

1. Subfam. APOSTASIOIDEAE

拟兰亚科 ni lan ya ke

Chen Xinqi (陈心启 Chen Sing-chi); Stephan W. Gale, Phillip J. Cribb

Small to medium-sized terrestrial herbs with woody bases. Roots elongate, fibrous, aerial then branched in soil, sometimes bearing root-nodules; rhizome scaly or absent. Shoots branched or unbranched, erect, leafy. Leaves spirally arranged, leathery, plicate, spreading or suberect, green. Inflorescences terminal, racemose, few to many flowered; bracts persistent. Flowers almost regular but usually slightly zygomorphic, concolorous; pedicel obscure to short, twisted or not, with a torus; ovary 3-locular. Sepals spreading, entire, cuspidate, with thickened midribs. Petals free, cuspidate; lip similar to petals or slightly broader. Column short, straight to curved, style fused to base of filaments only; anthers 2 or 3, with 2 equal or unequal thecae each 2-locular; pollen powdery, not forming pollinia; staminode present or absent; style free in upper part, cylindrical, fleshy; stigma terminal, rounded to 2- or 3-lobed. Fruit capsular or berrylike, disintegrating into 3 valves. Seeds ovoid to ellipsoidal with a terminal appendage.

Two genera and ca. 17 species: confined to tropical Asia from China across to the Solomon Islands and the Philippines; two genera and four species (one endemic) in China.

1. APOSTASIA Blume, Bijdr. 423. 1825.

拟兰属 ni lan shu

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Adactylus (Endlicher) Rolfe; *Apostasia* [unranked] *Adactylus* Endlicher; *Niemeyera* F. Mueller (1867), not F. Mueller (1870).

Herbs, erect, glabrous. Rhizome scaly, producing a few proplike roots; roots sometimes bearing tubers. Stem simple or branched, rather slender, leafy. Leaves clustered or well spaced, plicate, usually recurved along margins, forming a tubular awn at apex, base contracted and then dilating and amplexicaul. Inflorescences terminal or subterminal, often arching or sometimes pendulous, usually branched; floral bracts relatively small. Flowers erect, not resupinate, almost actinomorphic; ovary 3-locular, slender, not distinct from pedicel. Sepals similar, cymbiform, slightly fleshy. Petals similar, yellow to white, cymbiform; lip similar to petals though sometimes slightly larger. Column erect or curved, with 2 fertile stamens, with or without a central staminode; anthers clasping style, with 2 locules of subequal to distinctly unequal length; filaments usually short, adnate to style; staminode (if present) opposite to dorsal sepal; pollen not cohering to form pollinia; style cylindrical; stigma terminal, capitate. Fruit a capsule, narrowly cylindrical, shallowly longitudinally 3-ribbed. Seeds black at maturity, with a rigid testa.

About seven species: NE India, Nepal, and Bhutan, north to S Japan, through SE Asia to New Guinea and N Australia; three species (one endemic) in China.

- 1a. Sepals 6–9 mm; anthers 4–5 mm; column with 2 quadrate projecting wings below staminode 1. *A. odorata*
1b. Sepals 4–6 mm; anthers 1.5–2.8 mm; column lacking wings.
2a. Stem simple; leaves linear, 10–18 cm; inflorescence many flowered 2. *A. wallichii*
2b. Stem branched; leaves ovate to ovate-lanceolate, 1.4–2.6 cm; inflorescence 1–4-flowered 3. *A. ramifera*

1. *Apostasia odorata* Blume, Bijdr. 423. 1825.

拟兰 ni lan

Apostasia platystylis J. J. Smith; *A. selebica* J. J. Smith; *A. thorelii* Gagnepain.

