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Authors: Pan, Bo, Xu, Mei-Zhen, Tang, Wen-Xiu, and Yang, Li-Hua

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Primulina zixingensis (Gesneriaceae), a new species from Hunan, China

Bo Pan¹, Mei-Zhen Xu^{2,3}, Wen-Xiu Tang¹ & Li-Hua Yang^{2,*}

¹ Guangxi Institute of Botany, Guangxi Zhuang Autonomous Region and Chinese Academy of Sciences, CN-541006 Guilin, China

² Key Laboratory of Plant Resources Conservation and Sustainable Utilization, South China Botanical Garden, Chinese Academy of Sciences, CN-510650 Guangzhou, China (*corresponding author's e-mail: lihuayang@scbg.ac.cn)

³ University of Chinese Academy of Sciences, CN-100049 Beijing, China

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Pan B., Xu M.Z., Tang W.X. & Yang L.H. 2020: *Primulina zixingensis* (Gesneriaceae), a new species from Hunan, China. — *Ann. Bot. Fennici* 57: 55–59.

Primulina zixingensis L.H. Yang & B. Pan (Gesneriaceae), a new species from a limestone area in southeastern Hunan, China, is described and illustrated. It is morphologically similar to *P. jiangyongensis* due to its yellow flower with a network of dark red stripes on the abaxial lip. The morphological differences between *P. zixingensis* and the latter species are discussed.

In the recent decades, the diversity of the family Gesneriaceae attracted considerable attention from botanists in China. No fewer than 60 authors contributed to species discovery in this family, resulting in more than 150 new species being described (Xu *et al.* 2017, Möller 2019). Especially, the species number in the genus *Primulina* nearly doubled from the time of its redefinition in 2011 (Wang *et al.* 2011, Weber *et al.* 2011, Möller 2019, Wen *et al.* 2019). Although the fast increasing species number in *Primulina* rendered some researchers to speak of ‘taxonomic inflation’ (Möller 2019, Yang *et al.* 2019), it is clear that to date the species diversity of the genus is not fully understood. One of the essential ways to reveal its richness are continuous field studies, which was also emphasized by Möller (2019).

In 2016, during field explorations, the authors found an unidentified species of *Primulina* in Zixing County in southeastern Hunan,

China. Several living individuals from the field population were brought for cultivation to the South China Botanical Garden (SCBG) and Guilin Botanical Garden (GBG). After flowering at SCBG and GBG, we conducted detailed morphological comparisons among these plants and all morphologically similar species using available literature (Wang *et al.* 1998, Li & Wang 2004, Wei *et al.* 2007, 2010, Hong *et al.* 2014, Li *et al.* 2014, 2017) and herbarium specimens in IBSC, IBK, PE and KUN. The results of these studies indicated that the plants did not match any known species in this genus.

***Primulina zixingensis* L.H. Yang & B. Pan, sp. nova** (Figs. 1 and 2)

TYPE: China. Guangdong: Guangzhou City, voucher from a cultivated plant at South China Botanical Garden, 2 October 2017 (flowering), Li-Hua Yang, YLH433 (holotype IBSC), introduced from Hunan Province, Zixing County, Longxi

