

30. GEUM Linnaeus, Sp. Pl. 1: 500. 1753.

路边青属 *lu bian qing shu*

Li Chaoluan (李朝銮 *Li Chao-luang*); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, rhizomatous, sometimes stoloniferous. Stipules adnate to and sheathing petiole; radical leaves pinnate or pseudopinnate; terminal leaflet largest; lateral leaflets often in alternating larger and smaller pairs; cauline leaves few, often 3-foliolate or bractlike. Flowers solitary or in corymbs, bisexual. Hypanthium turbinate or hemispheric. Sepals 5, valvate, persistent; epicalyx segments 5, small, alternate with sepals. Petals 5, yellow, white, or red, orbicular or obovate. Stamens numerous, crowded. Disk lining hypanthium, smooth or ribbed. Carpels numerous, borne on prominent, usually cylindrical receptacle, free; ovule ascending; style filiform, jointed; stigma slightly recurved or hooked, minute. Achenes sessile or stipitate, small, hooked at apex of beak. Seed erect; testa membranous; cotyledons oblong. $x = 7$.

About 70 species: widespread in temperate zones of both hemispheres; three species in China.

Wu Zhengyi (editor's note) believes that *Geum sensu lato* may include *Acomastylis* and even *Taihangia*.

- 1a. Flowers nodding, 2–2.5 cm in diam.; sepals erect, ± purplish; petals yellow with purple stripes, semicordate, base long clawed 3. *G. rivale*
- 1b. Flowers erect, not more than 1.5 cm in diam.; sepals spreading, green; petals yellow, ovate or obovate, base not clawed.
 - 2a. Receptacle hispidulous, hairs ca. 1 mm; cauline leaves 2–6-foliolate, sometimes repeatedly pinnatifid; terminal leaflet of radical leaves broadly rhombic-ovate or obovate-lanceolate, apex usually acuminate, rarely acute 1. *G. aleppicum*
 - 2b. Receptacle hirtellous, hairs 2–3 mm; upper cauline leaves usually simple, entire or 3-lobed; terminal leaflet of radical leaves ovate to broadly obovate, apex rounded, rarely acute 2. *G. japonicum*

1. *Geum aleppicum* Jacquin, Icon. Pl. Rar. 1: 10. 1781.

路边青 *lu bian qing*

Geum aleppicum var. *bipinnatum* (Batalin) Handel-Mazzetti; *G. intermedium* Besser ex Marschall von Bieberstein (1808), not Ehrhart (1791), nor Willdenow (1806), nor Tenore ex Nyman (1878); *G. potaninii* Juzepczuk; *G. strictum* Aiton; *G. strictum* var. *bipinnatum* Batalin; *G. vidalii* Franchet & Savatier.

Roots fascicled, fibrous. Stems erect, 30–100 cm tall, together with petioles spreading rigid hairy, rarely glabrescent. Radical leaves lyrate-pinnate, 5–15 cm including petiole, usually with 2–6 pairs of leaflets, both surfaces sparsely rigid hairy; leaflets unequal, terminal one largest, broadly rhombic-ovate or compressed orbicular, 4–15 × 5–15 cm, base broadly cordate to cuneate, margin usually irregularly coarsely serrate, apex obtuse or acute; cauline leaves: stipules green, leaflike, ovate, large, margin irregularly coarsely serrate; leaf blade pinnate, sometimes repeatedly lobed; terminal leaflet lanceolate or obovate-lanceolate, base cuneate, apex often acuminate or shortly so. Inflorescence terminal, lax. Flowers 1–1.7 cm in diam.; pedicel pubescent or hirtellous. Sepals ovate-triangular, apex acuminate; epicalyx segments lanceolate, minute, ca. 1/2 as long as sepals, abaxially pubescent and villous, apex acuminate, rarely 2-fid. Petals yellow, suborbicular, longer than sepals. Style terminal, twisted at joint ca. 1/4 way from apex; proximal section pilose; distal section deciduous at fruit maturity. Achene aggregate obovoid; fruiting receptacle hispidulous, hairs ca. 1 mm; achenes hirtellous; proximal section of style persistent, glabrous, apex hooked. Fl. and fr. Jul–Oct.