Plants 15–40(–50) cm tall. Rhizome elongate; roots proplike, 1–3 mm in diam. Stem erect or prostrate toward base, usually not branched, with several tubular sheaths toward base. Leaves many; blade lanceolate to linear-lanceolate, 6–18 × 0.7–1.9 cm, apex with an awn 3–11 mm; petiole-like base 1–2 cm. Inflorescence terminal, often nodding, conic, with 1–3 lateral branches, usually more than 10-flowered; floral bracts ovate to ovate-lanceolate, 4–9 mm. Flowers ca. 1 cm in diam.; ovary and pedicel 15–22 mm. Sepals pale yellow, narrowly oblong, 6–9 × 1.5–2.4 mm, 3-veined, margin crisped, apex shortly mucronate. Petals similar to sepals but with thickened midvein, pale yellow; lip similar to petals, ca. 10 × 2.5 mm. Column ventrally with 2 projecting wings below staminode; wings

quadrate, ca. 0.7 mm, longitudinally sulcate; filaments ca. 1 mm; anthers sublinear, 4–5 mm, base sagittate, apex apiculate, with locules unequal in length; staminode subcylindrical, slightly shorter than style, adnate to style for most of its length though distal ca. 1 mm free; style 5–6 mm, extending slightly beyond anthers, apex with slightly dilated stigma. Capsule cylindrical, 15–20 × 2–3 mm. Fl. May–Jun, fr. Jun–Jul.

Forests; ca. 700 m. N and S Guangdong (Wengyuan, Zengcheng), SW Guangxi (Longzhou), Hainan, S Yunnan (Mengla, Simao) [Cambodia, India, Indonesia, Laos, Malaysia, Thailand, Vietnam].

2. *Apostasia wallichii* R. Brown in Wallich, Pl. Asiat. Rar. 1: 75. 1830.

剑叶拟兰 jian ye ni lan

Apostasia alba Rolfe; *A. curvata* J. J. Smith; *A. gracilis* Rolfe; *A. lucida* Blume ex Siebe; *A. papuana* Schlechter; *A. stylioides* (F. Mueller) H. G. Reichenbach; *Niemeyera stylioides* F. Mueller.

Plants ca. 40 cm tall. Rhizome short; roots proplike, 1.5–2.5 mm in diam. Stem suberect or prostrate toward base, not branched, with several tubular sheaths at base; sheaths to 1 cm, several veined. Leaves many, often clustered toward base of stem; blade linear to sublinear, 10–15(–18) × 0.7–1.2 cm, apex acuminate and with an awn 2–20 mm; petiole-like base 1–4 cm. Inflorescence arising from distal leaf axils, recurved, pendulous, or suberect, racemose or with a few lateral branches, 4–7 cm, many flowered; floral bracts lanceolate, 3–4 mm. Flowers 0.7–1 cm in diam.; pedicel and ovary 13–18 mm. Sepals yellow, linear to narrowly oblong-lanceolate, 4–6 × ca. 1.2 mm, 3–5-veined, apex mucronate. Petals similar to sepals, yellow; lip similar to petals but usually slightly broader. Column lacking wings; filaments ca. 0.5 mm; anthers narrowly ovoid, 1.5–2.5 mm, base sagittate; staminode subcylindric, adnate to style for most of its length though distal ca. 0.5 mm free; style ca. 3.5 mm, extending slightly beyond anthers, apex with slightly dilated stigma. Capsule cylindrical, 12–25 × 1.4–2 mm. Fl. Aug.

Tropical forests, crevices, along streams; ca. 1000 m. Hainan, SW Yunnan (Yingjiang) [Bangladesh, Cambodia, India, Indonesia, S Japan, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Australia].

2. NEUWIEDIA Blume, Nov. Pl. Expos. 12. 1833.

三蕊兰属 san rui lan shu

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Herbs, erect. Rhizome usually retrorse, with several stout aerial roots. Stem often stiff and woody at base, not branched. Leaves several to many, plicate, basally contracted into a clasping, petiole-like stalk. Inflorescence erect, terminal, racemose, not branched; peduncle with several foliaceous sterile bracts; floral bracts relatively large, green. Flowers resupinate, almost actinomorphic, not opening widely; ovary 3-locular, distinct from pedicel. Sepals and petals often connivent. Sepals similar or lateral ones slightly oblique, fleshy. Petals similar; lip usually slightly different in shape and larger than petals. Column straight, often short, with 3 fertile stamens; central stamen often shorter than lateral ones; lateral stamens often with locules unequal in length; anthers free but filaments connate at base and adnate to style for much of their length; pollen not cohering to form pollinia; style narrowly cylindrical, apex with slightly dilated stigma. Fruit either a berry or a dry capsule dehiscent at maturity. Seeds black, with rigid testa, sometimes with dilated elongate appendages at both ends.

