



Primulina yulinensis, a new species of Gesneriaceae from Guangxi, China

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ABSTRACT: *Primulina yulinensis* sp. nov. (Gesneriaceae), a new species from the limestone area in Guangxi, China is here described and illustrated. *P. yulinensis* is similar to *P. hezhouensis* (W. H. Wu & W. B. Xu) W. B. Xu & K. F. Chung, but it differs from the latter by its smaller and margin lobed leaves, long pedicel, larger flower and 2-lipped limb.

KEY WORDS: China, *Chiritopsis*, Gesneriaceae, new species, *Primulina yulinensis*.

INTRODUCTION

Species of the former genus *Chiritopsis* W. T. Wang (1981), a small genus of Gesneriaceae, is mainly distributed in Guangxi, China (Wu et al. 2011). This genus has several obvious characteristics, including small flowers, an ovate ovary shorter than the style, and an ovate capsule equal or shorter than the calyx, etc. In recent years, according to the results of molecular phylogenetic studies, this genus was merged into *Primulina* Hance (Wang et al. 2011, Weber et al. 2011). One of the authors (Mr. Ying Qin) found a *Primulina* sp. belonging to the former genus *Chiritopsis* during a botanic expedition in the limestone area of Guangxi, China on 18 June, 2017. The swollen corolla of this species has attracted the attention of the authors. Therefore, we organized four botanic expeditions and collected photos and specimens of the species. By dissecting flowers and consulting the relevant literatures (Pan et al. 2010, Wu et al. 2011, Wen et al. 2012, Lai & Wen 2015, Pan et al. 2017; Hong et al. 2018, Tian et al. 2018, Xin et al. 2018; Yang et al. 2018; Xu et al. 2019), We found that the *Primulina* sp. is similar to *P. hezhouensis* (W. H. Wu & W. B. Xu) W. B. Xu & K. F. Chung, but it can be easily distinguished from the latter by its smaller leaves, long pedicel, larger flower and 2-lipped limb. Thus, we confirm that the *Primulina* sp. is a new species.

TAXONOMIC TREATMENT

Primulina yulinensis Ying Qin & Yan Liu, *sp. nov.*

玉林小花苣苔 Figs. 1 & 2

Type: CHINA. Guangxi, Yulin city, Yuzhou district, Nanjiang town, elev. 126 m, 22° 35' N, 110° 15' E, 18 June 2017, Ying Qin et al., QY20170618001 (holotype: IBK!, isotypes: IBK and PE!).

Primulina yulinensis is similar to *P. hezhouensis* (W. H. Wu & W. B. Xu) W. B. Xu & K. F. Chung, but it

differs from the latter by its leaves 3.3–7 × 2.8–7.7 cm, margin lobed (vs. 7–13 × 6–12 cm, margin deeply lobed), pedicel 0.5–2 cm long (vs. 1–3 mm long), corolla ca. 1 cm long, corolla tube ca. 6.4 mm long, ca. 4.8 mm in diameter (corolla 3–5 mm long, corolla tube 3–4 mm long, ca. 2.5 mm in diameter), limb 2-lipped (vs. indistinctly 2-lipped).

Perennial herb. Rhizome unobvious. Leaves basal, 13–20; petiole 4–14.5 cm long, densely pilose; leaf herbaceous, heart-shaped, 3.3–7 × 2.8–7.7 cm, both surfaces densely pilose and glandular puberulent, margin coarse-toothed; lateral veins 4–5 on each side of the midrib. Cymes axillary, 5-branched, 3–7 inflorescences per plant, ca. 36-flowered for each inflorescence; peduncle 8–17 cm long, densely pilose and glandular puberulent; bracts obovate or spoon-shaped to lanceolate, 2.7–3.2 × 1.1–1.4 cm, reflexed, green, densely pilose and glandular puberulent, margin entire or sparsely coarse-toothed. Pedicel 0.5–2 cm long, sparsely pilose and glandular puberulent. Calyx 5-parted from base, lobes lanceolate, pilose and glandular puberulent, ca. 4 × 0.7–0.8 mm. Corolla white, ca. 1 cm long, pubescent and glandular puberulent outside, sparsely pubescent at the mouth. Corolla tube swollen, ca. 6.4 mm long, ca. 4.8 mm in diameter, constricted at the mouth; limb 2-lipped, adaxial lip 2-lobed, the lobes oblong, ca. 2.5 × ca. 2.3 mm, the abaxial lip 3-lobed, the lobes oblong, ca. 3.2 mm × ca. 2.3 mm. Stamens 2, filaments 3–4 mm long, linear, white, glabrous, anthers reniform, yellowish-white, glabrous, apex close together. Staminodes 3, short linear, unequal, white, glabrous. Disc cricoid, ca. 0.3 mm high, glabrous, margin entire. Pistil ca. 6 mm long; ovary ovoid, densely pubescent and glandular puberulent, ca. 2 mm long, ca. 0.9 mm in diameter; style ca. 4 mm long, linear, sparsely pubescent and glandular puberulent; stigma capitate. Capsule oval, ca. 7 mm long, ca. 2 mm in diameter, pubescent and glandular puberulent.

