

# 中国四川报春花属一新种

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**摘要:** 报道了中国四川报春花属(*Primula* L.)一新种——小繸瓣报春(*P. hydrocotylifolia* G. Hao, C. M. Hu & Y. Xu)。小繸瓣报春植株无毛、无粉, 叶片多少呈圆形, 具纤细的叶柄, 开花期叶丛基部无鳞片, 球形蒴果藏于宿存花萼, 成熟时裂成不规则碎片, 显然属于脆蒴报春组(sect. *Petiolares* Pax)革叶报春亚组(subsect. *Chartacea* W. W. Sm. & Forrest), 并与该亚组的川西繸瓣报春(*P. veitchiana* Petitm.)最为接近, 但后者植物体的各部分均远大于此新种, 花序多花, 花亦较大, 二者之间无过渡类型。

**关键词:** 小繸瓣报春; 报春花属; 脆蒴报春组; 新种; 中国

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## A New Species of *Primula* (Primulaceae) from Sichuan, China

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**Abstract:** A new species of *Primula* is described and illustrated under the name of *P. hydrocotylifolia* G. Hao, C. M. Hu & Y. Xu. From general morphology it is clearly allied to the species of section *Petiolares* subsection *Chartacea*, which is characterized by the plants being glabrous and efarinose, lacking bud-scales at flowering time, the globose capsule including in the persistent calyx, not opening by valves but crumbling at the membrane apex, and by the leaves with more or less rounded blades and slender petioles. The new species superficially resembles *P. veitchiana*, but the latter can be easily distinguished by its much taller stature, many-flowered inflorescence and larger flowers.

**Key words:** *Primula hydrocotylifolia*; *Primula*; Section *Petiolares*; New Species; China

Section *Petiolares* Pax of the genus *Primula* L. is well represented in the Hengduanshan-Himalaya Mts., with only a few members extend into Kashmir, central China, and some other regions<sup>[1-2]</sup>. One of the most important diagnostic characters of this section is that of the capsule being globose, including in the persistent calyx, not opening by valves but crumbling at the membrane apex. Nearly 60 species are now recognized worldwide<sup>[2-3]</sup>.

Subsection *Chartacea* W. W. Sm. & Forrest is a

small group of section *Petiolares*, characterized by the plants being glabrous and efarinose, lacking bud-scales at flowering period, and by the leaves with more or less rounded blades and slender petioles<sup>[4]</sup>. Including the recently described ones<sup>[5-7]</sup>, there are eight species in total, and seemingly form a natural and closely allied group confined to S Sichuan, N Yunnan, SE Xizang of China and the adjacent area of N Myanmar and N Vietnam.

In early 2013, one of the authors found a kind of

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tiny *Primula* growing in sandstone caves in Qianfo Shan, about 180 km southwest of Chengdu City, Sichuan Province, China. As the corolla lobes being finely toothed, at first sight it looks like a small plant of *P. veitchiana* Petitm., a species also occur in central and southern Sichuan. In subsequent expeditions, abundant individuals of new collections have been found around the same locality; its miniature characters of every part are very stable, and there is no intermediates between it and the closely related species. A detailed study turned out that the population represents an

undescribed taxon of section *Petiolares* subsection *Chartacea*. The new species is described and illustrated here. A key to the species of the subsection is also presented.

***Primula hydrocotylifolia*** G. Hao, C. M. Hu & Y. Xu, **sp. nov.** Fig. 1

**Type:** China. Sichuan: Dayi Xian, Huashuiwan, Qianfo Shan, Xuehuading, 30°31.428' N, 103°13.253' E, alt. 2000 m, 21 April 2013, Y. Xu & T. J. Liu 130012 (holotype, IBSC; isotype, IBSC).

