

**8. PSEUDOSTELLARIA** Pax in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 318. 1934.

孩儿参属 hai er shen shu

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*Krascheninikovia* Turczaninow ex Fenzl in Endlicher, Gen. Pl. 968. 1840, not Gueldenstaedt (1772).

Herbs perennial. Root tubers fusiform, ovoid or subglobose. Stems erect or ascending, sometimes repent. Leaves ovate, ovate-lanceolate, or linear-lanceolate; stipules absent. Flowers of two types. Chasmogamic flowers larger, solitary in distal leaf axils or in terminal cymes, bracts immediately subtending calyx absent, pedicel longer, usually without fruit; sepals (4 or)5; petals (4 or)5, white, entire or emarginate; stamens (8 or)10; ovary globose or ovoid, 1-loculed, ovules numerous; styles (2 or)3; stigma capitate. Cleistogamic flowers smaller, on stem in proximal leaf axils, shortly pedicellate or sessile; sepals 4(or 5); petals very small, membranous, or absent; stamens reduced, rarely 2; ovary globose or ovoid, 1-loculed, ovules numerous; styles 2 or 3. Capsule (2 or) 3(or 4)-valved. Seeds few, large, somewhat flattened, tuberculate or smooth; embryo curved.

About 18 species: E and N Asia, one species in Europe, two species in North America; nine species (two endemic) in China.

1a. All leaves linear, lanceolate-linear, or ovate-lanceolate.

2a. Stems 15–25 cm tall; leaves linear or lanceolate-linear, 3–5(–7) cm × 2–3(–5) mm; seeds with awned tubercles ..... 1. *P. sylvatica*

2b. Stems 5–10 cm tall; leaves lanceolate or ovate-lanceolate, 1–3 cm × 3–8 mm; seeds with anchor-shaped barbs ..... 2. *P. rupestris*

1b. Middle and distal leaves ovate, broadly ovate, ovate-oblong, or oblong.

3a. Leaves rounded at base, sessile; seeds mammillate, with pointed mammillae.

4a. Stems repent, procumbent to 50 cm; capsule 4-valved; seeds with non-bristly protuberances ..... 3. *P. davidii*

4b. Stems erect, 15–20 cm tall; capsule 3-valved; seeds with bristly protuberances ..... 4. *P. japonica*

3b. Leaves attenuate at base into petiole; seeds tuberculate or not.

5a. Chasmogamic flowers with sepals 4, petals 4, stamens 8; seeds tuberculate, apex of tubercles with one short hair ..... 5. *P. helanshanensis*

5b. Chasmogamic flowers with sepals 5, petals 5, stamens 10; seeds tuberculate or not.

6a. Stems with apical 2(or 3) pairs of leaves larger, approximate, decussate, broadly ovate ..... 8. *P. heterophylla*

6b. Stems not as above.

7a. Chasmogamic flowers with sepals glabrous; cleistogamic flowers sessile; leaves ovate or oblong ..... 9. *P. tibetica*

7b. Chasmogamic flowers with sepals abaxially pubescent; cleistogamic flowers shortly pedicellate; distal middle leaves ovate-oblong.

8a. Capsules 2–3 mm; seeds without protuberances ..... 6. *P. himalaica*

8b. Capsules 3.5–4 mm; seeds tuberculate ..... 7. *P. heterantha*

**1. Pseudostellaria sylvatica** (Maximowicz) Pax in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 318. 1934.

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*Krascheninikovia sylvatica* Maximowicz, Prim. Fl. Amur. 57. 1859; *Stellaria sylvatica* (Maximowicz) Maximowicz ex Regel.

Root tubers usually several in a row (moniliform), narrowly ovoid or shortly fusiform. Stems erect, 15–25 cm tall, 4-angled, with 2 lines of hairs. Leaves sessile, linear or lanceolate-linear, 3–5(–7) cm × 2–3(–5) mm, thin, margin ciliate at base, abaxially grayish blue; midvein prominent. Chasmogamic flowers solitary or in dichasium; pedicel 5–15 mm, slender; sepals 5, green,

lanceolate, abaxially pubescent, margin membranous, apex acuminate; petals 5, obovate, slightly longer than sepals, apex 2-lobed; stamens shorter than petals, anthers brown; styles 2 or 3, usually exserted.

