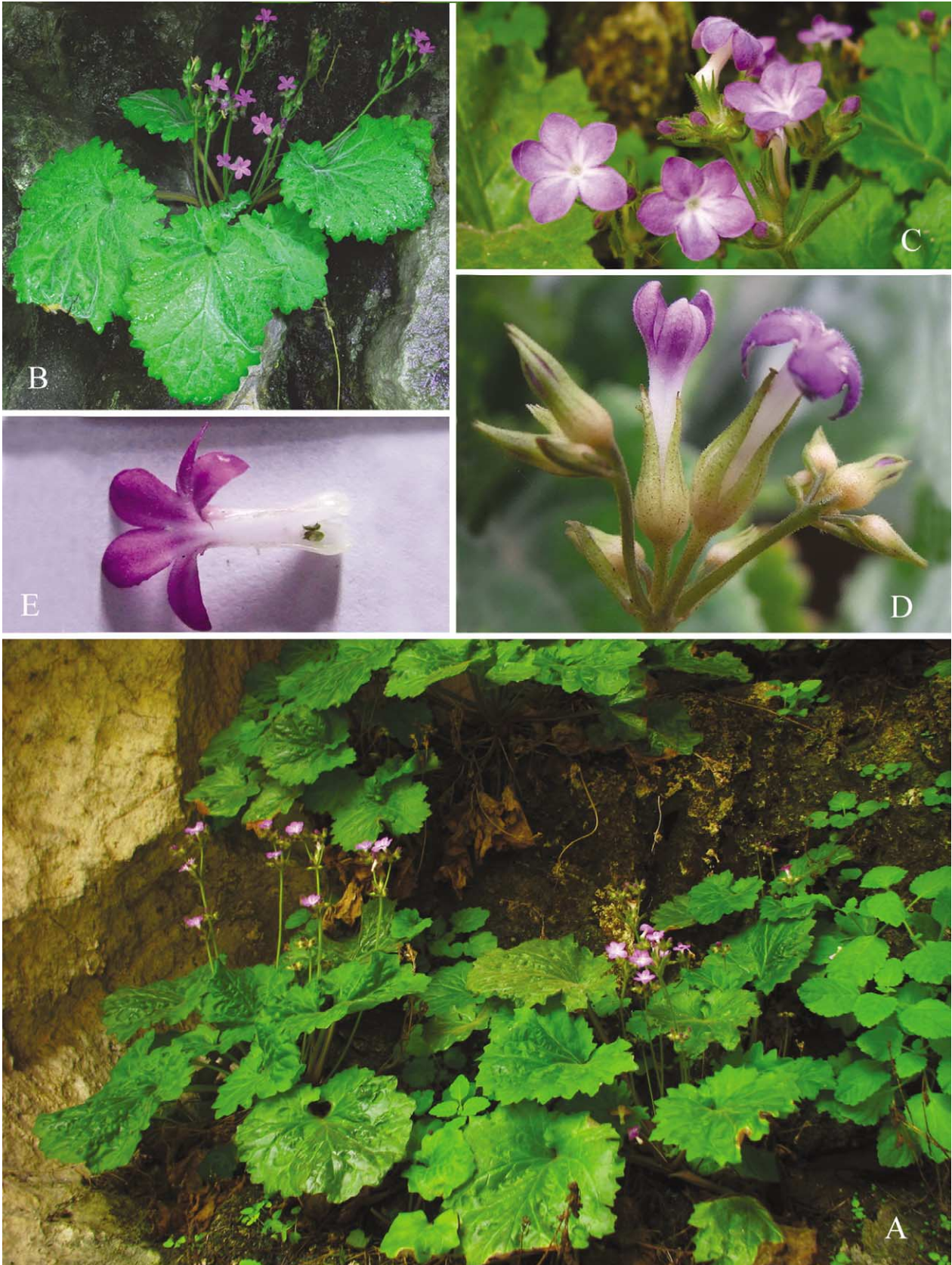


Figure 1. *Primulina tabacum*. (A) habitat, (B) flowering habit, (C) flowers face view, (D) flowers side view, (E) corolla opened showing stamens.

