

Saxifraga banmaensis and *S. dingqingensis*, two new species of the Saxifragaceae from China

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Abstract *Saxifraga banmaensis* J. T. Pan and *S. dingqingensis* J. T. Pan, two species of the genus *Saxifraga* (Saxifragaceae) from China, are described and illustrated. Of these, *S. banmaensis* J. T. Pan is known only from Banma County, Qinghai Province, and related to *S. umbellulata* Hook. f. & Thoms. (including varieties), but differs by having sepals cartilaginous-mucronulate at apex, and petals linear, not pandurate-oblong to pandurate, base not unguiculate. *S. dingqingensis* J. T. Pan occurs in Dingqing County, Xizang, and is similar to *S. llonakhensis* W. W. Smith, but differs by having sepals 3-veined, veins confluent at apex, petals 8-callose, 4–5-veined, base truncate or subauriculate. Both species are endemic to China, and belong to subsect. *Rosulares* Gornall.

Key words *Saxifraga*, *Saxifraga banmaensis* J. T. Pan, *Saxifraga dingqingensis* J. T. Pan, Saxifragaceae, new species, Qinghai, Xizang, China.

From 2002 to 2003, a large number of specimens of the genus *Saxifraga* L. were collected from Qinghai, Sichuan, Yunnan and Xizang, China. These specimens were all determined based on literature, and some new species were discovered (Pan, 1978, 1990, 1992; Wu & Pan, 1990; Pan et al., 2001). In this paper, another two new species, *S. banmaensis* J. T. Pan and *S. dingqingensis* J. T. Pan, are described.

1. *Saxifraga banmaensis* J. T. Pan, sp. nov. Fig. 1: A–H

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Species valde affinis *S. umbellulatae* Hook. f. & Thoms., sed a qua sepalis apice cartilagineo-mucronulatis, petalis linearibus, haud pandurato-oblongis usque panduratis, basi haud unguiculatis dignoscenda.

Herba biennis, 10–19 cm alta. Caulis pilis glandulosis brunneo-flavis obsitus. Folia basalia rosulatum conferta, coriacea, spatulata, 8.5–12 mm longa, 2.1–2.5 mm lata, apice mucronulata, utrinque glabra, margine supra medium cartilagineo-setoso-ciliata; folia caulina coriacea, spatulata usque suboblanceolata, 7.5–8 mm longa, 2–2.1 mm lata, apice obtusa, utrinque et margine brunneo-flavo-glanduloso-pilosa. Cyma umbelliformis, 4.3–8 cm longa, 22–39-flora; rami inflorescentiae 3.5–10.2 cm longi, 3–6-flori; pedicelli 6–17 mm longi brunneo-flavo-glanduloso-pilosi; sepala sub anthesi erecta, lanceolata, 2.8–3 mm longa, circ. 1 mm lata, apice cartilagineo-mucronulata, ventre glabra, dorso glanduloso-pilosa, margine glabra vel raro glanduloso-ciliata, nervis 3 apice non confluentibus instructa; petala flava, linearia, 8.5–9 mm longa, 1.6–1.9 mm lata, apice acuta, basi haud unguiculata, 3–5-nervia, basi juxta nervos laterales bicallosa; stamina circ. 2.4 mm longa, filamentis subulatis; ovarium

