

Primula anthemifolia (Primulaceae), a new species from Sichuan, China

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Primula anthemifolia G. Hao, C.M. Hu & Yuan Xu *sp. nova* (Primulaceae) from Sichuan, China, is described and illustrated. It is highly distinctive, with rounded pinnatisect inner leaves accompanied by subcapitate umbels, which is unique in the genus. In key morphological features it is similar to sect. *Aleuritia* subsect. *Glabra*, which is characterized by a dwarf stature, compact head-like umbels, and a calyx that equals the corolla-tube and has oblong lobes.

Primula (Primulaceae) comprises about 500 species that are almost exclusively confined to temperate and arctic zones of the northern hemisphere, with the center of diversity in southwestern China, which harbors about 300 species (Hu 1990, Hu & Kelso 1996).

Aleuritia is the largest section in *Primula*, with more than 80 species. Although widely distributed, most species of this section are Asian, occurring especially in the East Himalayan–Hengduan Mountains (Hu 1994). The section *Aleuritia* is generally recognizable by the plants being glabrous, with umbellate inflorescences or solitary flowers, the involucral bracts being swollen or saccate at base, by emarginated or 2-lobed corolla lobes, and by a suboblong or globose capsule.

The subsection *Glabra* is a small group within *Aleuritia*, whose diagnostic characters are subcapitate inflorescences and short pedicels that are usually shorter than calyx (Smith *et al.* 1941–1949, Hu 1990). The subsection comprises only three species, mainly distributed in SE

Himalaya, with extensions to the bordering areas of Yunnan and Sichuan.

In June 2014, two of the authors found an unusual population of *Primula* in south-central Sichuan, and the plants are here described as representing a new species in the subsection *Glabra*.

***Primula anthemifolia* G. Hao, C.M. Hu & Yuan Xu, *sp. nova* (Fig. 1)**

TYPE: China. Sichuan, Baoxing Xian, Yan Jing Xiang, Hong Shan Ding, Er Yuan Bao, 3634 m a.s.l., 30°37.03'N, 102°54.04'E, 3 June 2014 Y. Xu & T.J. Liu Xu140168 (holotype IBSC). — PARATYPE: China. Sichuan, Baoxing Xian, Yan Jing Xiang, Bai Yu Gou, Xiao Lu Er Chong Tang, 3818 m a.s.l., 30°40'N, 102°54.04'E, 23 July 2014 Y. Xu *et al.* Xu140213 (IBSC!).

ETYMOLOGY: The epithet *anthemifolia* refers to the leaves resembling those of *Anthemis*.

Perennial herbs, efarinose, with a short root-stock covered above for ca. 1.0 cm by remains of

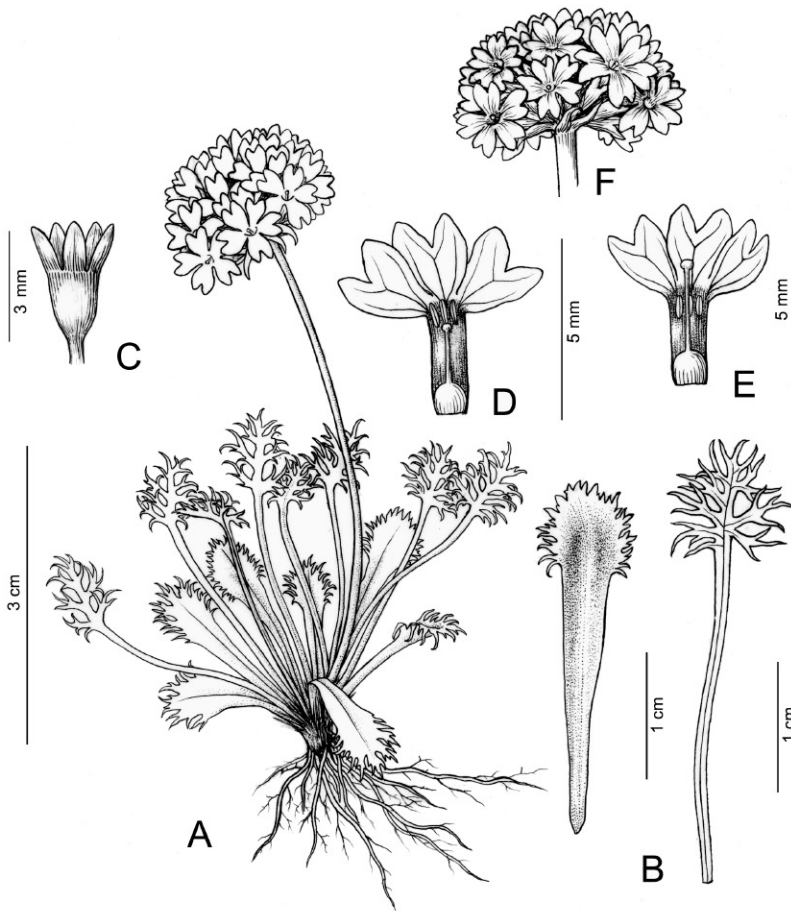


Fig. 1. *Primula anthemifolia* (from the holotype). — **A:** Habit. — **B:** Leaves. — **C:** Calyx. — **D:** Short-styled flower. — **E:** Long-styled flower. — **F:** Inflorescence.

