

4. **ASTILBE** Buchanan-Hamilton ex D. Don, Prodr. Fl. Nepal. 210. 1825.

落新妇属 *luo xin fu shu*

Pan Jintang (潘锦堂); Hideaki Ohba

Herbs perennial. Rhizomes thick. Stems brown paleaceous hairy or long pilose. Leaves alternate, long petiolate, 2–4 × ternately compound, rarely simple; stipules membranous; leaflets lanceolate, ovate, or broadly ovate to elliptic, margin dentate. Inflorescence a terminal panicle, bracteate. Flowers white, lilac, or purple, bisexual or unisexual, rarely plants polygamous or dioecious. Sepals (4 or)5. Petals usually 1–5, sometimes more or absent. Stamens usually (5 or)8–10. Carpels 2(or 3), ± connate or free; ovary subsuperior or semi-inferior, 2(or 3)-loculed with axile placentation or 1-loculed with marginal placentation; ovules many. Fruit a capsule or follicle. Seeds small.

About 18 species: Asia, North America: seven species (three endemic) in China.

- 1a. Inflorescence sparsely flowered; petals 1–5 and obsolescent, or absent.
 - 2a. Sepals 5, subleathery, glandular hairy abaxially; petals 2–5 and obsolescent, or absent 6. *A. macrocarpa*
 - 2b. Sepals 4 or 5, submembranous, glabrous abaxially; petals absent, sometimes 1(–5) and obsolescent 7. *A. rivularis*
- 1b. Inflorescence densely flowered; petals 5, not obsolescent.
 - 3a. Sepals glabrous at margin; petals spatulate to oblanceolate.
 - 4a. Plants 32–150 cm tall; sepal margin entire, apex obtuse; petals usually oblanceolate, 1-veined, obtuse or retuse at apex 4. *A. longicarpa*
 - 4b. Plants 15–30 cm tall; sepal margin sparsely dentate distally, apex truncate or rounded; petals usually spatulate, 4–6-veined, acute at apex 5. *A. macroflora*
 - 3b. Sepals glandular ciliate at margin; petals linear or linear-oblanceolate.
 - 5a. Sepals glandular hairy abaxially 3. *A. rubra*
 - 5b. Sepals glabrous abaxially.
 - 6a. Panicle scarcely 12 cm in width, branches densely brown long crisped hairy; leaflets usually acute to shortly acuminate at apex 1. *A. chinensis*
 - 6b. Panicle to 17 cm in width, branches glandular pilose; leaflets usually shortly acuminate to acuminate at apex 2. *A. grandis*

1. **Astilbe chinensis** (Maximowicz) Franchet & Savatier, Enum. Pl. Jap. 1: 144. 1873.

落新妇 *luo xin fu*

Hoteia chinensis Maximowicz, Prim. Fl. Amur. 120. 1859; *Astilbe chinensis* var. *dauidii* Franchet; *A. dauidii* (Franchet) L. Henry.

Herbs 50–100 cm tall. Rhizomes dark brown, thick, with many fibrous roots. Stems glabrous. Basal leaves 2 or 3 × ternately compound; common petiole brown pilose near leaf axil; lateral and terminal leaflets rhombic-elliptic or ovate to elliptic, 1.8–8 × 1.1–4 cm, abaxially sparsely rigidly hairy and glandular hairy along veins, adaxially rigidly hairy along veins, base cuneate or subcordate to rounded, margin doubly serrate, apex acute to shortly acuminate. Cauline leaves 2 or 3, smaller than basal ones. Panicle 8–37 × 3–4(–12) cm, densely flowered; proximal branches 4–11.5 cm, densely brown long crisped hairy; bracts ovate. Sepals 5, ovate, 1–1.5 × ca. 0.7 mm, both surfaces glabrous, margin glandular puberulous distally. Petals 5, lilac to purple, linear, 4.5–5 × 0.5–1 mm, 1-veined. Stamens 10, 2–2.5 mm. Carpels 2, base connate. Capsule ca. 3 mm. Seeds brown, ca. 1.5 mm. Fl. and fr. Jun–Sep. 2n = 14.

