
**地榆 di yu shu**

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*Poterium* Linnaeus.

Herbs perennial. Rootstock robust, bearing many fusiform, cylindric roots in lower part. Stipules sheathing, adnate to petiole, petiole sheathing and imbricate at base; leaf blade imparipinnate; leaflets serrate at margin. Inflorescences terminal on elongate scapes, densely capitate or spicate, bracteate and bracteolate. Flowers bisexual, rarely unisexual (when plants monoecious). Hypanthium with a constricted throat. Sepals 4(–7), imbricate, petaloid, purple, red, pink, or white, rarely greenish. Petals absent. Disk lining hypanthium. Stamens usually 4, rarely more, inserted in throat of hypanthium; filaments free, rarely partly connate; anthers didymous. Carp el 1(or 2), included in hypanthium; ovule pendulous; style terminal, filiform; stigma penicillate. Achene dry, included in hardened, muricate or winged hypanthium. Cotyledons planoconvex. x = 7.

About 30 species: Asia, Europe, North America; seven species (one endemic) in China.

1a. Inflorescences flowering from base upward.
   2a. Leaflets of radical leaves usually truncate to subcordate at base; inflorescences usually nodding, thick; sepals white or pinkish; bracts longer than hypanthium in bud, densely hairy; filaments gradually dilated from base, broadest near middle, then gradually attenuate toward apex, narrower than anther, or sometimes little dilated ..... 6. *S. alpina*
   2b. Leaflets of radical leaves cordate or deeply so at base; inflorescences usually erect, long, slender; sepals white; bracts nearly equaling hypanthium in bud, abaxially sparsely hairy or subglabrous, margin ciliate; filaments compressed-dilated from middle to apex, broadest at apex, nearly as broad as anther ........................................ 7. *S. stipulata*

1b. Inflorescences flowering from apex downward.
   3a. Inflorescences capitate; sepals white.
      4a. Plants less than 35 cm tall; leaflets of radical leaves broadly ovate to suborbicular; flowers unisexual (females in center, males surrounding); style 0.5–1 × as long as sepals; flowering hypanthium with 4 ribs ..... 4. *S. filiformis*
      4b. Plants to 85 cm tall; leaflets of radical leaves ovate, elliptic, or long elliptic; flowers bisexual; style equaling sepals; fruiting hypanthium with 4 winged ribs ................................................................. 5. *S. diandra*
   3b. Inflorescences ellipsoid, cylindric, or elongate; sepals purple, red, or white.
      5a. Filaments filiform, subequaling sepals ........................................................................................................... 1. *S. officinalis*
      5b. Filaments compressed-dilated, 0.5–2 × as long as sepals.
         6a. Leaflets of radical leaves linear-lanceolate, base subcordate or rounded to obliquely broadly cuneate, margin acutely incised serrate ................................................................. 2. *S. tenuifolia*
         6b. Leaflets of radical leaves ovate, elliptic, or oblong, base cordate, margin coarsely obtusely serrate ................................................................................................................... 3. *S. applanata*


**地榆 di yu**

Herbs perennial, 30–120 cm tall. Rootstock brown or purpl e-brown, robust, usually fusiform, rarely terete, cross section yellow-white or purple. Stems erect, angular, glabrous, or base pilose or sparsely glandular hairy. Radical leaves: stipules brown, membranous, glabrous or abaxially sparsely glandular hairy; petiole long, glabrous or sparsely glandular, base sheathing and imbricate, sometimes sparsely glandular hairy; leaf blade with 4–6 pairs of leaflets; leaflets petiolulate, green on both surfaces, ovate, oblong-ovate, fasciated oblong, or fasciated lanceolate, 1–7 × 0.5–3 cm, base cordate to broadly cuneate, margin coarsely obtuse or rarely acutely ciliate, both surfaces glabrous or abaxially sparsely pilose; cauline leaves: stipules large, semiovate, herbaceous, margin acutely serrate; leaflets shortly petiolulate or sessile, oblong to oblong-lanceolate, base subcordate to rounded, apex acute. Inflorescences erect, spicate, ellipsoid, cylindric, or ovoid, usually 1–6 × 0.5–1 cm, flowering from apex to base; rachis glabrous or occasionally sparsely glandular hairy; bracts lanceolate, shorter than or nearly equaling sepals, membranous, abaxially pilose, apex acuminate to caudate. Sepals 4, purple, red, pink, or white, elliptic to broadly ovate, abaxially pilose, with faint longitudinal mid-vein, usually with shortly acute apex. Stamens 4; filaments filiform, 0.5–1 × as long as sepals, exerted beyond them or not. Ovary glabrous or puberulous; stigma dilated, discoid, margin fimbriate-papillate. Fruiting hypanthium longitudinally 4-ribbed. Fl. and fr. Jul.–Nov.