Distribution, habitat and ecology: *Primulina yulinensis* was found growing on a slope and a karst cave

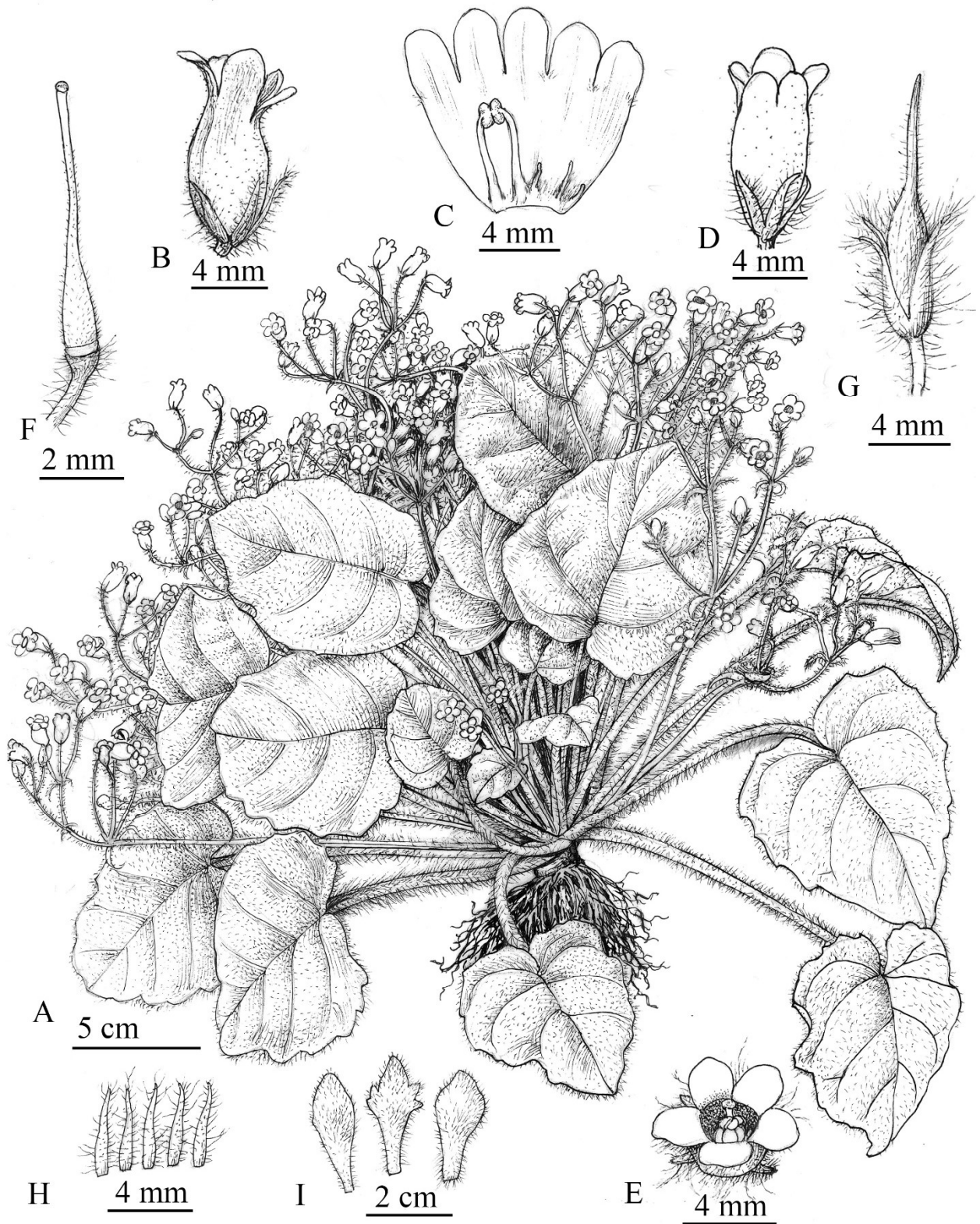


Fig. 1. *Primulina yulinensis* A: Flowering habit. B: Flower in side view. C: Opened corolla. D: Flower in top view. E: Flower in face view. F: Pistil and disc. G: Capsule. H: Calyx. I: Bract.