Forests, forest margins, meadows, valleys, riversides; 400–3600 m. ?Anhui, SE Gansu, ?Guangdong, ?Guangxi, ?Guizhou, Hebei,

Heilongjiang, Henan, Hubei, Hunan, Jiangxi, Jilin, Liaoning, ?Nei Mongol, SE Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang [Japan, Korea, Russia].

2. **Astilbe grandis** Stapf ex E. H. Wilson, Gard. Chron., ser. 3, 38: 426. 1905.

大落新妇 *da luo xin fu*

Astilbe austrosinensis Handel-Mazzetti; *A. chinensis* (Maximowicz) Franchet & Savatier var. *koreana* Komarov; *A. koreana* (Komarov) Nakai; *A. leucantha* Knoll.

Herbs 40–120 cm tall. Rhizomes thick. Stems usually simple, brown long hairy and glandular hairy. Leaves 2 or 3 × ternately to pinnately compound; common petiole 3.5–32.5 cm, ± glandular hairy, long pilose near leaf axil; petiolules 0.2–2.2 cm; leaflets ovate or narrowly ovate to oblong (terminal ones sometimes rhombic-elliptic), 1.3–9.8 × 1–5 cm, abaxially shortly glandular hairy, sometimes also long pilose along veins, adaxially glandular strigose, base cordate or oblique to cuneate, margin doubly serrate, apex shortly acuminate to acuminate. Panicle terminal, 16–40 × to 17 cm; branches glandular hairy. Sepals 5, ovate or broadly ovate to elliptic, 1–2 × 1–2.2 mm, both surfaces glabrous but glandular puberulous at apex, margin membranous, apex obtuse or retuse. Petals 5, white or purple, linear, 2–4.5 × 0.2–0.5 mm, 1-veined, apex

acute. Stamens 10, 1.3–5 mm. Carpels 2, base connate; ovary semi-inferior; styles divergent. Fl. and fr. Jun–Sep. $2n = 28$.

Forests, scrub, damp ravines; 400–2000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Heilongjiang, Hubei, Jiangsu, Jiangxi, Jilin, Liaoning, Shandong, Shanxi, Sichuan, Zhejiang [Korea].

3. *Astilbe rubra* J. D. Hooker, Bot. Mag. 83: t. 4959. 1857.

腺萼落新妇 xian e luo xin fu

Herbs 0.9–1.5 m tall. Stems sparsely brown long crisped glandular hairy. Basal leaves $3 \times$ ternately compound; common petiole ca. 60 cm, sparsely brown long crisped glandular hairy; leaflets ovate to broadly so, $2.3\text{--}5 \times 1.8\text{--}4.6$ cm, glandular hairy, base cordate to broadly cuneate, margin doubly serrate, apex acute. Cauline leaves smaller than basal ones. Panicle 24–28 cm; branches brown long crisped glandular hairy; pedicels 0.5–2 mm, glandular hairy. Sepals 5, ovate, $1.5\text{--}2 \times$ ca. 1 mm, abaxially and marginally glandular hairy, adaxially glabrous, 1-veined. Petals 5, pink to red, linear, $4\text{--}5 \times 0.3\text{--}0.5$ mm, 1-veined. Stamens 10, ca. 3 mm. Pistil ca. 5.7 mm; carpels 2, base connate; ovary semi-inferior, styles divergent. Fl. Jun–Jul.

Forest margins; ca. 2400 m. ?Fujian, ?Hubei, S Xizang, NW Yunnan [India].

4. *Astilbe longicarpa* (Hayata) Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 106. 1911.

长果落新妇 chang guo luo xin fu

Astilbe chinensis (Maximowicz) Franchet & Savatier var. *longicarpa* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25(19): 86. 1908.