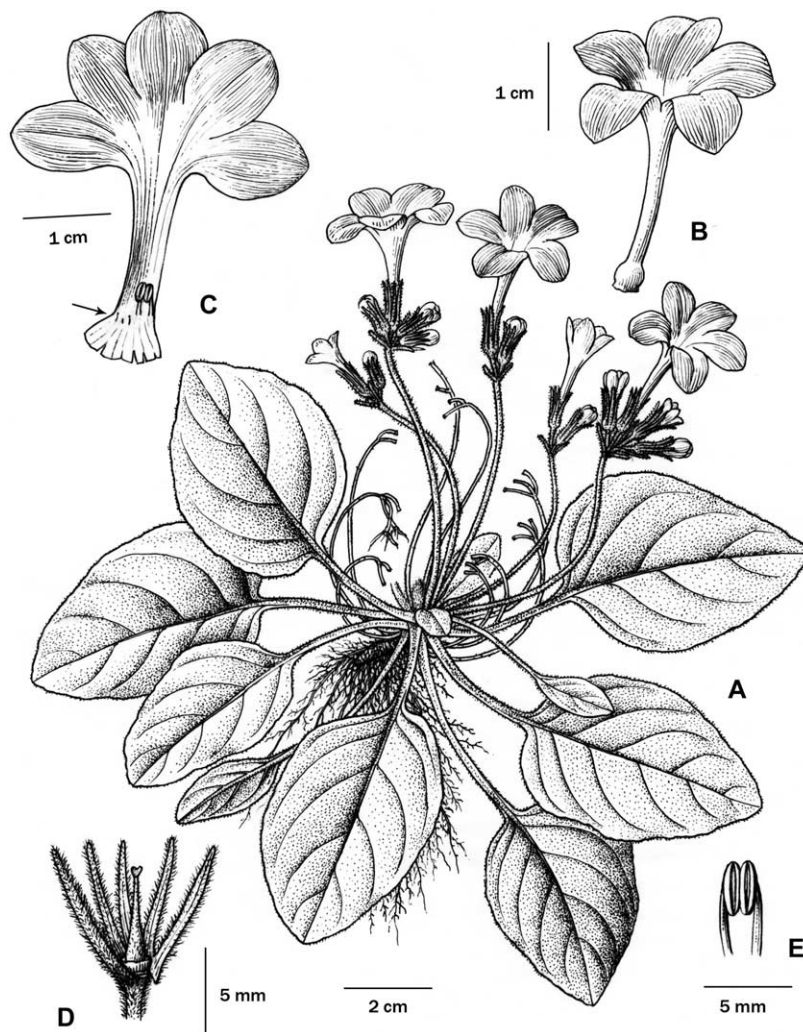


Figure 2. *Primulina guangxiensis* Yan Liu & W. B. Xu sp. nov. (A) habit, (B) corolla, (C) corolla opened showing stamens and staminodes (black arrow), (D) calyx opened showing disc and pistil, (E) stamens. Drawn by Shun-Qing He based on W. B. Xu and Yan Liu 09352 (IBK).

2-lipped, explanate, lip 5-parted to near base, segments subequal, broadly ovate, $9\text{--}13 \times 5\text{--}8$ mm. Stamens 2, adnate to ca 5 mm above the corolla tube base; filaments 2–3 mm long, anthers oblong, ca 2 mm long, dorsifixed, glabrous. staminodes 3, adnate to 4 mm above the corolla tube base, lateral ones ca 1 mm long, apex slightly capitate, middle one ca 0.5 mm long. Disc annular, ca 0.7 mm high, margin repand, glabrous. Pistil 5–6 mm long, puberulent; ovary ovoid, ca 2 mm long; style 2.5–3.0 mm long; stigma obcordate, 0.6 mm long, apex 2-lobed. Fruit an ellipsoidal capsule, 5–8 mm long, 2.0–2.5 mm thick. Flowering occurs in Apr–May, and fruiting in Jun–Jul.

Distribution, ecology and conservation status

Primulina guangxiensis is known only from one population in a karst cave in Fengshan County, Western Guangxi (Fig. 4). As far as we know, the population size is small. It is estimated that the number of individuals is not exceeding 200 plants. We therefore assess *Primulina guangxiensis*

as ‘Critically Endangered’ (CR) according to the IUCN categories and criteria (IUCN 2001).

Similar species

Primulina guangxiensis is similar to *P. tabacum*, but is easily distinguished by the obliquely ovate to obliquely oblong-ovate leaf blade, $2.5\text{--}6.0 \times 1.3\text{--}4.3$ cm, the entire and often repanding margin and inequilateral base, round petiole, 1.5–6.0 cm long, ca 2–3 mm thick, 1–2-branched cymes with 1–5 flowers and hypocrateriform corolla tube, 20–25 mm long, 2 mm in diameter at the middle. A detailed morphological comparison of the two species is shown in Table 1.

Additional specimens examined (paratypes)

China. Guangxi, Fengshan County, Paoli Town, 600 m a.s.l., 17 Apr 2009, Wei-Bin Xu and Yan Liu 09358 (IBK). The same locality, 21 Jun 2009, Yan Liu and Wei-Bin Xu 09681, 09682 (IBK).

