

13. FORDIOPHYTON Stapf, Ann. Bot. (Oxford) 6: 314. 1892.

异药花属 yi yao hua shu

Gymnagathis Stapf (1892), not Schauer (1843); *Stapfiophyton* H. L. Li.

Herbs, erect or creeping, sometimes stoloniferous. Stems 4-sided, sometimes succulent or base subwoody. Leaves petiolate to almost sessile; leaf blade with secondary veins (1 or)2 or 3(–5) on each side of midvein, tertiary veins parallel, quaternary veins reticulate but usually inconspicuous, margin usually denticulate or serrulate. Inflorescences terminal, umbellate or cymose panicles; peduncle long; bracts subulate, small, caducous. Flowers 4-merous. Pedicel usually 4-sided, 2-bracteolate. Hypanthium campanulate to funnel-shaped, membranous, 4-sided or 8-ribbed. Calyx lobes usually triangular, membranous, apex apiculate. Petals pink, red, purple, or rarely white, oblong to obovate, base oblique. Stamens 8, whorls unequal in shape and length. Longer stamens usually pink to purplish red; anthers oblong to oblong-linear, longer than filaments, opening by 1 apical pore, base lengthened and forked or unappendaged. Shorter stamens pale yellow or white; anthers oblong, 1/3 or 1/2 longer than filaments, base usually not forked. Connective base sometimes minutely inflated. Ovary inferior, campanulate, narrowly ovate, or oblong, apex with a membranous 4-lobed crown, margin ciliate. Capsule campanulate to cup-shaped, apex truncate, 4-lobed, longitudinally dehiscent; hypanthium exceeding capsule, 8-ribbed. Seeds cuneate, small (ca. 1 mm), angular, testa tuberculate.

Nine species: China, Vietnam; nine species (eight endemic) in China.

- 1a. Leaves in a basal or sub-basal rosette; leaf blade adaxially with white spots and tuberculate.
 - 2a. Stems densely brown hirsute 3. *F. peperomiifolium*
 - 2b. Stems glabrous except for reddish spiny trichomes at nodes 8. *F. brevicaulis*
- 1b. Leaves not as above.
 - 3a. Leaves of a pair highly unequal and asymmetric, blade membranous 4. *F. strictum*
 - 3b. Leaves of a pair not unequal or only slightly unequal but then blade not membranous.
 - 4a. Leaf blade secondary veins 3–5 on each side of midvein.
 - 5a. Leaf blade glabrous 6. *F. cordifolium*
 - 5b. Leaf blade puberulous, strigose, villous, or densely pilose.
 - 6a. Stems terete, densely puberulous 2. *F. degeneratum*
 - 6b. Stems 4-angular, villous 9. *F. repens*
 - 4b. Leaf blade secondary veins 1 or 2 on each side of midvein, or if 3 then blade elongate oblong or lanceolate, not cordate-ovate.
 - 7a. Inflorescences cymose, paniculate, or umbellate, 13–20 cm 5. *F. faberi*
 - 7b. Inflorescences cymes or umbels, 3–7.5 cm.
 - 8a. Peduncle 1.5–3 cm; herbs 13–21 cm tall 1. *F. breviscapum*
 - 8b. Peduncle (2.5–)4–7.5 cm; herbs 50–100 cm tall 7. *F. longipes*

1. *Fordiophyton breviscapum* (C. Chen) Y. F. Deng & T. L. Wu, Novon 14: 429. 2004.

短葶无距花 duan ting wu ju hua

Stapfiophyton breviscapum C. Chen, Bull. Bot. Res., Harbin 4(3): 57. 1984.