Herbs 32–150 cm tall. Stems glabrous. Leaves 2-pinnately compound; common petiole brown long pilose; leaflets narrowly ovate to lanceolate, $3\text{--}9 \times 1.2\text{--}3.5$ cm, both surfaces sparsely hairy, base cuneate to cordate (usually oblique on lateral leaflets), margin doubly serrate, apex acute. Panicle 6.5–28 cm; branches and pedicels glandular hairy. Sepals 5, elliptic, ca. 1.4×0.6 mm, glabrous, margin entire, apex truncate or rounded. Petals 5, usually oblanceolate, $3\text{--}3.2 \times 0.8\text{--}1$ mm, 1-veined, apex obtuse or retuse. Stamens 10, $3\text{--}4.5$ mm. Pistil ca. 3 mm; carpels 2, free; ovary subsuperior. Fl. and fr. Jul–Nov.

• Low to medium altitudes. Taiwan.

5. *Astilbe macroflora* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25(19): 86. 1908.

阿里山落新妇 a li shan luo xin fu

Herbs 15–30 cm tall. Stems long pilose. Leaves ternately or 2-pinnate-ternately compound; common petiole and petiolules long pilose and glandular hairy; leaflets broadly ovate, $2.4\text{--}3.8 \times 2.3\text{--}3.2$ cm, abaxially glandular hairy and long pilose along veins, adaxially glandular strigose, base cordate or obliquely so, margin doubly serrate, glandular hairy, apex acute. Panicle 4–8 cm; branches brown long pilose; pedicels brown long pilose and glandular hairy. Sepals 5, ovate to narrowly so, $2\text{--}2.5 \times$ ca. 1 mm, both surfaces glabrous, margin

sparsely dentate distally, apex acute. Petals 5, usually spatulate, $3\text{--}3.4 \times$ ca. 1 mm, 4–6-veined, apex acute. Stamens 10, 2.5–4 mm. Pistil ca. 5 mm; carpels 2, mostly free; ovary semi-inferior; styles divergent. Capsule ca. 5 mm. Seeds small. Fl. Jul–Aug.

• High peaks; 3200–3800 m. C Taiwan.

6. *Astilbe macrocarpa* Knoll, Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Cl., Abt. 1, 118: 73. 1909.

大果落新妇 da guo luo xin fu

Herbs 1–1.3 m tall. Stems brown long pilose and glandular hairy. Leaves 1 or $2 \times$ ternately compound or pinnately compound; common petiole and petiolules brown long pilose and glandular hairy; leaflets rhombic-elliptic or broadly to narrowly ovate, rarely oblong, $(2.8\text{--})6\text{--}17.5 \times (1.6\text{--})2.8\text{--}10.6$ cm, glandular hairy, base obliquely cordate to obliquely rounded, margin doubly serrate, sometimes 2-lobed, apex acuminate. Panicle (13–)25–40 cm; branches and pedicels brown glandular hairy; bracts subulate, $1.6\text{--}3.2 \times 0.2\text{--}0.5$ mm, abaxially glandular hairy, adaxially glabrous. Sepals 5, ovate, $1.5\text{--}2.2 \times 1\text{--}1.5$ mm, subleathery, abaxially and marginally tawny glandular hairy, adaxially glabrous, 1-veined, apex usually shortly acuminate. Petals 2–5 and obsolescent, or absent, white, linear or spatulate-linear to subulate, $1\text{--}1.5 \times 0.1\text{--}0.2$ mm, 1-veined, apex acute. Stamens 8–10, 1.3–3.5 mm. Pistil 1.5–4 mm; carpels 2, base connate; ovary subsuperior; styles 2, divergent. Fl. and fr. Jun–Sep.

• Scrub and meadows in ravines; 500–1600 m. Anhui, Fujian, Hunan, Zhejiang.

7. *Astilbe rivularis* Buchanan-Hamilton ex D. Don, Prodr. Fl. Nepal. 211. 1825.