old leaves and a few narrowly triangular purplish red basal scales at flowering time. Leaves dimorphic, glabrous, forming a rosette of 2.0–3.0 cm in diameter; outer leaves oblanceolate, 5.0 mm long, 2.5–5.0 mm broad, incised-dentate above middle; petiole as long as blade, but without clear discontinuity; inner leaves long-petiolate, blade broadly ovate to suborbicular in outline, 4.0–6.0 mm in diameter, pinnatisect, lobules 2–4 on each side, lobed again; segments narrowly linear, ca. 0.4 mm wide; petioles 1.0–3.0 cm long. Scape 1–2 per plant, slender, 3.0–5.0 cm long, more or less puberulent near apex; umbels 3–5-flowered; bracts 3–4, linear-lanceolate, 2.0–4.0 mm long; pedicels 0.5–1.0 mm long. Flowers distylous. Calyx narrowly campanulate, ca. 3.0–3.5 mm long, glabrous, split scarcely to middle; lobes oblong, ca. 1.0 mm long, apex broadly obtuse to subrounded. Corolla rosy-purple with a yellow eye, annulate, limb ca. 6.0 mm across,

lobes obovate, ca. 2.5×2.2 mm, bilobed; lobes entire; thrum flower with corolla tube ca. 3.2 mm long, stamens inserted towards apex, style ca. 2.0 mm long reaching to insertion of stamens; pin flower with corolla tube ca. 3.0 mm long, stamens inserted at middle of corolla tube, style prominently exerted beyond annulus. Capsule ellipsoid, about as long as persistent calyx, opening by teeth at apex when mature. Flowering from May to July.

DISTRIBUTION AND HABITAT: *Primula anthemifolia* is presently known only from Baoxing Xian (Yan Jing Xiang) in Sichuan Province. It grows in alpine meadows at ca. 3600–4000 m a.s.l.

Primula anthemifolia is highly distinctive. Its dimorphic leaves, especially the rounded pinnatisect inner leaves accompanied with the subcapitate umbels, are unique in the genus, rendering it easily identifiable. Its outer leaves are somewhat similar to those of *P. urticifolia*, but

other characteristics are quite different. Based on its dwarf stature, compact head-like umbels and the calyx that equals the corolla-tube and with oblong lobes, we assign the new species to sect. *Aleuritia* subsect. *Glabra*. Four species are thus included in this subsection, distinguishable from one another by the following key.

Key to the species of *Primula* sect. *Aleuritia* subsect. *Glabra*

1. Leaves pinnately lobed to midvein *P. anthemifolia*
1. Leaves entire or dentate 2
2. Leaves conspicuously denticulate; bracts not concealing pedicels 3
2. Leaves entire or obscurely denticulate; bracts concealing pedicels, ca. 1/2 as long as calyx 4
3. Calyx glandular; umbels usually 6–12-flowered
..... *P. glabra* ssp. *glabra*
3. Calyx smooth; umbels usually 1–3 flowered
..... *P. glabra* ssp. *genestieriana*
4. Leaves densely glandular; calyx and bracts often tinged with purple *P. kongboensis*
4. Leaves sparsely glandular; calyx and bracts green, puberulent *P. pseudoglabra*

Although the pinnatisect leaves is an outstanding character of *P. anthemifolia*, this feature appears to be of no phylogenetic significance, since it also occurs in some species in other sections which are assumed not closely related, e.g., in *P. filchnerae* (sect. *Auganthus*), *P. cicutariifolia*, *P. merrilliana* (sect. *Ranunculoides*), and *P. lungchiensis* (sect. *Crystallophlois*). The main morphological differences between *P. anthemifolia* and other species with pinnatisect leaves are summarized in the key below.

Key to the species of *Primula* with pinnatisect leaves

1. Leaves hairy; calyx inflated at base in fruiting time
..... *P. filchnerae*
1. Leaves glabrous; calyx not inflated 2
2. Umbels compact; pedicels 0.5–5 mm, shorter than bracts 3
2. Umbels lax; pedicels 1–3 cm, much longer than bracts . 4
3. Leaf blade oblanceolate to spatulate; calyx white farinose inside; corolla lobes entire or with 2–4 small teeth *P. lungchiensis*
3. Leaf blade broadly ovate to suborbicular; calyx effarinate; corolla lobes bilobed *P. anthemifolia*
4. Pinnae 2–6 pairs, with 2–4 teeth on each side; corolla pink or pale lilac, limb 4–8 mm wide ... *P. cicutariifolia*
4. Pinnae 7–9 pairs, pinnatifid or pinnately dentate; corolla white or tinged with lilac, limb 10–12 mm wide
..... *P. merrilliana*

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