Thinned forests, forest margins, thickets, meadows, grasslands, grassy mountain slopes, damp places in ravines, stream banks; near sea level to 3000 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jiangxi, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [Asia, Europe].

This species is used medicinally.

1a. Filaments 0.5–1 × as long as sepals, exerted beyond them ........................................................................ 1e. *S. longifila*
1b. Filaments nearly equaling sepals.
   2a. Leaflets of radical leaves fasciated oblong to fasciated lanceolate, base subcordate or rounded to broadly cuneate ........................................ 1d. *S. longifolia*
2b. Leaflets of radical leaves ovate or oblong-ovate, base cordate to subcordate.

3a. Sepals pink or white ............................. 1c. var. carnea

3b. Sepals purple, red, or tinged purple.

4a. Leaflets glabrous on both surfaces, base of petiole or stem sometimes sparsely glandular hairy .............................. 1a. var. officinalis

4b. Leaflets abaxially sparsely pilose, base of petiole or stem sparsely glandular hairy .............................. 1b. var. glandulosa

1a. Sanguisorba officinalis var. officinalis

地榆 (原变种) di yu (yuán biàn zhòng)

Poterium officinale (Linnaeus) A. Gray; Sanguisorba officinalis var. longa Kitagawa; S. officinalis var. montana (Jordan) Focke; S. officinalis var. microcephala Kitagawa; S. officinalis var. polygama (Nylander) Sergievskaja; S. polygama Nylander.

Base of petiole or stem sometimes sparsely glandular hairy; leaflets of radical leaves ovate or oblong-ovate, glabrous on both surfaces, base cordate to subcordate. Sepals purple, red, or tinged purple. Filaments nearly equaling sepalas. Fl. and fr. Jul–Oct.

Thinned forests, thickets, meadows, grasslands, grassy mountain slopes; near sea level to 3000 m. Anhui, Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Liaoning, Shaanxi, Shaanxi, Sichuan, Xinjiang, Yunnan, Zhejiang [Asia, Europe].

1b. Sanguisorba officinalis var. glandulosa (Komarov) Voroshilov, Fl. Far East URSS 265. 1966.

腺叶地榆 xian di yu


Base of petiole or stem sparsely glandular hairy; leaflets of radical leaves ovate or oblong-ovate, abaxially sparsely pilose, base cordate to subcordate. Sepals purple, red, or tinged purple. Filaments nearly equaling sepalas. Fl. and fr. Jul–Sep.

Forest margins, damp places in ravines; 600–1900 m. Gansu, Heilongjiang, Shaanxi [Mongolia, E Russia].


粉花地榆 fen hua di yu


Leaflets of radical leaves ovate or oblong-ovate, base cordate to subcordate. Sepals pink or white. Filaments nearly equaling sepals.

Heilongjiang, Jilin [Korea].


长叶地榆 chang ye di yu


Leaflets of radical leaves fasciated oblong to fasciated lanceolate, base subcordate or rounded to broadly cuneate. Filaments nearly equaling sepalas. Fl. and fr. Aug–Nov.

Thinned forests, thickets, damp meadows, grassy mountain slopes, stream banks; 100–3000 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Liaoning, Shaanxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [India, Korea, Mongolia, Russia].


细叶地榆 xi ye di yu

Herbs perennial, to 1.5 m tall. Rootstock branched, robust, with many long, slender roots. Stems angular, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 7–9 pairs of leaflets; leaflets petiolulate, green on both surfaces, fasciated or fasciated lanceolate, 5–7 × 1.5–1.7 cm, both surfaces glabrous, base subcordate to obliquely truncate or rounded, margin acutely incised serrate, apex rounded to acute; cauline leaves: stipules green, falcate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer and narrower higher up stem. Inflorescences usually nodding, spicate, long cylindrical, 2–7 × 0.5–0.8 cm; peduncle subglabrous; bracts lanceolate, shorter than sepals, abaxially and at margin densely hairy. Sepals red, whitish red, or white, long elliptic, abaxially glabrous. Stamens 4; filaments compressed-dilated, 0.5–2 × as long as sepals, apex narrower than or nearly as broad as anther. Ovary glabrous or pubescent near base; stigma dilated, discoidal. Fruiting hypanthium longitudinally 4-ribbed, glabrous. Fl. and fr. Jul–Sep.