About ten species: from S China through SE Asia and New Guinea to the SW Pacific islands; one species in China.

1. Neuwiedia singaporeana (Wallich ex Baker) Rolfe, Bull. Misc. Inform. Kew 1907: 412. 1907.

三蕊兰 san rui lan

Tupistra singaporeana Wallich ex Baker, J. Linn. Soc., Bot. 14: 581. 1874; *Neuwiedia balansae* Baillon ex Gagnepain; *N. curtisii* Rolfe; *N. zollingeri* H. G. Reichenbach var. *singaporeana* (Wallich ex Baker) de Vogel.

Plants 40–50 cm tall. Rhizome ca. 10 cm, 1–1.5 cm in diam., nodes with slightly lignified proplike roots. Stem short. Leaves many, nearly tufted toward base of stem; blade lanceolate to oblong-lanceolate, 25–40 × 3–6 cm, abaxially with conspicuous convex veins, margin membranous, apex long acuminate; petiole-like base 5–10 cm. Rachis 6–8 cm, 10–75-flowered, glandular pubescent; floral bracts ovate to ovate-lanceo-

3. Apostasia ramifera S. C. Chen & K. Y. Lang, Acta Phytotax. Sin. 24: 349. 1986.

多枝拟兰 duo zhi ni lan

Plants ca. 13 cm tall. Rhizome elongate. Stem suberect or prostrate toward base, branched, with several tubular sheaths at base; branches 1–3 cm. Leaves many, spaced along stem; blade ovate to ovate-lanceolate, 1.4–2.6 × 0.4–0.8(–1.2) cm, apex with an awn 1–2 mm; petiole-like base 0.7–1.5 cm. Inflorescence arising from leaf axils near apex of stem and branches, arching or pendulous, racemose, 1–2 cm, 1–4-flowered; floral bracts ovate to lanceolate, 2–4 mm, 3–5-veined. Flowers small, ca. 0.5 cm in diam.; ovary and pedicel 8–11 mm. Sepals spreading, oblong, 4–5 × ca. 1 mm, 3-veined, margin undulate, apex shortly mucronate. Petals similar to sepals but slightly shorter and broader, yellow; lip similar to petals. Column lacking wings but ventrally dilated and with 2 ridges below staminode; filaments ca. 0.5 mm; anthers narrowly ovoid, 2.5–2.8 mm, base sagittate, extending slightly beyond style; staminode slightly shorter than style, adnate to style for almost its entire length; style ca. 3 mm, apex with slightly dilated stigma. Capsule not known. Fl. May, fr. Jun.

• Dense forests. SW Hainan.

late, 1–1.5 cm, outer surface glandular pubescent especially on veins. Flowers with ovary elliptic, sparsely glandular pubescent. Sepals white or buff-ochre, oblong to narrowly elliptic, 15–18 × ca. 4 mm, outer surface glandular pubescent, apex aristate; dorsal sepal usually slightly smaller than lateral sepals. Petals greenish white, obovate to broadly cuneate-obovate, ca. 16 × 5–6 mm, outer surface glandular pubescent especially on midvein, apex mucronate; lip similar to petals but with a thickened midvein. Column suberect; anthers linear, 5–6 mm, with 2 unequal locules at base; central stamen with a long, slender, costate filament ca. 8 mm; lateral stamen with flat, costate filaments, ca. 3.5 × 0.7 mm; style ca. 7 mm. Fruit orange to red. Fl. May–Jun.

Forests; ca. 500 m. Hainan (Baoting, Ding'an), Hong Kong, SE Yunnan (Hekou) [Indonesia, Malaysia, Singapore, Thailand, Vietnam].