Herbs 13–21 cm. Stems 4-sided, narrowly winged on angles, margin of wings with sparse glandular trichomes or setose, otherwise glabrous. Petiole 0.5–2 cm, laterally narrowly winged, margin of wings sometimes with sparse glandular trichomes; leaf blade ovate to sublanceolate, (2.5–)5–8.5 × (1–)2–3.5 cm, papery, abaxially sparsely strigose on veins, sometimes bullate, adaxially strigose, secondary veins 1 on each side of midvein, margin serrate with each tooth having a terminal seta. Inflorescences terminal cymes, 3–5 cm; peduncle 1.5–3 cm. Pedicel 3–5 mm, 4-sided, narrowly winged on angles, margin of wings sometimes with sparse glandular trichomes. Hypanthium narrowly funnel-shaped, ca. 5 mm, 4-sided, winged on angles, margin of wings with sparse glandular trichomes. Calyx lobes broadly triangular, apex acuminate with an aristate tip. Petals pink, oblong, ca. 7.5 × 3 mm, apex acute. Longer stamens ca. 1.6 cm; anthers oblong-linear, ca. 7 mm. Shorter stamens ca.

6 mm; anthers oblong, ca. 2 mm. Ovary narrowly ovate, apex truncate and with a 4-lobed membranous crown; hypanthium 3–4 × 2–2.5 mm, 4-sided, 8-veined, with sparse glandular trichomes. Fl. Aug, fr. Sep–Oct.

• Sparse to dense forests, trailsides, valleys, mountain slopes, streamsides, soil rich in humus; 800–1500 m. Guangdong, Hunan.

2. *Fordiophyton degeneratum* (C. Chen) Y. F. Deng & T. L. Wu, Novon 14: 429. 2004.

败蕊无距花 bai rui wu ju hua

Stapfiophyton degeneratum C. Chen, Bull. Bot. Res., Harbin 4(3): 58. 1984.

Herbs 7–20 cm tall, stoloniferous, erect or repent. Stems succulent, terete, usually slightly red, densely puberulous. Petiole 2–2.5 cm; leaf blade ovate to broadly ovate, 5–8(–9) × 3–4(–6) cm, membranous to subpapery, abaxially puberulous and sparsely strigose, adaxially strigose and densely pilose with base sometimes having white spots, secondary veins 3 or 4 on each side of midvein, base truncate to cordate, margin shallowly serrulate with each tooth having a terminal seta, apex acuminate to obtuse. Pedicel ca. 1 mm but 2–3 mm in fruit, puberulous

and with sparse glandular trichomes. Calyx lobes broadly triangular, apex acute with a setose tip. Petals pink, red, or purplish red, obovate-elliptic to oblong, 6–8 × 2–3.5 mm, slightly oblique, with sparse glandular trichomes, apex acute to long acute. Stamens 8, outer whorl fertile, inner whorl sterile. Fertile stamens ca. 1.3 cm; anthers lanceolate-oblong, ca. 6 mm. Sterile stamens filiform, 6–10 mm. Ovary ovoid, apex truncate and with a membranous 4-lobed crown, crown margin abruptly denticulate. Capsule broadly ovate, 4-sided, 4-lobed; hypanthium ca. 4 × 4 mm, with glandular trichomes. Fl. Apr–May, fr. Jun.

- Sparse forests, valleys, damp and shaded places, streamsides, open places, rock crevices; 200–300 m. Guangdong, Guangxi.

3. *Fordiophyton peperomiifolium* (Oliver) Hansen, Bull. Mus. Natl. Hist. Nat., B, Adansonia 14: 425. 1993 [“1992”].

无距花 wu ju hua

Sonerila peperomiifolia Oliver, Icon. Pl. 19: t. 1814. 1889; *Gymnagathis peperomiifolia* (Oliver) Stapf; *Stapfiophyton peperomiifolium* (Oliver) H. L. Li.