Cleistogamic flowers axillary on stem or terminal on a dwarf shoot; sepals narrowly lanceolate, abaxially pubescent, apex acuminate; petals absent. Capsule ovoid, slightly longer than sepals, 3-valved. Seeds reniform, ca. 1.5 mm, tuberculate, apex of tubercles awned. Fl. and fr. Jun–Jul.

Pine forests, mixed forests; (1500–)2400–2800(–3800) m. Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Jilin, Liaoning, Qinghai, Shaanxi, Sichuan, Xinjiang, Xizang, Yunnan [Bhutan, Japan, Korea, Russia].

This species is used medicinally.

**2. *Pseudostellaria rupestris*** (Turczaninow) Pax in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 318. 1934.

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*Krascheninikovia rupestris* Turczaninow, Fl. Baical-Dahur. 1: 238. 1842; *Pseudostellaria terminalis* W. Z. Di & Y. Ren.

Root tubers globose or broadly ellipsoid, ca. 1 cm. Stems erect, 5–10 cm tall, slender, unbranched, or sparsely branched apically, glabrous or with 1 or 2 lines of short hairs. Leaves lanceolate or ovate-lanceolate, 1–3 cm × 3–8 mm, base attenuate into a short petiole, glabrous or ciliate, apex acute. Chasmogamic flowers terminal or axillary; pedicel 1.5–2.5 cm, slender, glabrous or pubescent; sepals 5, oblong-lanceolate, veins pilose, margin membranous; petals 5, oblong, ca. 1.5 × as long as sepals, margin entire, rarely emarginate; stamens 10, subequaling petals; styles (2 or)3. Cleistogamic flowers axillary, small; pedicel ca. 1.2 cm; sepals 4; petals absent; stamens 2; styles 2 or 3. Capsule ellipsoid, ca. 4 × 3 mm. Seeds brown, ovoid, ca. 1.5 mm, with anchor-shaped barbs. Fl. May–Jun, fr. Jul–Sep.

*Picea* forests, rocky mountain slopes, 2700–3400 m. S Jilin (Changbai Shan), SW Nei Mongol (Helan Shan), Qinghai [Mongolia, Russia].

**3. *Pseudostellaria davidii*** (Franchet) Pax in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 318. 1934.

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*Krascheninikovia davidii* Franchet, Pl. David. 1: 51. 1884; *Stellaria davidii* (Franchet) Hemsley.

Root tubers fusiform. Stems repent, decumbent, to 50 cm, slender, sparsely branched, with 2 lines of hairs. Leaves subsessile, petiole 3–5 mm; leaf blade ovate, 1.5–3 × 1–2 cm, base rounded, ciliate, apex acute. Chasmogamic flowers axillary; pedicel ca. 3.8 cm, slender, with 1 row of hairs; sepals 5, lanceolate, ca. 3 mm, abaxially pubescent at midvein; petals 5, narrowly obovate or oblanceolate, ca. 2 × as long as sepals, margin entire; stamens 10, shorter than petals; anthers purple; styles (2 or)3. Cleistogamic flowers axillary; pedicel ca. 1 cm, hairy; sepals 4, narrowly lanceolate, ca. 3 × 0.8–1 mm, pubescent; stamens reduced; styles 2. Capsule ovoid, slightly longer than sepals, 4-valved. Seeds reniform or subglobose, ca. 1.5 mm, mammillate with pointed projections. Fl. May–Jul, fr. Jul–Aug.

Mixed forests, brooksides, stony hillsides, forest margins; 1000–3800 m. Anhui, Gansu, Guangxi, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan, Zhejiang [Korea, Mongolia, Russia].

**4. *Pseudostellaria japonica*** (Korshinsky) Pax in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 318. 1934.

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*Krascheninikovia japonica* Korshinsky, Bull. Acad. Imp. Sci. Saint-Pétersbourg, sér. 5, 9: 40. 1898.

Root tubers fusiform. Stems erect, 15–20 cm tall, unbranched, with 2 lines of hairs. Basal leaves lanceolate, 1.5–2.5 cm × 2–3 mm; middle and distal leaves subsessile, ovate or broadly ovate, 1.5–3 × 1–2 cm, both surfaces sparsely pubescent, base rounded, ciliate, apex acute. Chasmogamic flowers solitary or in cymes; pedicel 1.5–2.5 cm, slender, pubescent; sepals 5, lanceolate, 3–3.5 × 1.5–2 mm, with sparse long hairs at margin and abaxially at midvein, margin membranous; petals 5, obovate or broadly elliptic-obovate, ca. 5 mm, ca. 2 × as long as sepals, base attenuate, apex emarginate; stamens 10, shorter than petals, anthers purple-brown; ovary ovoid; styles 3. Cleistogamic flowers axillary; pedicel slender. Capsule ovoid, longer than sepals, 3-valved. Seeds brown, ovoid, slightly compressed, ca. 1 mm, mammillate with pointed projections, apex of projections bristly. Fl. May–Jun, fr. Jul–Aug.

