



Primulina guigangensis (Gesneriaceae): a new species from limestone area in Guangxi, China

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Abstract

Primulina guigangensis, a new species found in the limestone area of Guigang city, Guangxi, China is described and illustrated. It is most similar to *Primulina yunfuensis*, but can be distinguished from the latter by several distinct characters in calyx, corolla, filament, stigma and phenology. The detailed morphological characters together with illustrations, diagnostic comparisons and habitat etc. are presented.

Introduction

Chirita, with over 150 species, is a large genus of Gesneriaceae. Most species of the genus have a narrowly restricted distribution in south China, particularly in the limestone areas of Guangxi Zhuang Autonomous Region, where dozens of new species have been discovered and identified recently (e.g. Wei *et al.* 2007, Xu *et al.* 2008, Li & Möller 2009, Huang *et al.* 2010, Li & Zhu 2010, Xu *et al.* 2010, Huang *et al.* 2011, Wu *et al.* 2011, Xu *et al.* 2011a, 2011b). The genus shows large morphological diversity and traditionally has been divided into three or four sections: section *Chirita*, *Microchirita*, *Gibbosaccus* and *Liebigia* (Wood 1974, Wang 1985a, 1985b, Wang *et al.* 1998, Hilliard 2004, Li & Wang 2004). However, recent molecular studies consistently pointed out that the genus and its sections (except *Microchirita*) are not monophyletic and the genus represents several lineages of independent origin (Wang *et al.* 2011, Weber *et al.* 2011). In the light of molecular studies, Weber *et al.* (2011) revised the taxonomy of *Chirita* with its allied genera and classified the species of *Chirita* into 5 different genera, *Henckelia*, *Damrongia*, *Liebigia*, *Microchirita* and *Primulina*, and abandon the genus name of *Chirita*.

Recently, a tourist found a population of *Chirita*-like plants in Zhangmu town, Guigang city, Guangxi, China and resort to us for the identity. After consulting the relevant literature (e.g. Li & Wang 2004, Wei *et al.* 2010) and herbarium specimens, we found the gross morphology of these newly discovered plants to be most similar to *Primulina yungfuensis* (W.T.Wang) Weber (2011: 767), previously *Chirita yungfuensis* Wang (1987: 125), but can be distinguished from that species by several non overlapping or distinct characters in calyx, corolla, filament, stigma and phenotype. Therefore, the population is assumed to represent an undescribed new taxon which we describe here. The characters are described and illustrated below.

Taxonomic Treatment

Primulina guigangensis L.Wu & Q.Zhang, *sp. nov.* (Fig. 1 & Fig. 2 A–H)

Affinis *P. yungfuensis*, a qua pedunculo 8–15 cm longo (vs. 4.5–9 cm), calyce apice acuminato (vs. acuto), corolla 2.8–3.5 cm longa (vs. 3.8–4.6 cm), tubo corollae anguste infundibulari, 1.8–2.5 cm longo (vs. cupiformi, 2.5–3 cm),

filamentis dense glanduloso-puberulis (vs. glabris), stigmatе oblongo (vs. lineari); floret Sept. usque ad Nov. distinguitur.

Type:—CHINA. Guangxi: Guigang city, Zhangmu town. elev. 160 m, 23° 16' N, 109° 16' E, 25 October 2011, 3038 (holotype IBK!, isotypes IBK!).