Forests, forest margins, meadows, grassy mountain slopes, damp places; 200–1700 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia].

1a. Sepals red, sometimes whitish red; filaments 0.5–1 × as long as sepals ............................. 2a. var. tenuifolia

1b. Sepals white; filaments 1–2 × as long as sepals ............................. 2b. var. alba
2a. Sanguisorba tenuifolia var. tenuifolia

细叶地榆(原变种) xi ye di yu (yu an bian zhong)

Sanguisorba tenuifolia var. purpurea Trautvetter & C. A. Meyer; S. affinis C. A. Meyer ex Regel & Tiling; Poterium tenuifolium (Fischer ex Link) Franchet & Savatier.

- Hebei, Jiangsu, Shandong.

Forest margins, meadows, grassy mountain slopes; 300–1500 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia].


小白花地榆 xiao bai hua di yu

Sanguisorba parviflora (Maximowicz) Takeda; S. tenuifolia var. parviflora Maximowicz.

Stems subglabrous. Lower cauline leaves: stipules green, herbaceous, margin entire or serrate; leaf blade with 3–5 pairs of leaflets; leaflets abaxially densely villous, base cordate, margin coarsely dentate, apex rounded, rarely truncate; upper cauline leaves: leaflets narrowly oblong, base truncate to broadly cuneate. Inflorescences spicate, long cylindric, 4–7.5 × 0.6–1 cm; bracts elliptic-ovate, abaxially pubescent. Sepals red, sometimes whitish red. Filaments 0.5–1 × as long as sepals. Fl. and fr. Aug.–Sep.

- Forests, forest margins, meadows, damp places; 200–1700 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia].


宽蕊地榆 kuan rui di yu

Herbs perennial, 75–120 cm tall. Rootstock robust, terete. Stems subglabrous. Lower cauline leaves: stipules semi-ovate, green, abaxially densely villous; leaf blade with 3–5 pairs of leaflets; leaflets 0.5–2.5 cm; bracts elliptic-ovate, abaxially pubescent. Sepals pale pink or white. Filaments 1–2 × as long as sepals. Fl. and fr. Jul.–Sep.

- Forests, forest margins, meadows, damp places; 200–1700 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia].

3a. Sanguisorba applanata var. applanata

宽蕊地榆(原变种) kuan rui di yu (yu an bian zhong)

Stipules and leaflets glabrous on both surfaces; sepals pale pink or white. Fl. and fr. Jul.–Oct.
- Hebei, Liaoning, Shandong.


柔毛宽蕊地榆 rou mao kuan rui di yu

- Shandong.


柔毛宽蕊地榆 chong liang


Herbs perennial, monoecious, 8–35 cm tall. Rootstock brown, terete. Stems slender, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 3–5 pairs of leaflets; leaflets shortly petiolulate, rarely subsessile, broadly ovate or suborbicular, 0.4–1.5 cm, both surfaces glabrous, base subcordate to rounded, margin obtusely serrate, apex rounded, rarely truncate; cauline leaves: stipules green, herbaceous, margin entire or serrate; leaf blade resembling that of radical leaves but leaflets fewer higher up stem. Inflorescences capitulate, subglobose, 3–7 mm in diam., with male flowers surrounding females; bracts ovate, minute, membranous, glabrous, margin entire or sparsely ciliolate. Sepals 4, white, narrowly elliptic to long obovate, abaxially glabrous. Stamens 7 or 8; filaments filiform, nearly 2 × as long as sepals. Style filiform, 0.5–1.5 × as long as sepals; stigma dilated, papillate. Fruiting hypanthium longitudinally 4-ribbed; sepals deciduous when mature. Fl. and fr. Jun.–Sep.

- Meadows on mountain slopes, marshes; 1200–4500 m. Sichuan, Xizang, Yunnan [Bhutan, Sikkim].

This species is used medicinally.