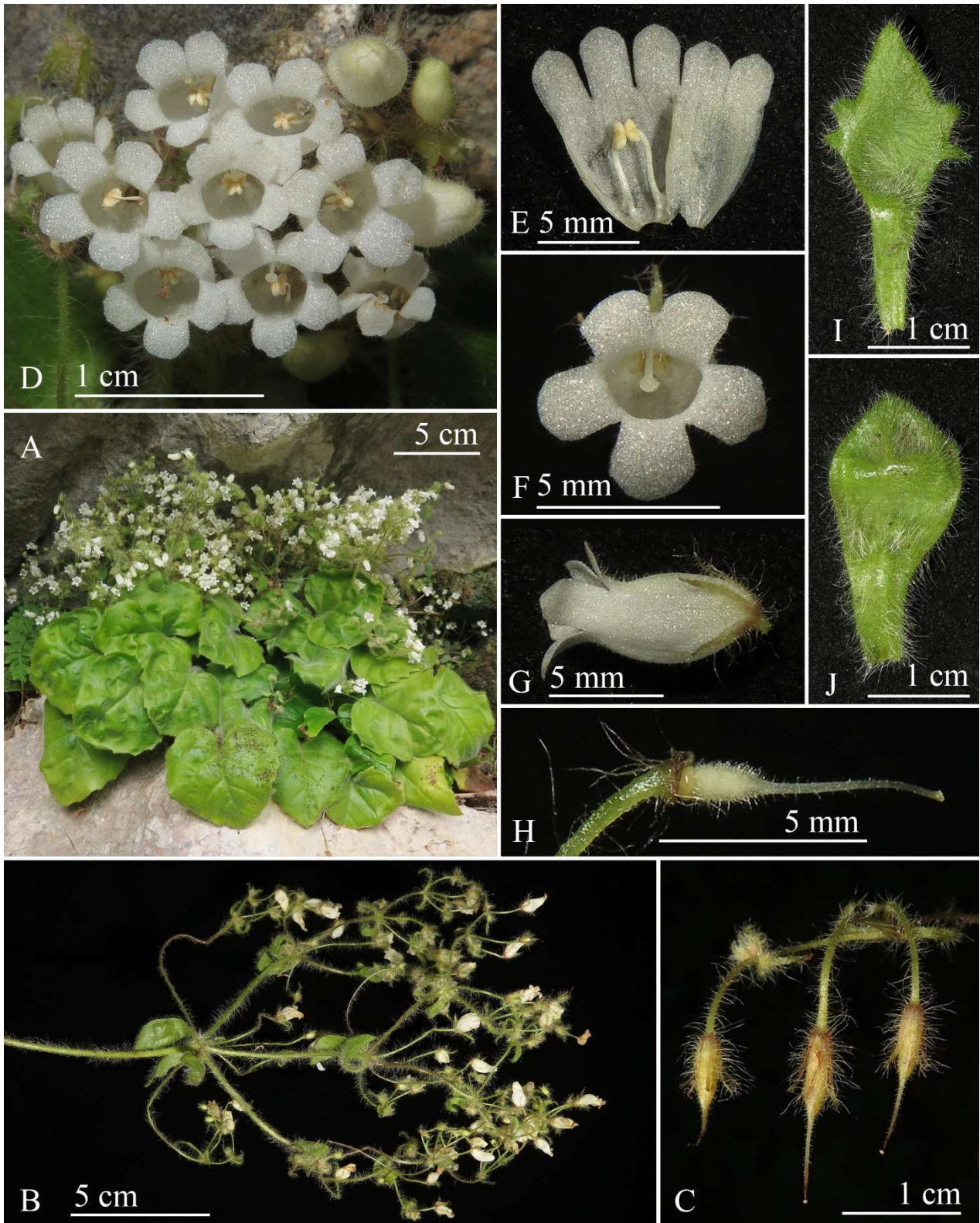


Fig. 2. *Primulina yulinensis* **A:** Flowering habit. **B:** Cyme. **C:** Capsule. **D:** Flower. **E:** Opened corolla. **F:** Flower in face view. **G:** Flower in side view. **H:** Pistil and disc. **I:** Bract with coarse teeth. **J:** Bract entire.