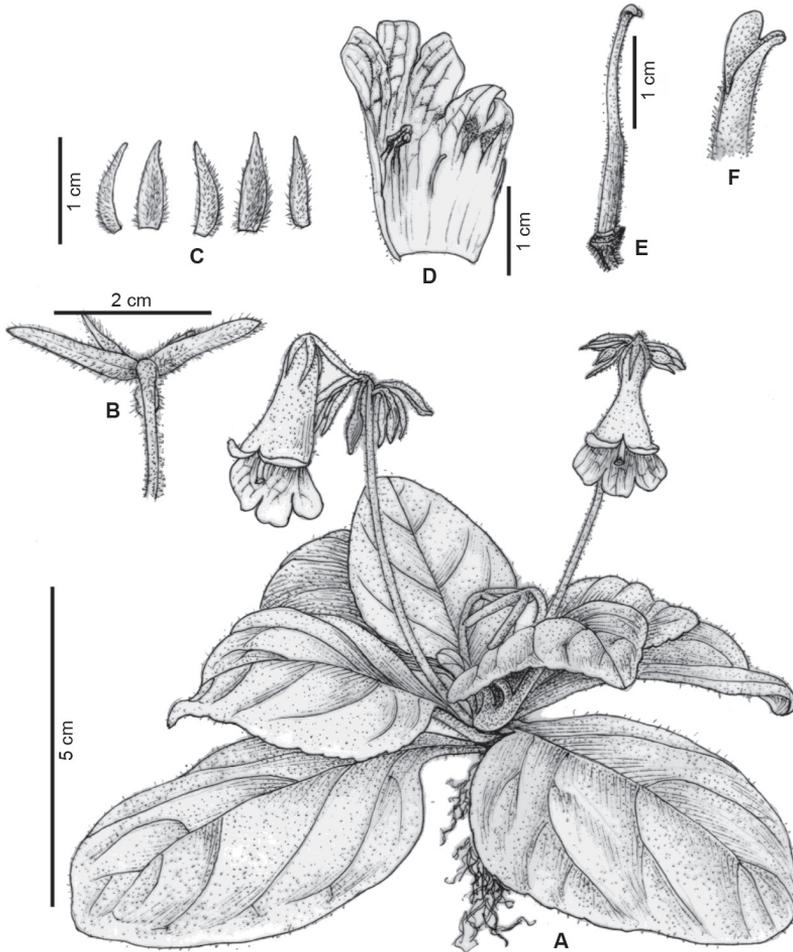


Fig. 1. *Primulina zixingensis* (drawn by Hong-Wen Lin from cultivated specimen collected from the type locality). — **A:** Habit. — **B:** Bract. — **C:** Calyx lobes. — **D:** Opened corolla, showing stamens and staminodes. — **E:** Pistil. — **F:** Stigma.

Town, growing on moist limestone rocks, ca. 570 m a.s.l., 25°49'23"N, 113°28'52"E, 19 October 2016 (fruiting), *Li-Hua Yang*. — PARATYPE: China, Guangxi: Guilin City, voucher from a cultivated plant at Guilin Botanical Garden, 20 September 2018 (flowering), *Bo Pan PB2018071701* (IBK), introduced from the same locality of the holotype at the same time by Bo Pan.

ETYMOLOGY: The specific epithet is derived from the type locality, Zixing County in Hunan Province, China.

Perennial herb. Rhizomatous stem subterete, 20–40 mm long, 5–10 mm in diameter. Leaves 6–8, basal or crowded at apex of stem, opposite; petiole flattened, 20–40 mm long, 6–10 mm wide, spreading pubescent and villous; leaf blade fleshy when fresh, ovate to broadly ovate, 6–10 × 5–8 cm, adaxially spreading pubescent and villous, abaxially glabrescent and only puberulent along veins, apex subacute to obtuse, base cuneate, margin inconspicuous serrate; lateral

veins 3–4 on each side, abaxially conspicuous. Cymes 2–4, axillary, 4–8-flowered; peduncles 6–12 cm long, 1.5–2 mm in diameter, densely spreading pubescent and villous; bracts 2, opposite, narrowly elliptic, 18–22 × 4–6 mm, margin entire, apex subacute, outside densely spreading pubescent and villous, inside sparsely pubescent. Pedicel 9–14 mm long, ca. 1 mm in diameter, densely spreading pubescent and villous. Calyx 5-parted to near base, lobes narrowly lanceolate, 7–9 × ca. 2 mm, outside densely pubescent, inside sparsely pubescent, margin entire. Corolla 26–32 mm long, outside cream-white and glandular-pubescent, inside yellowish in distal part, whitish in proximal part, with a network of dark red stripes on abaxial lip and two larger dark spots on adaxial lip, glabrous; corolla tube funnel-shaped, 21–25 mm long, ca. 10 mm in

