

14. ASYSTASIA Blume, Bijdr. 796. 1826.

十万错属 shi wan cuo shu

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Intrusaria Rafinesque.

Herbs or subshrubs, with cystoliths. Leaves petiolate; leaf blade margin entire to crenate. Inflorescences terminal or axillary, unilateral spikes or racemes, or panicles of these; bracts small, shorter than calyx; bracteoles similar to bracts or sometimes absent. Calyx 5-lobed; lobes equal to subequal. Corolla funnel-shaped; tube expanded distally into a throat; limb ± 2-lipped, often appearing subactinomorphic with 5 ± equal lobes; lobes ascending cochlear in bud. Stamens 4, included in or partially exerted from corolla tube; anthers 2-theous; thecae parallel to sagittate to subperpendicular, equally to unequally inserted, base mucous or with a small basal appendage; staminodes 0. Ovary with 2 ovules per locule; stigma capitate, 2-lobed or 2-dentate. Capsule with a solid stalk at base, clavate, up to 4-seeded; retinacula present. Seeds lenticular, lacking trichomes.

About 40 species: tropical and subtropical regions of Old World; four species (one introduced) in China.

- 1a. Corolla ± subsalverform with cylindric basal portion of tube at least 1.5 × as long as throat and limb combined 1. *A. neesiana*
- 1b. Corolla ± campanulate with cylindric basal portion of tube less than 1.5 × as long as throat and limb combined.
 - 2a. Leaf blade ovate to elliptic, base truncate to rounded; corolla yellow or white 2. *A. gangetica*
 - 2b. Leaf blade lanceolate to ovate-lanceolate or narrowly ovate, base attenuate; corolla red or purplish red.
 - 3a. Leaf blade (1.2–)1.8–2.8 cm wide, margin entire; corolla 3.5–4 cm, lobes ca. 5 mm wide 3. *A. salicifolia*
 - 3b. Leaf blade 3–5 cm wide, margin undulate-crenulate; corolla ca. 2.2 cm, lobes ca. 3.2 mm wide 4. *A. nemorum*

1. *Asystasia neesiana* (Wallich) Nees in Wallich, Pl. Asiat. Rar. 3: 89. 1832.

白接骨 bai jie gu

Ruellia neesiana Wallich, Pl. Asiat. Rar. 1: 73. 1831; *Asystasia chinensis* S. Moore; *Asystasiella chinensis* (S. Moore) E. Hossain; *A. neesiana* (Wallich) Lindau.

Herbs to 1 m tall. Stems 4-angled, sulcate, 2-fariously puberulent to subglabrous. Petioles 0.5–5 cm, glabrous or sparsely pubescent; leaf blade lanceolate to ovate to elliptic to oblong or uppermost sometimes ovate-cordate, 4–25 × 2–11 cm, both surfaces glabrous or slightly pubescent, secondary veins 6–8, base attenuate and decurrent onto petiole (or cordate for uppermost leaves), margin entire to sinuate-crenate to subdentate, apex acuminate. Inflorescences terminal, spikes or racemes, unbranched or with one or more basal branches forming a panicle, 6–15 cm; rachis usually gland-tipped pubescent; bracts and bracteoles triangular, 1–2 × ca. 1 mm, minutely pubescent. Pedicel (0–)1–3 mm. Calyx 4–6.5 mm; lobes linear-lanceolate, usually gland-tipped pubescent. Corolla pink to purplish blue, 4–6 cm, outside gland-tipped pubescent; tube with cylindric basal portion narrow, elongate, 3–4 cm, at least 2 × as long as throat and limb combined; lobes of lower lip ovate, ca. 6 × 8 mm; lobes of upper lip suborbicular, ca. 7 × 7 mm. Stamens with longer pair ca. 5 mm, shorter pair ca. 2 mm; anther thecae subequally inserted. Style 3.6–5.2 cm, glabrous. Capsule 1.8–2.8 cm, gland-tipped pubescent, 4-seeded, basal stalk 1–1.5 cm. Seeds ovate in outline, ca. 4 × 3 mm, compressed. Fl. Jul–Sep, fr. Oct–Jan.