Forests, open places in forests, grassy mountain slopes, river and

stream banks, fields; 200–3500 m. Gansu, Guizhou, Heilongjiang, Henan, Hubei, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [widespread in N temperate zone].

This species is used medicinally and as a source of oil.

2. *Geum japonicum* Thunberg var. *chinense* F. Bolle, Notizbl. Bot. Gart. Berlin-Dahlem 11: 210. 1931.

柔毛路边青 *rou mao lu bian qing*

Roots fascicled, fibrous. Stems erect, 25–60 cm tall, together with petioles yellow pubescent and rigid hairy. Radical leaves lyrate-pinnate, 5–20 cm including petiole, usually with 1 or 2 pairs of lateral leaflets and several segments, both surfaces sparsely strigose; leaflets unequal, terminal one largest, ovate to broadly obovate, lobed or not, 3–8 × 5–9 cm, base broadly cor-

date or cuneate, margin coarsely obtusely or acutely serrate, apex rounded; cauline leaves: stipules green, herbaceous, margin irregularly coarsely crenate; leaf blade of lower leaves 3-foliolate, of upper ones simple, entire or 3-lobed, segments obtuse or acute at apex. Inflorescence terminal, laxly several flowered. Flowers 1.5–1.8 cm in diam.; pedicel densely rigid hairy and pubescent. Sepals triangular-ovate, apex acuminate; epicalyx segments elliptic-lanceolate, minute, ca. 1/2 as long as sepals, pubescent abaxially, apex acute. Petals yellow, suborbicular, longer than sepals. Style terminal, twisted at joint ca. 1/4 way from apex; proximal section pilose; distal section deciduous at fruit maturity. Achene aggregate ovoid to ellipsoid; fruiting receptacle hirtellous, hairs 2–3 mm; achenes hirtellous; proximal section of style persistent, glabrous, apex hooked. Fl. and fr. May–Oct.

• Thinned forests, thickets, grassy mountain slopes, river banks, field margins; 200–2300 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Xinjiang, Yunnan, Zhejiang.

Geum japonicum var. *japonicum* occurs in Japan and Korea.

This species is used medicinally.

3. *Geum rivale* Linnaeus, Sp. Pl. 1: 501. 1753.

紫萼路边青 *zi e lu bian qing*

Roots robust, terete. Stems erect, 25–70 cm tall, pilose or hirtellous. Radical leaves lyrate-pinnate, 10–35 cm including petiole, with 2–4 pairs of leaflets, both surfaces scattered strigose; leaflets unequal, terminal one largest, usually rhombic-ovate, lobed, 4–9 × 3–8 cm, base broadly cuneate or subtruncate, margin markedly incised-lobed to 3-parted and coarsely serrate, apex rounded; cauline leaves: stipules green, ovate-elliptic, lobed to parted, herbaceous; leaf blade simple, 3-lobed or 3-parted. Inflorescence usually nodding, laxly 2–4-flowered. Flowers 2–2.5 cm in diam.; pedicel densely yellow pubescent and pilose. Sepals ovate-triangular, apex acuminate; epicalyx segments usually purplish, linear-lanceolate, minute, 1/3–1/2 as long as sepals, apex acuminate. Petals yellow, purple-brown striate, semiorbicular, longer than sepals, base abruptly tapered into a rather long claw. Style terminal, filiform, twisted at joint; proximal section yellow villous; distal section deciduous at fruit maturity. Fruiting receptacle hirtellous, hairs 1.5–2 mm; achenes yellow villous; proximal section of style persistent. Fl. and fr. May–Aug.

Thickets, meadows in valleys, ravine gravels; 1200–2300 m. Xinjiang [widespread in Arctic and N temperate zone].

Flora of China 9: 286–287. 2003.