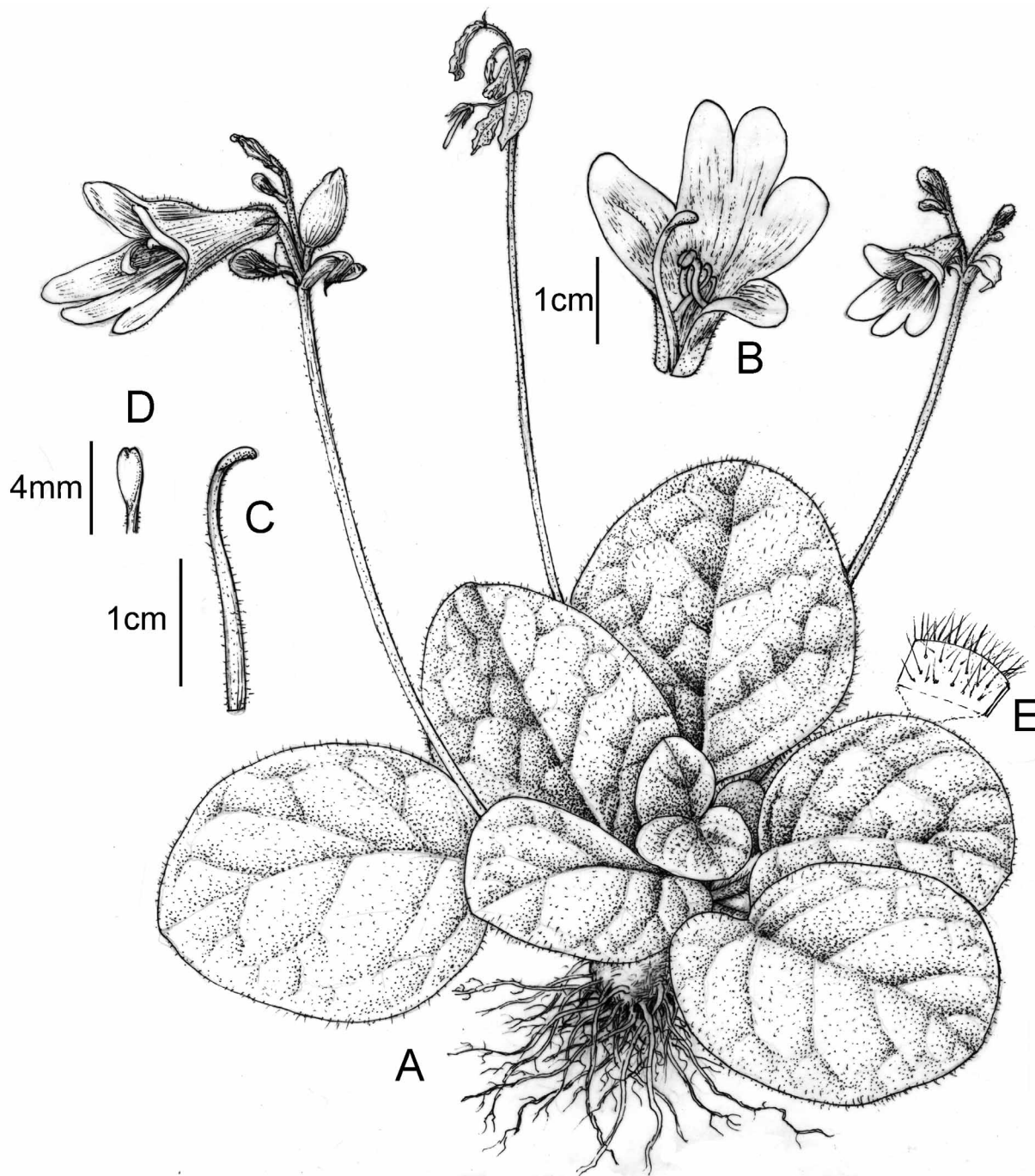


FIGURE 1. *Primulina guigangensis*. A) habit; B) opened flower; C) pistil; D). stigma; E) magnified leaf surface, showing indumentum. Drawn by Wen-Hong Lin.