Evergreen broad-leaved forests, moist banks, streamsides, disturbed sites, ditches, trails; 100–1800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [India, Indonesia, Laos, Malaysia, Myanmar, Thai-

land, Vietnam].

Asystasia neesiana is sometimes treated in *Asystasiella* Lindau, a genus of two species with spheroidal, 4- or 5-porate, and spinulate (vs. prolate-spheroidal to subprolate, 3-colporate, and reticulate) pollen (see K. Ensermu et al., Kew Bull. 47: 669–675. 1992). The generic position of *Asystasia neesiana* s.l. and some of its relatives has yet to be thoroughly investigated.

This species is used medicinally.

2. *Asystasia gangetica* (Linnaeus) T. Anderson, Enum. Pl. Zeyl. 235. 1860.

宽叶十万错 kuan ye shi wan cuo

Herbs to 0.5 m tall, ascending. Stems 4-angled, pilose. Petiole 3–5 mm, pubescent; leaf blade ovate to elliptic, 3–12 × 1–5 cm, glabrous or sparsely pilose especially on veins, adaxially with numerous cystoliths, base truncate to rounded, margin entire or slightly crenulate, apex acuminate. Racemes axillary or terminal, to 16 cm; bracts triangular, ca. 5 mm, pilose; bracteoles linear-lanceolate, 1–2.5 mm, pilose. Pedicel 2–3 mm, pilose. Calyx ca. 7 mm; lobes linear-lanceolate, 5–7 × 1–1.2 mm, outside glandular pilose, margin ciliate. Corolla yellow or white, 1.2–3.5 cm, outside gland-tipped pilose, inside glabrous; tube basally cylindric and ca. 3 mm wide for ca. 8 mm then gradually widened to ca. 1 cm; lobes obovate to semicircular, 0.7–1.2 × 0.8–1 cm; middle lobe of lower lip with violet or maroon markings. Stamens included; filaments glabrous, longer pair ca. 5 mm, shorter pair ca. 3 mm; anther thecae ca. 3 × 1 mm. Ovary ellipsoid, ca. 3.5 mm; style ca. 1.8 cm, velutinous; stigma slightly capitate, 2-lobed. Capsule ca. 1.3 × 2 cm, pubescent. Seeds irregularly obovate in outline, 3–5 × 0.5–3 mm, tuberculate-rugose. Fl. Sep–Dec, fr. Dec–Mar. 2n = 26, 52.

Forest margins, roadsides. Naturalized in Guangdong, Guangxi, Taiwan, and Yunnan [paleotropical; SW Asia].

Cultivated plants of *Asystasia gangetica* have corollas that vary from white to cream to lavender to purple.

- 1a. Corolla 3–3.5 cm, ca. 1 cm wide at mouth, lobes erect 2a. subsp. *gangetica*
1b. Corolla 1.2–1.5 cm, ca. 0.5 cm wide at mouth, middle lobe of lower lip slightly reflexed 2b. subsp. *micrantha*

2a. *Asystasia gangetica* subsp. *gangetica*

宽叶十万错(原亚种) kuan ye shi wan cuo (yuan ya zhong)

Justicia gangetica Linnaeus, Cent. Pl. 2: 3. 1756; *Asystasia coromandeliana* Nees.

Corolla 3–3.5 cm, ca. 1 cm wide at mouth, lobes erect.

Forest margins. Naturalized in Guangdong, Guangxi, and Yunnan [tropical Asia; Pacific islands].

Asystasia gangetica subsp. *gangetica* occurs from India and Sri Lanka through SE Asia and Malesia to several Pacific islands. Exactly where the subspecies is native in E Asia and eastward is not confirmed.

2b. *Asystasia gangetica* subsp. *micrantha* (Nees) Ensermu in Seyani & Chikuni, Proc. XIII Plenary Meeting AETFAT 1: 343. 1994.

小花十万错 xiao hua shi wan cuo

Asystasia coromandeliana var. *micrantha* Nees in A. Candolle, Prodr. 11: 165. 1847; *A. micrantha* (Nees) Y. F. Deng & N. H. Xia.