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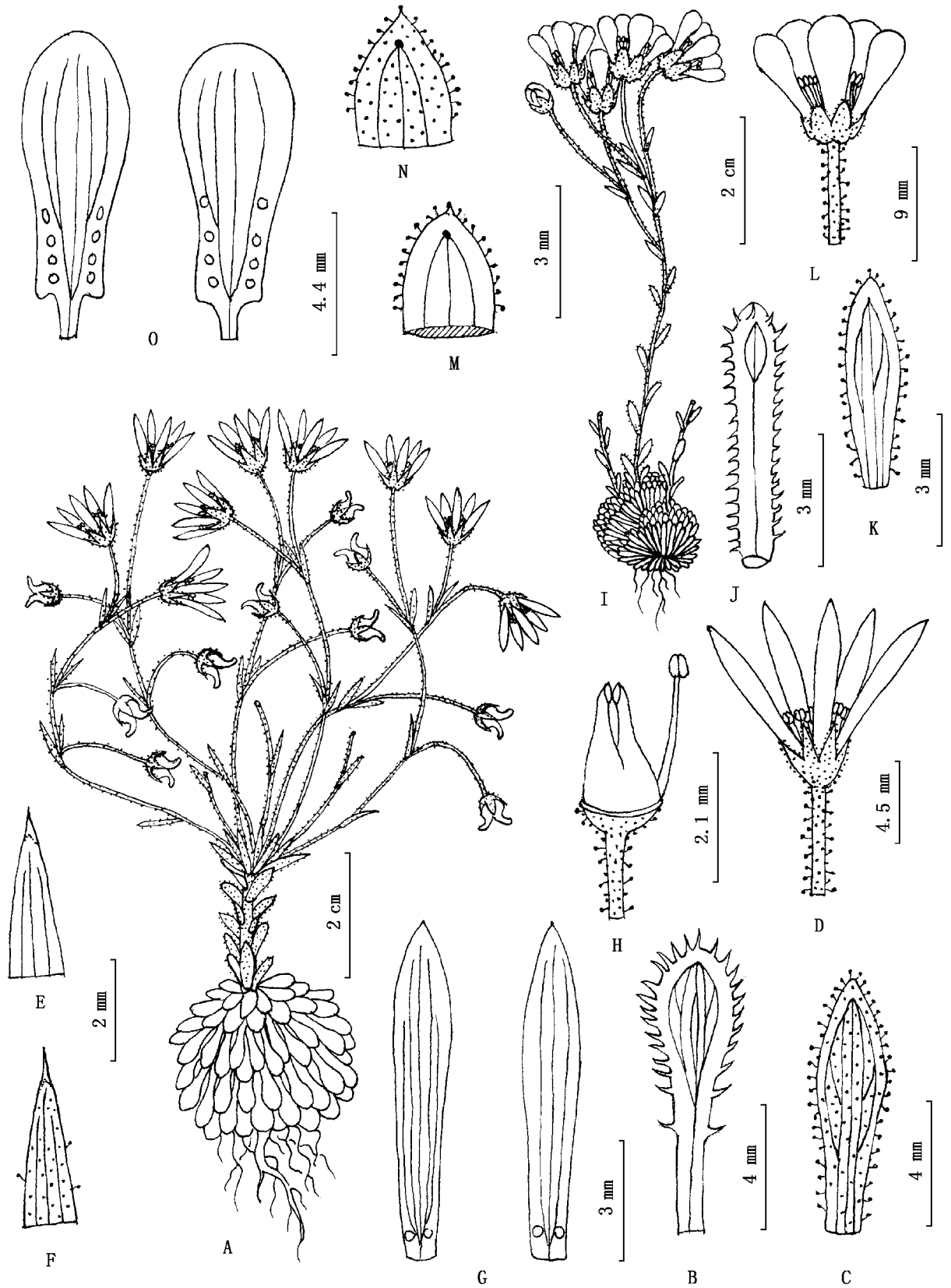


Fig. 1. A–H, *Saxifraga banmaensis* J. T. Pan. A, habit; B, basal leaf; C, cauline leaf; D, flower; E, sepal (ventral surface); F, sepal (back); G, petals; H, pedicel, filament, pistil. I–O, *S. dingqingensis* J. T. Pan. I, habit; J, basal leaf; K, cauline leaf; L, flower; M, sepal (ventral surface); N, sepal (back); O, petals.

subsuperum, ovoideum, circ. 1.3 mm longum, stylis ca. 0.8 mm longis. Fl. Jul.–Aug.

Herbs biennial, 10–19 cm tall. Stem tawny glandular hairy. Basal leaves aggregated into a rosette, coriaceous, spatulate, $8.5\text{--}12 \times 2.1\text{--}2.5$ mm, both surfaces glabrous, margin cartilaginous setose ciliate distally apex mucronulate; cauline leaves coriaceous, spatulate to suboblanceolate $7.5\text{--}8 \times 2\text{--}2.1$ mm, both surfaces and margin tawny glandular hairy, apex obtuse. Cyme umbellate, 4.3–8 cm, 22–39-flowered; branches slender, 3.5–10.2 cm, 3–6-flowered; pedicels 6–17 mm, tawny glandular hairy; sepals erect at anthesis, lanceolate, $2.8\text{--}3 \times 1$ mm, adaxially glabrous, abaxially glandular pilose, marginally glabrous or sparsely glandular ciliate, apex cartilaginous-mucronulate, veins 3, not confluent at apex; petals yellow, linear, $8.5\text{--}9 \times 1.6\text{--}1.9$ mm, 2-callose, 3–5-veined, base not unguiculate, apex acute; stamens ca. 2.4 mm, filaments subulate; ovary subsuperior, ovoid, ca. 1.3 mm, styles ca. 0.8 mm. Fl. Jul.–Aug.

China. Qinghai (青海): Banma (班玛), Makehe Forest District (玛可河林区), Meilangou (美浪沟), alt. 3680 m, 2003-08-26, *S. L. Chen* (陈世龙) 03031 (holotype, HNWP; isotype, PE).

Saxifraga banmaensis J. T. Pan is related to *S. umbellulata* Hook. f. & Thoms. (including varieties) in having basal leaves aggregated into a rosette, cyme umbellate, sepals erect at anthesis, petals 2-callose, but differs by having sepals cartilaginous-mucronulate at apex, and petals linear, not pandurate-oblong to pandurate, base not unguiculate. The new species belongs to subsect. *Rosulares* Gornall because *S. umbellulata* is placed in this subsection with rosette leaves (Pan, 1992).