Perennial acaulescent herb. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–4 cm × ca. 3.5 mm; leaf blade elliptic to ovate, 3.0–7.5 × 2–6 cm, leathery, adaxially purple puberulent to pilose, ca. 3.5 mm long, follicles predominant, eglandular, abaxially white puberulent, 0.5–2.0 mm long, base broadly oblique, cuneate or rounded, margin crenate to repand, apex acute to rounded; lateral veins ca. 3 on each side of the midrib, inconspicuous. Cyme number variable, 2–6-flowered for each; peduncle 8–15 cm, purple villous; bracts 2, free, narrowly ovate to elliptic, 7–13 × 5–7 mm, purple pubescent, margin entire, apex obtuse. Pedicel 1.0–1.8 cm, densely glandular puberulent. Calyx 5-parted from base; segments equal,

lanceolate-linear, 4.5–7.0 × 1–2 mm, glandular puberulent, margin entire, apex acuminate. Corolla pale pink-purple, with 2 yellow honey guides inside, 2.8–3.5 cm, outside glandular puberulent, inside basally puberulent with very short hairs; tube narrowly funnelform, inflated above the mouth, 1.8–2.5 × 0.9–1.2 cm; adaxial lip ca. 7 mm; abaxial lip 1.1–1.5 cm. Filaments ca. 1 cm, densely glandular puberulent; anthers fused by entire adaxial surfaces, 2–3 mm; staminodes 2, ca. 6.5 mm. Pistil ca. 2.2 cm, densely puberulent; ovary ca. 1.2 cm; stigma long elliptic, ca. 2 mm, slightly 2-lobed. Capsule straight, ca. 4 cm, pubescent.