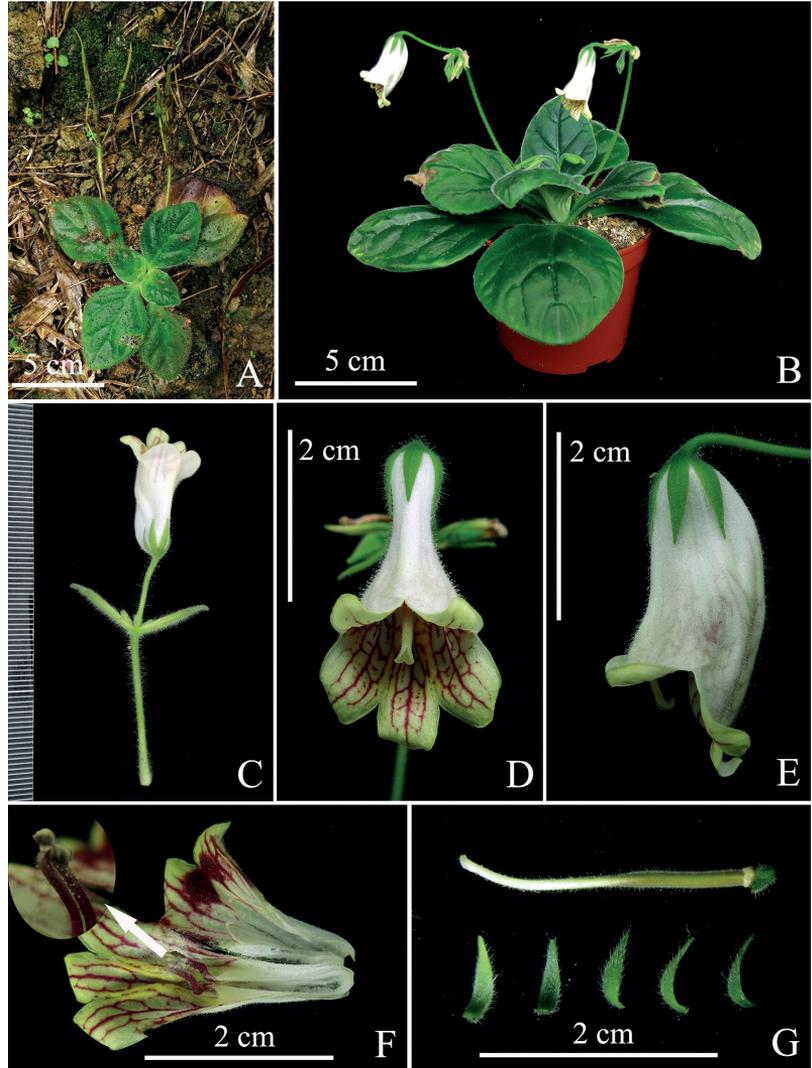


Fig. 2. *Primulina zixingensis* (from type locality). — **A** and **B**: Habit. — **C**: Cyme. — **D**: Flower, front view. — **E**: Flower, side view. — **F**: Opened corolla, showing stamens and staminodes. — **G**: Pistil and calyx.

diameter at throat, laterally compressed at bottom half, ventrally slightly carinate; limb distinctly 2-lipped; adaxial lip 2-parted, lobes broadly ovate, 7–9 × 6–8 mm, apex rounded; abaxial 3-lobed, lobes oblong, 8–18 × 5–7 mm, apex rounded. Stamens 2, adnate to 13–16 mm above corolla tube base; filaments linear, 7–8 mm long, dark red, strongly geniculate at base, glandular-pubescent; anthers fused by entire adaxial surfaces, ca. 2 mm long, glabrous; staminodes 2, ca. 6 mm long, adnate to 10–12 mm above corolla tube base. Disc annular, ca. 1 mm in height. Pistil 24–27 mm long, ovary cylindrical, 10–12 mm long, 1.2–1.5 mm in diameter, densely glandu-

lar-pubescent and puberulent; style 12–14 mm long, densely glandular-pubescent and puberulent; stigma chiritoid, divided at apex, ca. 2 mm long, ca. 1.5 mm wide. Capsule linear, ca. 3 cm long, densely pubescent. Flowering from September to October.

DISTRIBUTION AND HABITAT. Only one population of *P. zixingensis* is known from the type locality. It comprises no more than 200 mature individuals. The plants grow on moist and shaded limestone rocks, at ca. 500 m a.s.l. The population is close to a road, hence, it is vulnerable and subject to destruction by human activities.

Table 1. Morphological comparison of *Primulina zixingensis*, *P. jiangyongensis* and *P. argentea*. Data on *P. jiangyongensis* from Li et al. (2014) and on *P. argentea* from Hong et al. (2014).

Characters	<i>P. zixingensis</i>	<i>P. jiangyongensis</i>	<i>P. argentea</i>
Leaf blade			
indumentum	spreading pubescent and villous	appressed bristles	appressed sericeous-villous
shape	ovate to broadly ovate	ovate to broadly ovate	elliptic to obovate-lanceolate
Bract			
shape	narrowly elliptic	ovate or oval	narrowly elliptic
size	18–22 × 4–6 mm	30–50 × 18–30 mm	35–37 × ca. 10 mm
Corolla			
color	yellow with a network of dark red stripes	yellow with a network of dark red stripes	brownish purple
tube	funnel-shaped, laterally compressed at lower half, ventrally slightly carinate	cylindric, without carina	cylindric, without carina
Filaments	glandular-pubescent	sparsely pubescent	glabrous
Flowering time	September–October	May	September to October

Primulina zixingensis is morphologically similar to *P. jiangyongensis* (Li et al. 2014) but phylogenetically closer (second author's unpubl. data) to *P. argentea* (Hong et al. 2014) (see Table 1).

In *Primulina*, the corolla color is relatively more variable than the corolla shape (Möller et al. 2016), especially, the color pattern varies. Numerous species, e.g. *P. longgangensis*, *P. roseoalba* and *P. wuae*, possess longitudinal stripes on the corolla (Li et al. 2017). However, to our knowledge, only *P. zixingensis* and *P. jiangyongensis* have a distinct network pattern on the corolla. Some species, e.g. *P. pseudo-eburnea* and *P. guihaiensis* (Wei et al. 2007, Weber et al. 2011), have an indistinct network pattern on the corolla, and these species can also be easily distinguished from *P. zixingensis* by other characters.

Acknowledgments

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