

Primula pelargoniifolia (Primulaceae), a new species from Chongqing, China

Yuan Xu¹, Zheng-Yu Liu^{2,5}, Xun-Lin Yu³, Chi-Ming Hu⁴ & Gang Hao^{1,*}

¹ College of Life Sciences, South China Agricultural University, Guangzhou 510642, China (*corresponding author's e-mail: haogang@scau.edu.cn)

² Chongqing Institute of Medicinal plant cultivation, Chongqing 408435, China

³ College of Forestry, Central South University of Forestry and Technology, Changsha 410004, China

⁴ South China Botanical Garden, Chinese Academy of Sciences, Guangzhou 510650, China

⁵ Resource Center, China Academy of Chinese Medical Sciences, Beijing 100000, China

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Primula pelargoniifolia G. Hao, C.M. Hu & Z.Y. Liu *sp. nova* (Primulaceae) is described from Chongqing, China, and illustrated. In general morphology it is most similar to the species in *Primula* section *Cortusoides*, which are characterized by lack of farina, subrounded leaf blade with a crenate-lobulate margin and a deeply cordate base, and by narrowly campanulate calyx that is not accrescent after anthesis. Superficially *P. pelargoniifolia* resembles *P. heucherifolia*, but differs from it by having yellow flowers in 2–4 superimposed umbels on the scape.

Primula is the largest genus in Primulaceae (Hu & Kelso 1996), with more than 500 species mainly distributed in the north-temperate zone. The genus is well represented in southwestern China, with approximately 300 species, most of which occur in western Sichuan, eastern Xizang, and northwestern Yunnan (Hu 1994, Hu & Kelso 1996). During field investigations conducted in Chongqing (central China) in 2012 and 2013, an unusual population of *Primula* was found and the plants are here described as a new species in *Primula* sect. *Cortusoides* (cf. Smith *et al.* 1941–1949, Hu 1990).

Primula sect. *Cortusoides*, comprising about 23 species, is widely distributed in central and eastern Asia, but its distributional centre is in SW China. Morphologically the section is characterized by the plants being efarinose but always

with multicellular hairs, the leaves distinctly petiolate, with a sub-rounded blade, a margin more or less lobed and a cordate base, and a narrowly campanulate calyx. Recent molecular systematic studies (Mast *et al.* 2001, Trift *et al.* 2002, Mast *et al.* 2006, Yan *et al.* 2010) have revealed that *Cortusa*, a genus of arguably 8–20 species, was derived from within *Primula* subg. *Auganthus* and is closely related to *Primula* sect. *Cortusoides*. A thorough revision is needed for the two groups.

Primula pelargoniifolia G. Hao, C.M. Hu & Z.Y. Liu, *sp. nova* (Fig. 1)

Species affinis P. heucherifoliae in sectione Cortusoides, a qua imprimis floribus luteis, scapis 2–3-verticillos multifloros involucratos gerentibus praeter alia signa distinguitur.