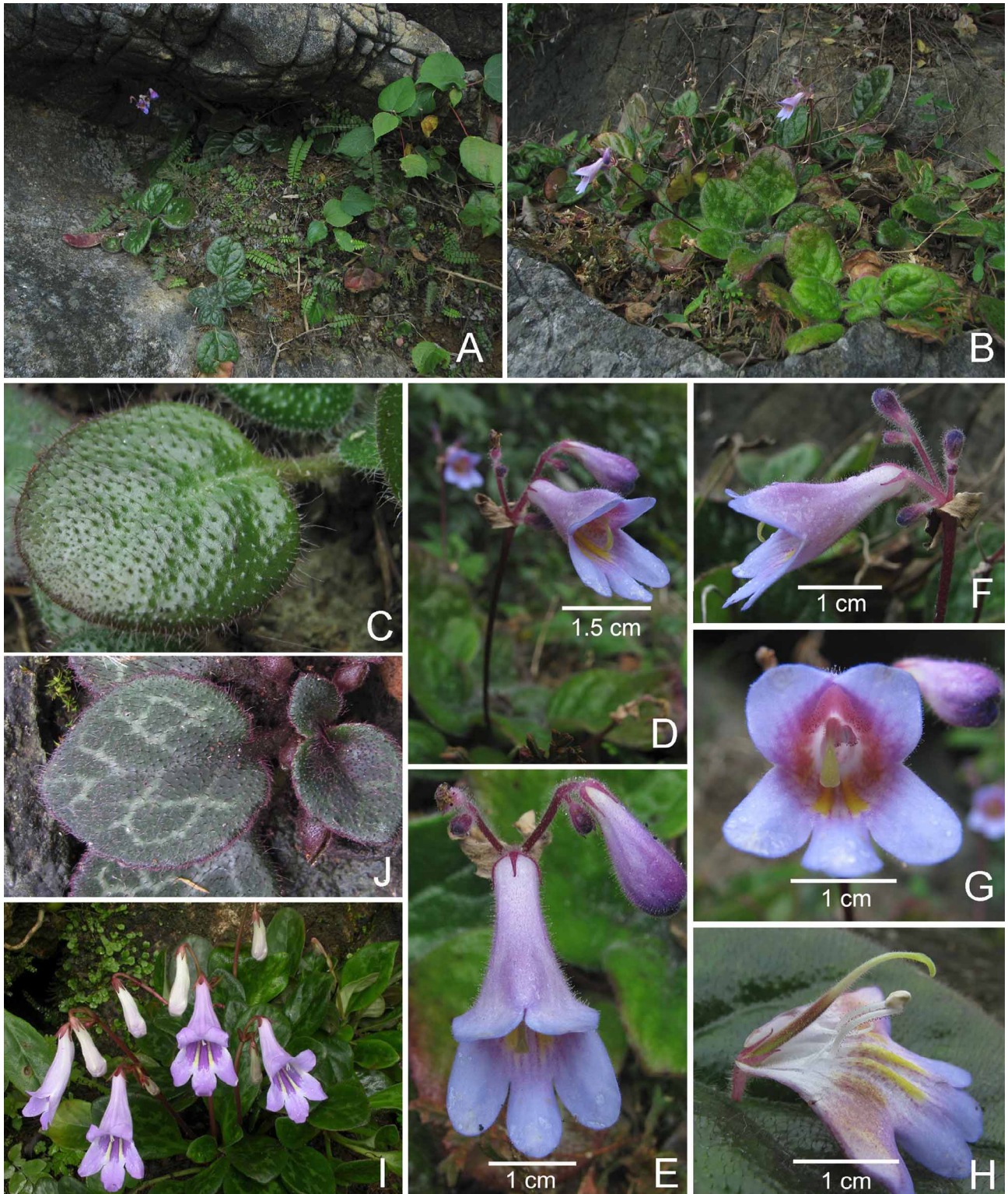


FIGURE 2. A–H) *Primulina guigangensis*. A) habitat; B) habit; C) leaf surface; D) cyme; E, F) flower in side view; G) flower in face view; H) opened flower, showing pistil and stigma. I, J) *P. yungfuensis*. I) habit; J) leaf surface.

Distribution, habitat and ecology:—*Primulina guigangensis* was found growing on a slope, often at crevices in an open evergreen limestone forest, near Guigang city, eastern Guangxi, China. The region has a seasonal monsoon climate with periodical shift between aridity and rain. The vegetation is dominated by shrubs and herbs, which include *Tirpitzia ovoidea* Chun & How ex W.L.Sha, *Ficus tinctoria* G.Forst. subsp. *gibbosa* (Blume) Corner, *Mallotus tenuifolius* Pax, *Alchornea trewioides* (Benth.) Müll.Arg., *Decaspermum gracilentum* (Hance) Merr. & L.M.Perry, *Cipadessa baccifera* (Roth) Miq, *Vitex negundo* L., *Zanthoxylum armatum* DC., *Mallotus repandus* (Willd.) Müll.Arg, *Elaeagnus bockii* Diels, *Sageretia rugosa* Hance, *Callerya nitida* (Benth.) R.Geesink, *Toddalia asiatica* (L.) Lam, *Wikstroemia indica* (Linn.) C.A.Mey., *Cassytha filiformis* L, *Chrysanthemum indicum* L., *Phtheirospermum japonicum* (Thunb.) Kanitz, *Hypodematium crenatum* (Forsk.) Kuhn, *Adiantum malesianum* Ghatak, *Selaginella effusa* Alston, etcetera.

Phenology:—This new species had been collected in flower from September to November, and fruit from October to December.

Etymology:—The epithet is derived from the type locality Guigang City, Guangxi.

Distinguishing characters:—*Primulina guigangensis* is most similar to *P. yungfuensis*. Shared characters mainly include leaf with similar shape and indumentum, cyme 2–6-flowered with two bracts. However, *P. guigangensis* can be distinguished by its 8–15 cm long peduncle (vs. 4.5–9.0 cm long), calyx apex acuminate (vs. acute), corolla 2.8–3.5 cm long (vs. 3.8–4.6 cm long), tube narrowly funnellform, 1.8–2.5 cm long, inflated above the mouth (vs. tube tubular, 2.5–3.0 cm long, not inflated), filaments densely glandular puberulent (vs. glabrous), stigma long elliptic (vs. linear) and flowering in September–November (instead of March).

Additional specimens examined (paratype):—CHINA. Guangxi: Guigang City, Zhangmu Town, same locality as type, 3 November 2011, L. Wu & Q. Zhang 3041 (IBK!).

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