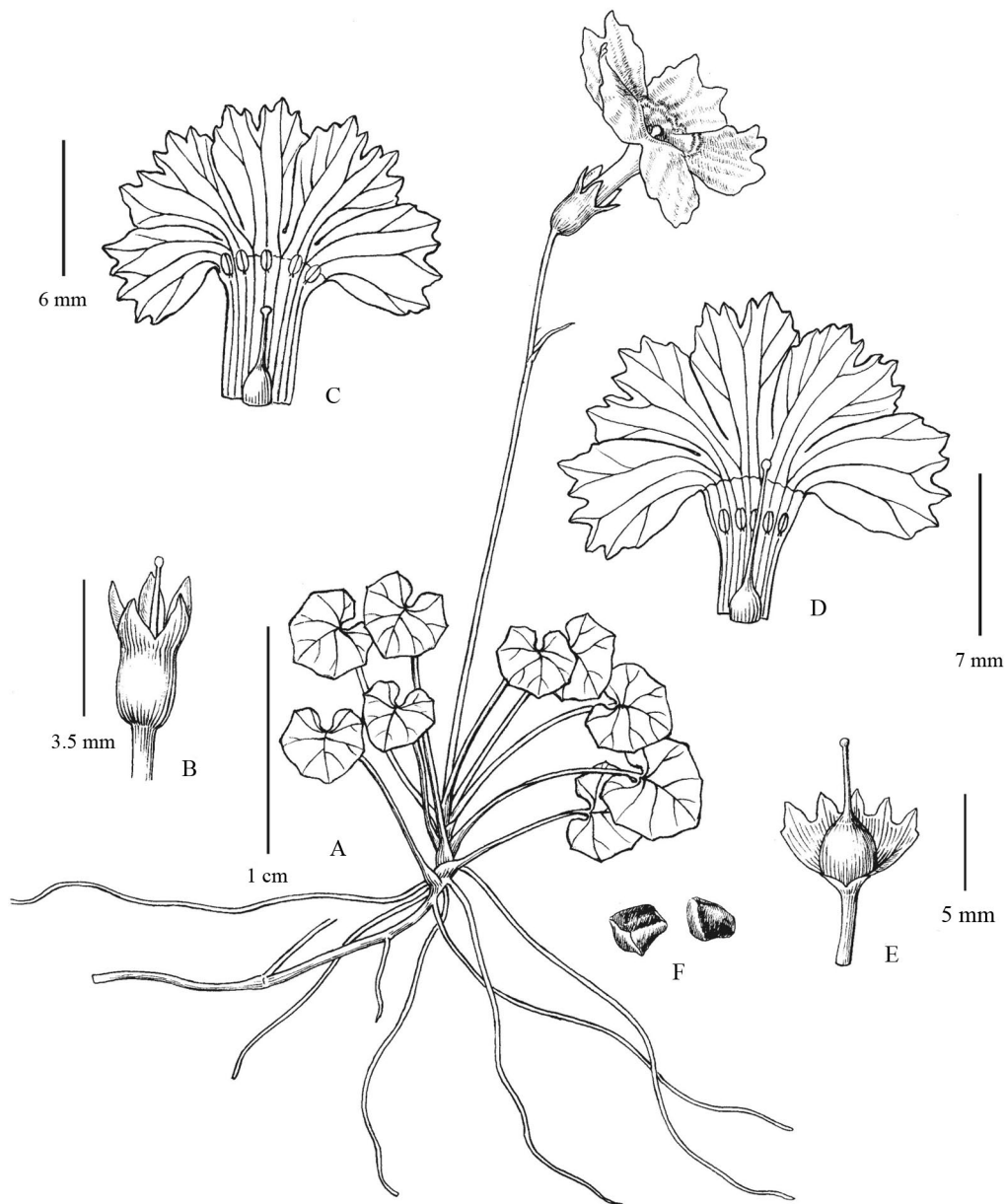


Fig. 1 *Primula hydrocotylifolia* G. Hao, C. M. Hu & Y. Xu, sp. nov. A: Plant; B: Calyx; C: Short-styled flower; D: Long-styled flower; E: Capsule; F: Seeds. (Drawn by LIU Yun-xiao from the holotype)

**Diagnosis:** Proxima *P. veitchiana* Petitm. sed omnibus partibus minoribus, foliis exsiccatis membranaceis, scapo filiformi plerumque unifloro, lobis calycis acutis differt.

Perennial herbs, glabrous throughout, with a thin rootstock, without paleaceous basal scales at flowering time; roots fibrous. Leaves forming a rosette of 1–1.5 cm in diameter; petioles slender, 6–18 mm long, after flowering lengthening to 25 mm, 2–3 times longer than the leaf blade; leaf blade broadly ovate-orbicular to reniform orbicular, 2.5–7 mm × 3–8 mm, apex rounded, rarely broadly obtuse, base cordate, margin subentire or undulate, with 1–2 teeth on each side; lateral veins obscure on both surfaces. Scape 1 per plant, 2–4 cm long, lengthening to 5 cm at fruiting time; umbels 1- or rarely 2-flowered; bracts 1–2, linear, 1–3 mm long; pedicels 6–9 mm long. Flowers distylous. Calyx narrowly campanulate, c. 3.5 mm long, 5-veined, split to 1/3 of its length; lobes ovate lanceolate, c. 1 mm long, apex acute. Corolla rosy-purple with a yellow eye, annulate, limb c. 1.5 cm across, lobes obovate, c. 6 mm × 5.5 mm, slightly notched at middle, apex finely toothed; thrum flower with corolla tube c. 6 mm long, stamens inserted towards apex, style c. 3 mm long reaching to middle of the corolla tube; pin flower with corolla tube c. 5 mm long, stamens inserted at middle of the corolla tube, style prominently exerted beyond annulus. Capsule subglobose, about half the length of the persistent calyx, not opening by teeth, crumbling at apex when mature.