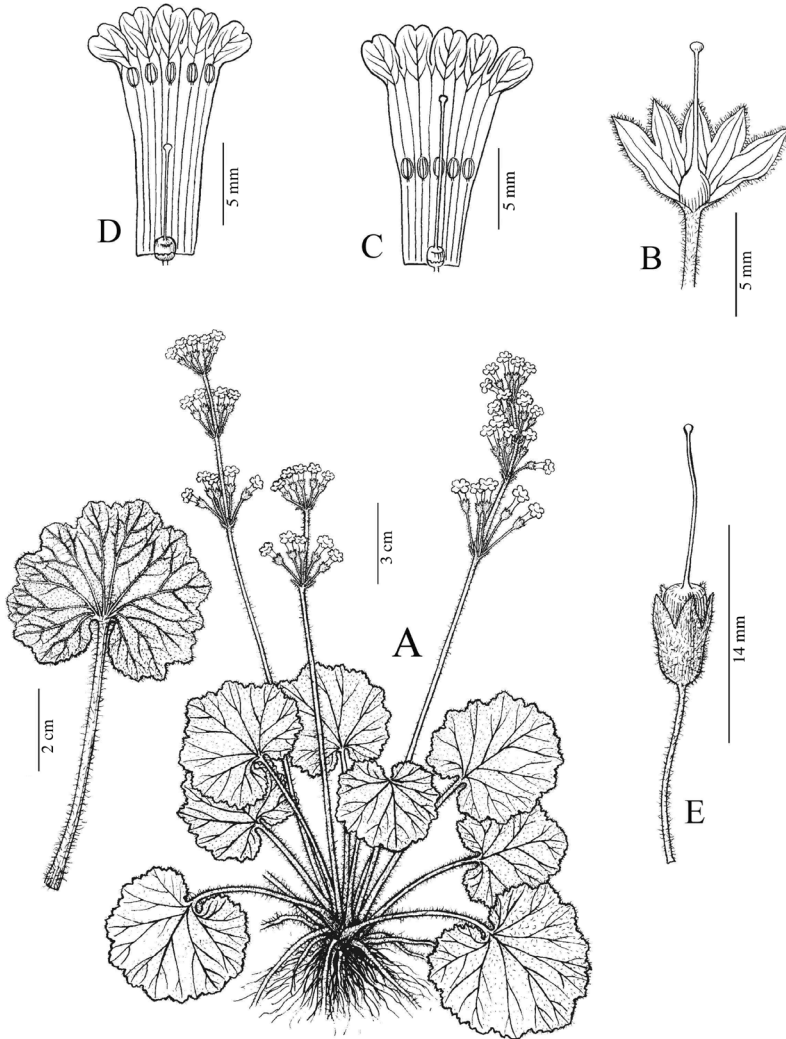


Fig. 1. *Primula pelargonifolia* (from the holotype). — **A:** Habit. — **B:** Calyx dissected to show pistil. — **C:** Long-styled flower. — **D:** Short-styled flower. — **E:** Capsule.

TYPE: China. Chongqing, Qijiang District, Zhongfeng Town, Pan-long-shui valley, 851 m a.s.l., 28°51'43.61"N, 106°28'40.55"E, 5 May 2013 *Y. Xu & T.J. Liu 130038* (holotype IBSC). — **PARATYPE:** Same locality as holotype, 13 June 2012 *Z.J. Mu 500222-LY-0128* (IMC); 25 July 2013 *Y. Xu 130181* (IBSC).

ETYMOLOGY: The epithet *pelargonifolia* refers to the leaves that resemble those of *Pelargonium* (Geraniaceae).

Herbs perennial, with short rhizomes and numerous fibrous roots. Leaves in a loose rosette; petiole 5–10 cm long, with dense, tangled, tawny multicellular hairs; leaf blade subreniform to suborbicular, 4–5 cm long, 4.5–7 cm wide, membranous when dry, sparsely pilose along lateral nerves on both surfaces, base deeply cordate, margin crenate-lobulate; lob-

ules broadly triangular, margin irregularly and sparsely dentate, shortly ciliate, apex obtuse or sub-rounded; lateral nerves usually 3 pairs, lowermost pair arising from midnerve at leaf base. Scapes 1 to many in each plant, 10–25 cm, covered with tangled tawny hairs; umbels 2–4, superimposed, (3)5–7-flowered; bracts linear, 4–5 mm, villous. Pedicel 8–12 mm at flowering time, after anthesis lengthening to 2 cm, similar to scape, with tangled tawny hairs, but considerably denser. Flowers distylous. Calyx narrowly campanulate, ca. 5–7 mm long, with tangled tawny hairs on outside, split near to middle; lobes triangular-ovate, apex acute, each with a thin nerve, lateral nerves inconspicuous. Corolla golden yellow with an orange eye, exannulate,

limb 10–12 mm across, lobes broadly elliptic to obovate-elliptic, ca. 4 × 3 mm, emarginated at apex; thrum flower corolla tube 1–1.2 cm long, with stamens inserted towards apex, style ca. 5 mm long reaching to middle of corolla tube; pin flower corolla tube ca. 1 cm long, with stamens inserted at middle of corolla tube, style as long as corolla tube. Capsule ellipsoid, ca. 7 mm long, slightly longer than persistent calyx, dehiscing by longitudinal valves.

DISTRIBUTION AND HABITAT: *Primula pelargoniifolia* is currently known from one locality in Qijiang (the type collection), SW Chongqing, on the margin of the Sichuan Red Basin. It grows in humid crevices at an altitude of ca. 850 m a.s.l., on soil derived from red sandstones. Flowering occurs from April to the beginning of May.

TAXONOMIC REMARKS: *Primula pelargoniifolia* is assigned to the section *Cortusoides* due to its lack of farina, long petiolate leaves with subrounded blades, crenate-lobulate margin, and deeply cordate base, as well as the narrowly campanulate calyx that does not enlarge after anthesis. However, it is distinctive as almost all the species in the section have violet, purple or pink flowers, the one exception being *P. pauliana*, which has a racemose inflorescence and pale yellow flowers. *Primula pelargoniifolia* resembles *P. heucheriifolia* in the leaf-shape, indumentum and general appearance, but can be easily distinguished by its yellow flowers in 2–4 superimposed umbels on the scape, as well as by its different habitat. *Primula heucheriifolia*, with purple flowers in a terminal umbel, occurs in the adjacent regions of southwestern Sichuan, in a habitat with wet mossy rocks, woodland and streamside, at an altitude of 2300–2700 m a.s.l.

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