疏花地榆 shu hua di yu


Herbs perennial, 40–85 cm tall. Rootstock stout, terete. Stems glandular pubescent or glabrescent. Radical leaves: petiole glandular pubescent or glabrescent; leaf blade with 5–8 pairs of leaflets; petiolules 0.5–2 cm; leaflets alternate or subopposite, abaxially tinged green, adaxially green, ovate, elliptic, or long elliptic, 1–3 × 0.8–2.5 cm, abaxially sparsely pilose, adaxially glabrous, base cordate to truncate, margin obtusely or acutely incised serrate, apex rounded; middle cauline leaves: stipules falcate, margin incised serrate. Inflorescences capitate, lax after anthesis; bracts lanceolate, margin ciliate; flowers long pedicellate at base of inflorescence, gradually becoming subsessile toward apex. Hypanthium abaxially pilose. Sepals 4, tinged green. Stamens 2; filaments filiform, nearly equaling sepals. Style slender; stigma dilated, papillate, much branchless. Fruiting hypanthium hardened, with 4 longitudinal, winged ribs; sepals persistent; style deciduous. Fl. and fr. Jun.–Aug.

- Forest margins, thickets, meadows on mountain slopes; 3200–3900 m. Xizang [Bhutan, N India (Uttar Pradesh), Nepal, Sikkim].

高山地榆 gao shan di yu

*Sanguisorba linostemon* Handel-Mazzetti.

Herbs perennial, 30–80 cm tall. Rootstock robust, terete. Stems glabrous or subglabrous. Radical leaves: stipules yellow-brown, membranous, glabrous; petiole glabrous; leaf blade with 4–7(–9) pairs of leaflets; leaflets petiolulate, green on both surfaces, elliptic or long elliptic, rarely ovate, 1.5–7 × 1–4 cm, both surfaces glabrous, base subcordate to truncate, margin acutely incised serrate, apex rounded or subrounded; cauline leaves: stipules green, ovate or falcate-semiorbicular, leathery, margin sharply incised serrate; leaf blade resembling that of radical leaves but leaflets fewer higher up stem with base rounded to broadly cuneate. Inflorescence nodding, spiate, cylindric, rarely ellipsoid, usually 1–4 × 0.6–1.2 cm, elongated to 5 cm after anthesis, flowering from base to apex; peduncle usually pilose, later glabrescent; bracts tinged yellow-brown, ovate-lanceolate or spatulate-lanceolate, longer than flower buds before anthesis, 1–2 × as long as sepals, abaxially and at margin densely pubescent. Sepals white or slightly pinkish, ovate. Stamens 4; filaments gradually dilated from base, broadest near middle, then gradually attenuate toward apex, 2–3 × as long as sepals, narrower than anther, or sometimes little dilated. Fruiting hypanthium pilose; sepals persistent. Fl. and fr. Jul–Aug.

Forest margins, mountain slopes, ravines, marshes; 1200–2700 m. Gansu, N Ningxia (Helan Shan), Xinjiang [Korea, Mongolia, Russia].

7. **Sanguisorba stipulata** Rafinesque, Herb. Raf. 47. 1833.

大白花地榆 da bai hua di yu

*Poterium sitchense* (C. A. Meyer) S. Watson; *Sanguisorba canadensis* Torrey & A. Gray subsp. *latifolia* (Hooker) Calder; *S. canadensis* var. *latifolia* (Hooker) Calder; *S. canadensis* var. *stitchensis* (C. A. Meyer) Koidzumi; *S. latifolia* (Hooker) Coville; *S. stitchensis* C. A. Meyer; *S. stipulata* var. *latifolia* (Hooker) H. Hara.

Herbs perennial, 35–80 cm tall. Rootstock robust, deep, long. Stems glabrous. Radical leaves: stipules yellow-brown, membranous, glabrous; petiole angular, glabrous; leaf blade with 4–6 pairs of leaflets; leaflets petiolulate, green on both surfaces, abaxially more deeply so, elliptic or ovate-elliptic, both surfaces glabrous, base cordate to deeply so, rarely slightly so, margin coarsely acutely incised serrate, apex rounded; cauline leaves 2–4; stipules green, ovate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer higher up stem. Inflorescence erect, spicate; peduncle glabrous; bracts narrowly fasciated, nearly equaling sepals, glabrous or abaxially pilose. Sepals 4, elliptic-ovate, glabrous. Stamens 4; filaments compressed-dilated from middle to apex, broadest at apex, 2–3 × as long as sepal, nearly as broad as another. Fruiting hypanthium pilose; sepals persistent. Fl. and fr. Jul–Sep.

Thinned forests, forest margins, mountains, ravines, marshy places; 1400–2300 m. Jilin, Liaoning [Japan, Korea, Russia; North America].

This species is used medicinally.