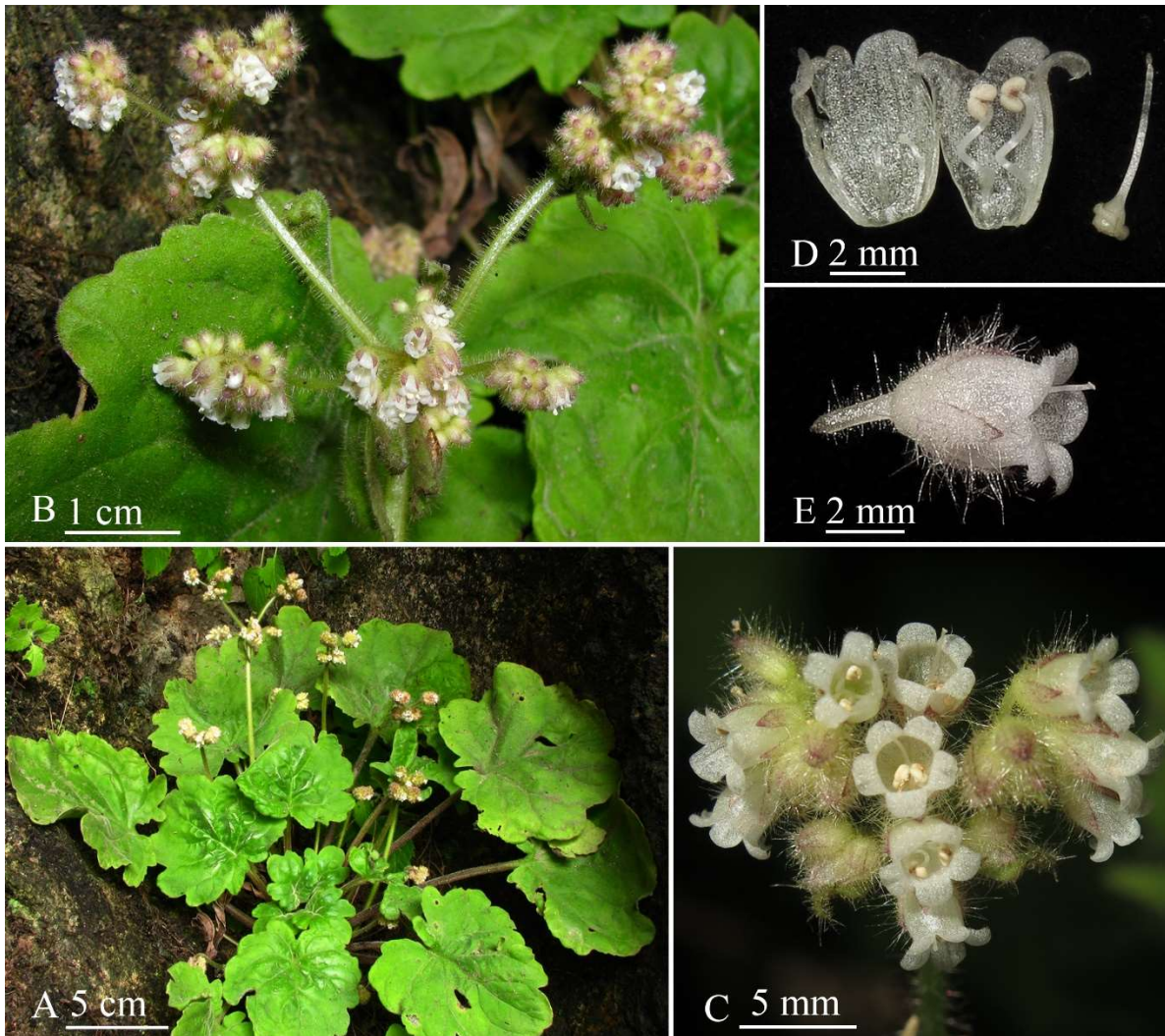


Fig. 3. *Primulina hezhouensis*. A. Flowering habit. B. Cyme. C. Flowers clustered at the end of cyme. D. Opened corolla, pistil and disc. E. Flower in side view.