2. *Saxifraga dingqingensis* J. T. Pan, sp. nov. Fig. 1: I–O

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Species affinis *S. llonakhensi* W. W. Smith, sed sepalis nervis 3, apice in verruculam confluentibus instructis, petalis basi truncatis vel subauriculatis, 4–5-nerviis, 8-callosis recedit.

Herba perennis caespitosa, 5.8–8.5 cm alta. Caudiculi ramosi, rosulis instructi. Caulis florifer atro-brunneo-glanduloso-pilosus. Folia rosulae aliquantum carnosa, linearia, 6–6.3 mm longa, 0.8–1 mm lata, apice obtusa, utrinque glabra, margine cartilagineo-setoso-ciliata; Folia caulina anguste elliptica usque suboblanceolata, 4.4–4.9 mm longa, 1.2–1.5 mm lata, apice subobtusa, ventre glabra, dorso et margine atro-brunneo-glanduloso-pilosa. Flos solitarius vel cyma corymbosa, 2–5-flora; pedicellus gracilis, 6–8 mm longus, atro-brunneo-glanduloso-pilosus; sepala sub anthesi erecta, carnosa, ovata, 2.4–3 mm longa, 1.6–2.2 mm lata, apice acuta, ventre glabra, dorso et margine atro-brunneo-glanduloso-pilosa, 3-nervia, nervis apice in verruculam confluentibus; petala flava, subpandurata, 7.5–8.5 mm longa, 2.6–3.5 mm lata, apice obtusa, basi truncata vel subauriculata et ungue 0.8 mm longo instructa, 4–5-nervia, 8-callosa; stamina circ. 4.5 mm longa, filamentis subulatis; ovarium superum, ovoideum, circ. 2.5 mm longum, stylis circ. 1.5 mm longis. Fl. et fr. Jul.–Sept.

Herbs perennial, caespitose, 5.8–8.5 cm tall. Shoots branched, with leaf rosettes. Flowering stem dark brown glandular hairy. Rosette leaves subcarnose, linear, $6\text{--}6.3 \times 0.8\text{--}1$ mm, both surfaces glabrous, margin cartilaginous setose ciliate; cauline leaves narrowly elliptic to suboblanceolate, $4.4\text{--}4.9 \times 1.2\text{--}1.5$ mm, adaxially glabrous, abaxially and marginally dark brown glandular hairy, apex subobtuse. Flower solitary or corymbose cyme 2–5-flowered; pedicel slender, 6–8 mm, dark brown glandular hairy; sepals erect at anthesis, carnose, ovate, $2.4\text{--}3 \times 1.6\text{--}2.2$ mm, adaxially glabrous, abaxially and marginally dark brown glandular hairy, veins 3, confluent into a verruca at apex, apex acute; petals yellow,

subpandurate, 7.5–8.5 × 2.6–3.5 mm, 8-callose, 4–5-veined, base truncate or subauriculate, narrowed into a claw ca. 0.8 mm, apex obtuse; stamens ca. 4.5 mm, filaments subulate; ovary superior, ovoid, ca. 2.5 mm, styles ca. 1.5 mm. Fl. and fr. Jul.–Sept.

China. Xizang (西藏): Dingqing (丁青), alt. 4180 m, 2002-09-02, *S. L. Chen* (陈世龙) 2002053 (holotype, HNWP; isotype, PE).

Saxifraga dingqingensis J. T. Pan is related to *S. llonakhensis* W. W. Smith in having shoots branched, with leaf rosettes, rosette leaves subcarnose, sepals erect at anthesis, abaxially and marginally dark brown glandular hairy, petals yellow, subpandurate; but differs by having sepals 3-veined, veins confluent into a verruca at apex, petals 4–5-veined, 8-callose, base truncate or subauriculate. *S. dingqingensis* J. T. Pan belongs to subsect. *Rosulares* Gornall because *S. llonakhensis* is under this subsection with rosette leaves (Pan, 1992).

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中国虎耳草属(虎耳草科)二新种——

班玛虎耳草和丁青虎耳草

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摘要 记载了中国虎耳草属*Saxifraga*二新种,即班玛虎耳草*S. banmaensis* J. T. Pan和丁青虎耳草*S. dingqingensis* J. T. Pan。其中,班玛虎耳草仅见于青海班玛,与小伞虎耳草*S. umbellulata* Hook. f. & Thoms.近缘,但其萼片先端具软骨质短尖头,花瓣线形,非提琴状长圆形至提琴形,基部无爪,可资区别。丁青虎耳草见于西藏丁青,与近加拉虎耳草*S. llonakhensis* W. W. Smith相似,但其萼片3脉,于先端汇合成1疣点,花瓣具8瘤体和4–5脉,基部截形或近耳形,可以区别。此两种均系中国特有种,隶属于莲座状亚组subsect. *Rosulares* Gornall。

关键词 虎耳草属; 班玛虎耳草; 丁青虎耳草; 虎耳草科; 新种; 青海; 西藏; 中国