Coniferous and broadleaf mixed forests in shaded, wet areas; ca. 400 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Russia].

**5. *Pseudostellaria helanshanensis*** W. Z. Di & Y. Ren, Acta Phytotax. Sin. 25: 478. 1987.

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Root tubers solitary or several in fascicles, lilac. Stems usually repent at base, ascending above, 5–10 cm tall, slender, much branched, with 2 lines of hairs, with dwarf shoots from leaf axils. Proximal leaves narrowly elliptic, 1.5–2.5 cm × 4–6 mm, base attenuate into a petiole, margin rough, apex acute. Middle and distal leaves: petiole 3–10 mm, sparsely pubescent; leaf blade ovate or broadly ovate, 1–2.5 × 0.6–1.5 cm, base cuneate, apex acute. Chasmogamic flowers solitary, terminal at stem apex; pedicel slender, sparsely pubescent; sepals 4, narrowly elliptic, ca. 3 × 1.5 mm; petals 4; stamens 8; ovary ovoid; styles 2. Cleistogamic flowers solitary in leaf axils of dwarf shoot; pedicel 5–20 mm, sparsely pubescent; sepals 4, narrowly elliptic; petals absent; stamens 2. Capsule with purple stains, ovoid, 3–4 mm, 4-valved. Seeds deep brown, subreniform, ca. 1.5 mm, tuberculate, apex of tubercles with one short hair. Fl. Jun–Jul, fr. Jul–Aug.

• Forested wetlands, near drainage areas; 2800–3000 m. Nei Mongol (Helan Shan).

**6. *Pseudostellaria himalaica*** (Franchet) Pax in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 318. 1934.

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*Stellaria davidii* Hemsley var. *himalaica* Franchet, Pl. Delavay. 100. 1889; *Krascheninikovia himalaica*

(Franchet) Korshinsky; *Pseudostellaria cashmiriana* Schaeftlein; *P. dalaolingensis* Z. E. Zhou & J. Q. Wu; *P. heterantha* (Maximowicz) Pax var. *himalaica* (Franchet) Ohwi.

Root tubers globose or fusiform. Stems erect, 3–13 cm tall, slender, branched, pubescent. Leaves ovate, 3–14 × 2–8 mm, midvein prominent, both surfaces pubescent, base attenuate into a short petiole, apex acute. Chasmogamic flowers solitary, terminal; pedicel 2–4 cm, pilose; sepals 5, lanceolate, 3–4 × ca. 1 mm, abaxially pilose, margin narrowly membranous, apex acuminate; petals 5, obovate, slightly longer than sepals, margin entire or emarginate, base slightly narrowed; stamens 10, shorter than petals, anthers brown-purple; styles 2 or 3. Cleistogamic flowers 1 or 2 in proximal leaf axils; pedicel 8–10 mm, pilose; sepals 4, lanceolate; petals absent. Capsule ovoid, 2–3 mm. Seeds brown, compressed, orbicular, ca. 0.5 mm, without protuberances. Fl. May–Jun, fr. Jun–Jul.

*Picea* forests or evergreen broadleaf forests, in scrub on rocks; 2300–3800 m. Gansu, Hubei, Qinghai, Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Nepal, Pakistan, Sikkim].

*Pseudostellaria dalaolingensis*, described from Hubei, is tentatively assigned here; the present authors have not seen material of this species. Although in the protologue Zhou and Wu distinguished it from *P. maximowicziana* (*P. heterantha* here), the description more closely fits *P. himalaica*.

**7. *Pseudostellaria heterantha*** (Maximowicz) Pax in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 318. 1934.

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*Krascheninikovia heterantha* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 18: 376. 1873; *K. eritrichoides* Diels; *K. maximowicziana* Franchet & Savatier; *Pseudostellaria eritrichoides* (Diels) Ohwi; *P. maximowicziana* (Franchet & Savatier) Pax.