in the limestone area of Yuzhou district, Yulin city, Guangxi, China. The habitat of the new species is located in the south subtropical zone, which belongs to subtropical monsoon climate. The main companion species are: *Pinus massoniana* Lambert, *Dimocarpus longan* Loureiro, *Lantana camara* Linnaeus, *Callicarpa macrophylla* Vahl, *Clerodendrum japonicum* (Thunberg) Sweet, *Vitex negundo* Linnaeus, *Ficus tinctoria* subsp. *gibbosa* (Blume) Corner, *Ficus orthoneura* H. Léveillé & Vaniot, *Alchornea trewioides* Müller Argoviensis, *Bauhinia championii* (Benth.) Benth, *Guihaia argyrate* (S. K. Lee & F. N. Wei) S. K. Lee, F. N. Wei & J. Dransfield, *Pilea peltata* Hance, *Hypodematum crenatum* (Forsskål) Kuhn & Decken, *Adiantum capillus-veneris* Linnaeus, *Adiantum gravesii* Hance, *Adiantum malesianum* J. Ghatak, *Tectaria simonsii* (Baker) Ching, *Pteris vittata* Linnaeus, *Asplenium saxicola* Rosenstock, etc.

Phenology: *Primulina yulinensis* flowers from June to July, and fruits from August to September.

Etymology: The specific epithet is derived from Yulin city, Guangxi, China.

Distinguishing characters: *Primulina yulinensis* is similar to *P. hezhouensis* (W. H. Wu & W. B. Xu) W. B. Xu & K. F. Chung. Shared characters mainly include swollen corolla and heart-shaped leaf blade combined with glandular-pubescent on both surfaces. However, the new species can be easily distinguished by its corolla ca. 1 cm long, corolla tube ca. 6.4 mm long, ca. 4.8 mm in diameter (corolla 3–5 mm long, corolla tube 3–4 mm long, ca. 2.5 mm in diameter), limb 2-lipped (vs. indistinctly 2-lipped). Detailed morphological comparisons between *P. yulinensis* and *P. hezhouensis* (W. H. Wu & W. B. Xu) W. B. Xu & K. F. Chung are provided in Table 1.

**Table 1.** Morphological comparison of *Primulina yulinensis* and *P. hezhouensis*.

Characters	<i>P. yulinensis</i>	<i>P. hezhouensis</i>
Leaf	margin lobed, 3.3–7 × 2.8–7.7 cm	margin deeply lobed, 7–13 × 6–12 cm
Cyme	5-branched, flowers lax	1–4-branched, flowers congested
Bract	obovate or spoon-shaped to lanceolate, 2.7–3.2 × 1.1–1.4 cm, margin entire or sparsely coarse-toothed	lanceolate, 1–2 × 0.7–1 cm, margin entire
Pedicel	5–20 mm long	1–3 mm long
Calyx	ca. 4 × 0.7–0.8 mm	2.5–3 × ca. 1 mm
Corolla	ca. 1 cm long, corolla tube ca. 6.4 mm long, ca. 4.8 mm in diameter, limb 2-lipped	3–5 mm long, corolla tube 3–4 mm long, ca. 2.5 mm in diameter, limb indistinctly 2-lipped
Stamen	filament linear, 3–4 mm long, straight	filament linear, 3–3.5 mm long, geniculate below the middle
Stigma	capitate	2-lobed
Pistil	ca. 6 mm long	ca. 4 mm long

Additional specimens examined (paratype): CHINA: Guangxi: Yulin city, Yuzhou district, Nanjiang town, elev. 126 m, 22°35'N, 110°15'E, 18 June 2017, Ying Qin *et al.*, QY20170618002 (IBK!); CHINA: Guangxi: Yulin city, Yuzhou district, Nanjiang town, elev. 126 m, 22°35'N, 110°15'E, 18 June 2017, Ying Qin *et al.*, JJZ025 (IBK!); CHINA: Guangxi: Yulin city, Yuzhou district, Nanjiang town, elev. 126 m, 22°35'N, 110°15'E, 27 August 2017, Ying Qin *et al.*, JJZ067 (IBK!); CHINA: Guangxi: Yulin city, Yuzhou district, Nanjiang town, elev. 104 m, 22°36'N, 110°15'E, 27 August 2017, Yan Liu *et al.*, JJZ069 (IBK!).

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