溪畔落新妇 xi pan luo xin fu

Herbs 0.6–2.5 m tall. Stems brown long glandular hairy. Leaves 2- or 3-pinnately compound; common petiole and petiolules brown long pilose; leaflets lanceolate, narrowly to broadly ovate, elliptic or broadly so, rhombic-elliptic, narrowly rhombic-obovate, or obovate, $4\text{--}14.5 \times 1.7\text{--}8.4$ cm, abaxially brown long pilose and glandular hairy along veins, adaxially sparsely brown glandular strigose, base obliquely cordate or rounded to cuneate, margin doubly serrate, apex acuminate. Panicle to 42 cm, many flowered; branches 1–18 cm, brown crisped glandular hairy; bracts 3, subelliptic, $1.1\text{--}1.4 \times 0.2\text{--}0.6$ mm, brown pilose, margin entire or dentate; pedicels 0.6–1.8 mm. Sepals 4 or 5, green, ovate or elliptic to oblong, $1.2\text{--}1.5 \times$ ca. 1 mm, submembranous, abaxially subconvex, adaxially subconcave, glabrous, 1-veined. Petals absent, sometimes 1(–5) and obsolescent. Stamens 5–10(–12), 0.2–2.4 mm. Pistil ca. 2 mm; carpels 2, base connate; ovary subsuperior; styles divergent. Fl. and fr. Jun–Nov.

Forests, forest margins, scrub, meadows, by water, ravines; 900–3200 m. SE Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, N India, Indonesia, Kashmir, Laos, N Myanmar, Nepal, Thailand, Vietnam].

- 1a. Leaflets lanceolate or narrowly ovate to narrowly rhombic-obovate 7c. var. *angustifoliolata*
- 1b. Leaflets ovate or broadly so to broadly elliptic, or rhombic-elliptic or obovate.
 - 2a. Leaflets usually ovate or broadly so to broadly elliptic 7b. var. *myriantha*
 - 2b. Leaflets rhombic-elliptic or obovate (terminal ones), or ovate (lateral ones) 7a. var. *rivularis*

7a. *Astilbe rivularis* var. *rivularis*

溪畔落新妇(原变种) xi pan luo xin fu (yuan bian zhong)

Leaflets rhombic-elliptic or obovate (terminal ones), or ovate (lateral ones). Petals absent. Fl. and fr. Jul–Oct. $2n = 28$.

Forests, forest margins, scrub, meadows; 900–3200 m. Henan, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, N India, Indonesia, Kashmir, Laos, Nepal, Thailand, Vietnam].

7b. *Astilbe rivularis* var. *myriantha* (Diels) J. T. Pan, Acta Phytotax. Sin. 23: 438. 1985.

多花落新妇 duo hua luo xin fu

Astilbe myriantha Diels, Bot. Jahrb. Syst. 36(Beibl. 82): 48. 1905; *A. heteropetala* Mattfeld; *A. virescens* Hutchinson.

Leaflets usually ovate or broadly so to broadly elliptic. Petals absent, sometimes 1(–5) and obsolescent. Fl. and fr. Jun–Oct.

• Forests, scrub, shaded ravines; 1100–2500 m. SE Gansu, Guizhou, W Henan, Hubei, Shaanxi, Sichuan, ?Xizang.

7c. *Astilbe rivularis* var. *angustifoliolata* H. Hara, J. Jap. Bot. 51(5): 133. 1976.

狭叶落新妇 xia ye luo xin fu

Astilbe rivularis var. *angustata* C. Y. Wu ex J. T. Pan.

Leaflets lanceolate or narrowly ovate to narrowly rhombic-obovate. Petals usually absent, sometimes 1 and obsolescent. Fl. and fr. Sep–Nov.

Forests, forest margins, ravines, by water; 1500–2800 m. NW Yunnan [N Myanmar].

Flora of China 8: 274–276. 2001.