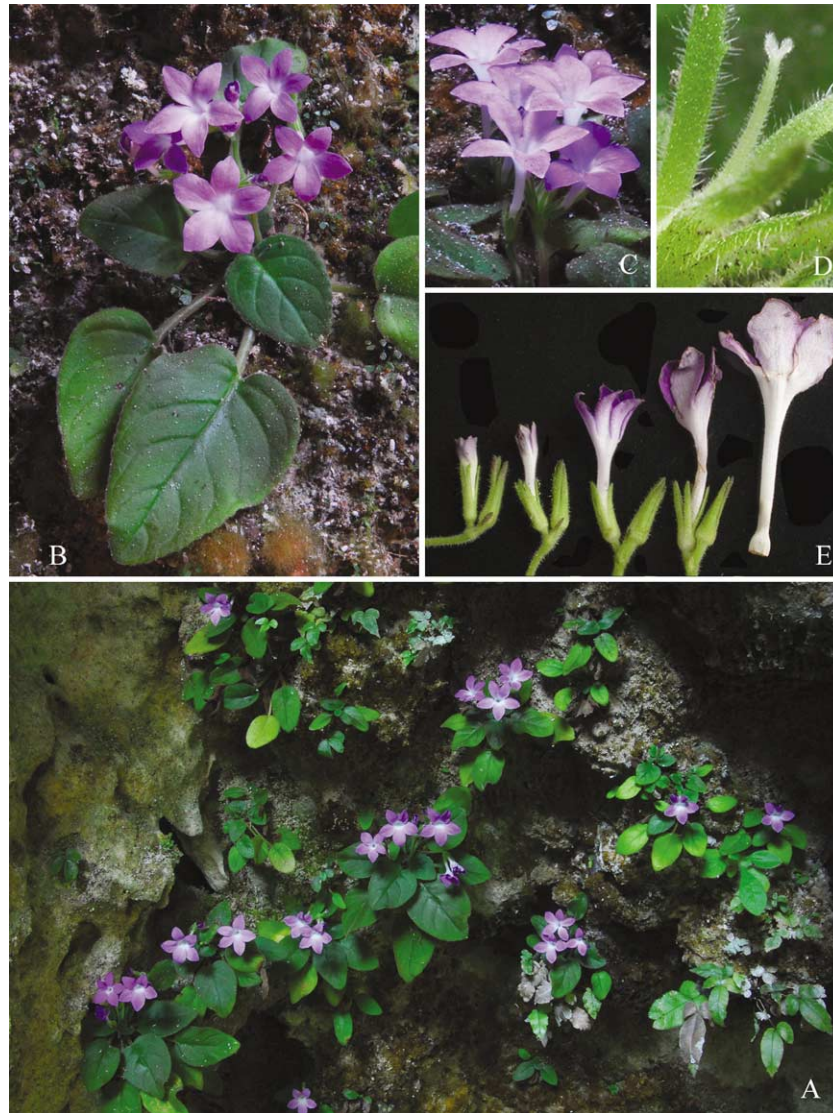


Figure 3. *Primulina guangxiensis*: (A) habitat, (B) flowering habit, (C) flowers side view, (D) stigma, (E) flowers in different phases.



Figure 4. Distribution of *Primulina guangxiensis* (●) and *P. tabacum* (■) in Guangxi, China.

Table 1. Detailed comparison of *Primulina guangxiensis* sp. nov. and *P. tabacum*.

	<i>P. guangxiensis</i>	<i>P. tabacum</i>
Leaf blade	obliquely ovate to obliquely oblong-ovate, 2.5–6.0 × 1.3–4.3 cm, margin entire and often repanding, base inequilateral	broadly ovate to subround, 5–12 × 4.0–12.5 cm, margin lobed, sometimes undulate, base equilateral
Petiole	slimly terete, 1.5–6.0 cm long, ca 2–3 mm thick	deplanate, with wide, undulate marginal wings, 2.5–14.0 cm long, 0.4–1.2 cm thick
Cymes	1–2-branched, 1–5-flowered	1–3-branched, 3–15-flowered
Corolla tube	hypocrateriform, 20–25 mm long, 2 mm in diameter	cylindric, 9 mm long, 3 mm in diameter
Flowering	Apr–May	Aug–Oct

Acknowledgements – The authors are grateful to Prof. Fa-Nan Wei (IBK) for help with the Latin diagnosis. We also thank Mr Shun-Qing He (IBK) for preparing the illustration. This study was supported by the Western Program for Fostering Personal Ability, CAS (2007) and Knowledge Innovation Project of the Chinese Academy of Sciences, Grant No. KSCX2-YW-Z-0912 to Yan Liu.

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