Root tubers fusiform. Stems solitary, erect, 8–15 cm tall, branched at base, with 2 lines of hairs. Proximal middle leaves oblanceolate, base attenuate into a petiole, apex acute; distal middle leaves shortly petiolate, ovate-oblong, 2–2.5 × 0.8–1.2 cm, base sparsely ciliate. Chasmogamic flowers terminal or axillary; pedicel 3–3.5 cm, pilose; sepals 5, green, lanceolate, 3–4 mm, abaxially pilose, margin ciliate; petals 5, oblong-oblanceolate, longer than sepals, apically obtuse or acute; stamens 10, slightly shorter than petals, anthers purple; styles 2 or 3. Cleistogamic flowers axillary at stem base; pedicel short; sepals 4, lanceolate, 2–3 mm; petals absent; stamens 4 or 5; styles very short; stigma 2-lobed. Capsule ovoid, 3.5–4 mm, slightly longer than sepals, 4-valved. Seeds reniform, slightly compressed, tuberculate. Fl. May–Jul, fr. Jul–Aug.

Mountain forests, scrublands, hillside grasslands; 1400–4100 m. Anhui, Gansu, Guizhou, Hebei, Henan, SW Nei Mongol (Helan

Shan), Ningxia, Qinghai, Shaanxi (Taibai Shan), Shanxi, Sichuan, Xizang [Japan, Russia].

**8. *Pseudostellaria heterophylla*** (Miquel) Pax in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 318. 1934.

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*Krascheninikovia heterophylla* Miquel, Ann. Mus. Bot. Lugduno-Batavi 3: 187. 1867; *K. raphanorrhiza* (Hemsley) Korshinsky; *Pseudostellaria raphanorrhiza* (Hemsley) Pax; *Stellaria heterophylla* (Miquel) Hemsley; *S. raphanorrhiza* Hemsley.

Root tubers white, slightly grayish yellow, long fusiform. Stem solitary, erect, (8–)15–20 cm tall, with 2 lines of hairs. Proximal leaves usually 1 or 2 pairs, spatulate or oblanceolate, base attenuate into a petiole, apex obtuse; middle leaves lanceolate, 3–4 cm × 5–8 mm; distal leaves 2 or 3 pairs, decussate, approximate, broadly ovate, 3–6 × 1–2 cm, abaxially pilose at veins, adaxially glabrous, base attenuate, apex acuminate. Chasmogamic flowers axillary, solitary or in cymes; pedicel 1–2(–4) cm, pubescent; sepals 5, lanceolate, ca. 5 mm, abaxially pilose and ciliate; petals 5, oblong or obovate, 7–8 mm, margin entire, slightly toothed, or emarginate; stamens 10, shorter than petals; ovary ovoid; styles 3, slightly longer than stamens, stigmas capitate. Cleistogamic flowers axillary, pedicels short; sepals 4, pilose; petals absent; stamens 2; styles 3. Capsule ovoid, unsplit or 3-valved. Seeds brown, oblong-reniform or compressed orbicular, ca. 1.5 mm, tuberculate. Fl. Apr–Jul, fr. Jul–Aug.

Mountain valleys, moist shaded forests; 800–2700 m. Anhui, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Sichuan, Zhejiang [Japan, Korea].

This species is used medicinally.

**9. *Pseudostellaria tibetica*** Ohwi, J. Jap. Bot. 9: 103. 1937.

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*Pseudostellaria heterantha* var. *tibetica* (Ohwi) Kozhevnikov.

Stems erect, 5–10(–20) cm tall, slender, with 2 lines of hairs. Leaves with petiole 3–20 mm; leaf blade ovate or oblong, 0.5–3 cm × 3–10 mm, adaxially pubescent, base cuneate, margin ciliate with short hairs, apex obtuse, apiculate. Chasmogamic flowers solitary and terminal, or axillary; pedicel 2–3 cm, with 1 line of hairs; sepals 5, lanceolate, 5–6 mm, long acuminate, subglabrous; petals 5, cuneate-obovate, slightly longer than sepals, margin entire; stamens 10; ovary ovoid; styles 3, ca. 3 mm. Cleistogamic flowers axillary, small, subsessile; sepals 4, 3–4 mm, with long hairs; petals absent. Capsule globose, 2.5–4 mm. Seeds brown, elliptic, ca. 1 mm, tuberculate. Fl. May–Jun, fr. Jul.

• Hillsides, mountain valleys, forest margins, wet river shores; 2900–4000 m. W Sichuan, E Xizang.