Corolla 1.2–1.5 cm, ca. 0.5 cm wide at mouth, middle lobe of lower lip slightly reflexed.

Forest margins, roadsides. Naturalized in Guangdong and Taiwan [Africa, SW Asia, Indian Ocean islands, Madagascar].

3. *Asystasia salicifolia* Craib, Bull. Misc. Inform. Kew 1918: 367. 1918.

囊管花 nang guan hua

Herbs to 1 m tall. Stems 4-angled, pilose. Petiole ca. 5 mm, sparsely hirsute; leaf blade lanceolate, (5–)12–18 × (1.2–)1.8–2.8 cm, glabrous or hirsute along veins, secondary veins 6–9 on each side of midvein, base attenuate and decurrent onto petiole, margin entire, apex acuminate. Racemes terminal or rarely axillary, 5–10 cm; bracts triangular, 2–3 × ca. 1 mm, pilose with gland-tipped trichomes; bracteoles similar to bracts. Pedicel 1–3 mm, pilose. Calyx 5–6 mm, outside pilose with gland-tipped trichomes; lobes lanceolate. Corolla red to purplish red, 3.5–4 cm, outside gland-tipped pilose, inside pubescent in throat; lobes ovate, 5–6 × ca. 5 mm. Stamens included; filaments glabrous, longer pair ca. 1 cm, shorter pair ca. 0.8 cm; anther thecae oblong, ca. 3 mm. Ovary pilose; style ca. 2.8 cm, base pilose; stigma apically 2-cleft. Capsule and seeds not seen. Fl. Aug–Oct, fr. Nov–Jan.

Forests. Yunnan [India, Laos, Myanmar, Thailand].

Specimens identified as “*Asystasia henryi*” (C. Y. Wu, Index Fl. Yunnan. 2: 1669. 1984), which is not a validly published name, belong here.

Outside of China variation in *Asystasia salicifolia* also includes corollas pinkish to purplish (or rarely entirely white) and leaf blade margins entire to subsinuate.

4. *Asystasia nemorum* Nees in Wallich, Pl. Asiat. Rar. 3: 90. 1832.

十万错 shi wan cuo

Herbs to 1 m tall, perennial. Stems pilose. Leaf blade narrowly ovate to ovate-lanceolate, 6–12 × 3–5 cm, abaxially pilose along veins, adaxially glabrous or pilose along veins, secondary veins 6–9 on each side of midvein, base attenuate, margin undulate-crenulate, apex acuminate. Racemes terminal or axillary, 5–9 cm; bracts triangular, 2–3 × ca. 1 mm, pilose with gland-tipped trichomes; bracteoles similar to bracts. Pedicel 1–2 mm. Calyx 5–6 mm, outside pilose with gland-tipped trichomes; lobes lanceolate. Corolla red to purplish red, ca. 2.2 cm, outside pilose with gland-tipped trichomes, inside barbate in throat; lobes ovate, 4–5 × ca. 3.5 mm, unequal. Ovary and style pilose; stigma slightly 2-cleft. Capsule 1.8–2.2 cm. Seeds irregularly obovate in outline, 2–4 × ca. 2.5 mm, tuberculate-rugose. Fl. Aug–Oct, fr. Nov–Feb.

Paddy fields, streamsides, thickets. Guangdong, Guangxi, Yunnan [India, Laos, Myanmar, Thailand, Vietnam].

The plants misidentified as *Asystasia chelonoides* Nees by C. C. Hu (FRPS 70: 215. 2002) belong here.

Asystasia salicifolia can be difficult to distinguish from *A. nemorum*, and Chinese plants treated as these taxa might be conspecific. Indeed, according to R. Kiew and K. Vollesen (Kew Bull. 52: 965–971. 1997), *A. nemorum* has a compact inflorescence with flowers clustered toward the apex, a long and slender corolla tube, blue corollas, and is known only from Peninsular Malaysia (where cultivated) and Java (where native). It is possible that the plants treated here as *A. nemorum* are either not that species or represent cultivated plants of that species (which is used medicinally). *Asystasia* remains much in need of revisionary studies.

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