**Distribution, habitat and conservation status:**

The new species is presently known only from Qianfo Shan in Sichuan Province, ranging from altitudes of 500–2000 m, growing in small groups on humid rocks in sandstone caves. Flowering from April to May.

Although currently the new species is not uncommon in Qianfo Shan, the area is a scenic spot which is

threatened by developing tourism; furthermore the plant is collected by local people and employed as a supposed cure for lumbago. Based on current information and according to IUCN red list criteria<sup>[8]</sup>, its conservation status is evaluated as ‘Critically Endangered’ (CR) (B1abiii).

**Etymology:** The Latin epithet “hydrocotylifolia” refers to the new species with leaves resembling those of *Hydrocotyle* (Apiaceae).

**Additional specimens examined (paratypes):**

**China. Sichuan:** Dayi Xian, Huashuiwan, Qianfo Shan, Xiadong, alt. 500 m, 21 April, 2013, Y. Xu & T. J. Liu 130014 (IBSC); the same locality, alt. 1585 m, 9 July, 2013, H. F. Yan Y2013123 (IBSC).

**Taxonomic remarks:** Morphologically species of subsection *Chatacea* constitute a natural group to some extent, but the circumscription of this subsection is never unquestionable. The diagnostic characters, i.e., plants without hairs or meal, lacking bud-scales at anthesis, capsule opening by crumbling at maturity, and leaves with more or less rounded blades and slender petioles etc., are also occasionally occur elsewhere in sect. *Petiolares*. Superficial resemblance to species of some other subsections appeals the recognition of synapomorphies of this group. In the past two decades large-scale molecular phylogenetic analyses on the genus *Primula* have been conducted<sup>[9–12]</sup>, but few species of sect. *Petiolares* have been sampled, so the systematic position of subsect. *Chatacea* is unclear and its monophyly awaits further assessment.

Among these species tentatively assigned to subsect. *Chatacea*, the new species, *P. hydrocotylifolia*, is most similar to *P. veitchiana* in general appearance, but may be distinguished by its tiny structure of all parts, and the scape usually bearing only one flower. Nine members are thus included in this subsection, which can be distinguished from one another by the following key.

**Key to the species of *Primula* sect. *Petiolares* subsect. *Chatacea***

1. Leaves cuneate at base ..... 2
- Leaves rounded or cordate at base ..... 3
2. Petioles faintly winged; leaf blade broadly obovate to suborbicular, corolla lobules entire or toothed ..... *P. petelotii*

- Petioles narrowly-winged; leaf blade obovate, corolla lobules dentate or lacerate ..... *P. nghialoensis*
3. Scape shorter than pedicels ..... *P. fenghuaiana*  
 Scape longer than pedicels ..... 4
4. Corolla-lobes emarginated at apex, lobules entire ..... 5  
 Corolla-lobes 2-cleft at apex, lobules dentate or lacerate ..... 6
5. Leaves obtuse at base; calyx-lobes acute ..... *P. wenshanensis*  
 Leaves rounded or cordate at base; calyx-lobes rounded or obtuse ..... *P. chartacea*
6. Flowers homomorphic, corolla pale yellow ..... *P. arunachalensis*  
 Flowers heteromorphic, corolla rosy-purple to lavender-blue ..... 7
7. Leaves 2.5–8 mm in diam., membrane; flowers usually solitary; calyx-lobes acute ..... *P. hydrocotylifolia*  
 Leaves much larger, papery to subleathery; umbels usually 2-many-flowered; calyx-lobes obtuse or rounded ..... 8
8. Umbels with simple bracts only; corolla-tube 0.7–1(–1.2) cm, puberulent inside ..... *P. veitchiana*  
 Umbels with bracts and small petiolate leaves; corolla-tube 1.1–1.3 cm, pilose inside ..... *P. lacerata*

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