Herbs, succulent. Root stock ca. 1 cm thick, with densely fibrous roots. Stems very short, densely brown hirsute. Leaves in a basal or sub-basal rosette of 3 or 4; petiole 4–14(–20) cm, densely hispid, with glandular trichomes, or rarely glabrescent; leaf blade ovate, ovate-elliptic, or broadly ovate, 5.5–11 × 3–7.5 cm, papery to submembranous, abaxially usually purple and setose on veins, adaxially with white spots and tuberculate after shedding of dense trichomes, secondary veins 3 or 4 on each side of midvein, base subcordate, cordate, or rarely rounded, margin denticulate with each tooth having a terminal seta, apex broadly acute. Inflorescences compound cymes, hirsute on nodes otherwise glabrous; peduncle 14–35 cm. Pedicel to 1.2 cm but to 1.9 cm in fruit, with sparse glandular trichomes and puberulous. Calyx lobes triangular, ca. 1.7 × 0.8 cm, oblique, apex acute to shortly acuminate with a setose tip. Longer stamens ca. 2.5 cm; anthers oblong-linear, ca. 1.2 cm. Shorter stamens ca. 1.2 cm; anthers oblong, ca. 4.5 mm. Ovary oblong, apex truncate and with a membranous ciliate crown. Capsule funnel-shaped, 4-sided, 8-ribbed, ± hispid, apex truncate. Fl. Mar–Apr, fr. Apr.

- Low hills, damp places, moist soil on stones. Guangdong.

4. *Fordiophyton strictum* Diels, Bot. Jahrb. Syst. 65: 113. 1932.

劲枝异药花 jin zhi yi yao hua

Fordiophyton longipetiolatum S. Y. Hu; *F. polystegium* Handel-Mazzetti.

Herbs or sometimes shrublets, 0.6–2 m tall, much-branched. Stems 4-sided, sulcate, glabrous, usually pilose or setose at nodes. Petiole 8(–25) mm or less, sometimes white small maculate, glabrous; leaves of a pair highly unequal and asymmetric, leaf blade broadly lanceolate, 6.5–11.5(–15) × 2–4(–5) cm, oblique, membranous, both surfaces sparsely puberulous, abaxially sometimes white small maculate, secondary veins (1 or) 2 on each side of midvein, base shallowly cordate to oblique, margin serrulate with each tooth having a terminal seta, apex acuminate. Inflorescences terminal cymes, ca. 8.5 cm, with glandular trichomes; bracts cordate, ca. 4 mm, mem-

branous, caducous, glabrous. Pedicel short. Hypanthium ca. 4 mm, 8-ribbed, with white small macula, with sparse glandular trichomes or glabrescent. Calyx lobes triangularly broadly ovate, with sparse glandular trichomes or not, base auriculate, margin entire, apex with 1 glandular trichome at tip. Petals reddish or purple, oblong, ca. 1 cm, appressed sparsely strigose, apex oblique with 1 glandular trichome at tip. Longer stamens purplish red; filaments ca. 1 cm, glabrous; anthers linear, ca. 1.5 cm, curved, base lengthened and forming a forked spur ca. 3.5 cm. Shorter stamens yellow; filament ca. 7 mm; anthers oblong, ca. 4 mm, base spurred. Ovary inferior, 4-celled, apex with a membranous ciliate crown. Capsule campanulate, 6(–5) mm in diam., 4-lobed, membranous crown exerting calyx by ca. 2 mm; hypanthium glabrous or with sparse glandular trichomes. Fl. (Aug–)Sep, fr. Dec.

- Dense forests, hillsides, valleys, damp and shaded places, grassy areas; 900–2200 m. Guangxi, Yunnan [Vietnam].

5. *Fordiophyton faberi* Stapf, Ann. Bot. (Oxford) 6: 314. 1892.

异药花 yi yao hua

Blastus lyi H. Léveillé; *Bredia cavaleriei* H. Léveillé & Vaniot (1906), not (H. Léveillé) Diels (1933); *B. mairei* H. Léveillé; *Fordiophyton cantonense* Stapf; *F. fordii* (Oliver) Krasser; *F. fordii* var. *pilosum* C. Chen; *F. fordii* var. *vernycinum* Handel-Mazzetti; *F. maculatum* C. Y. Wu ex Z. Wei & Y. B. Chang; *F. multiflorum* C. Chen; *Oxyspora cavaleriei* H. Léveillé; *Sonerila fordii* Oliver.

Herbs or shrublets, 30–150 cm tall. Stems 4-sided, narrowly winged on angles or lacking wings, with small white spots, glabrous. Petiole 1.5–7 cm, often white-maculate, glabrous or shortly setose; leaf blade broadly lanceolate, oblong, ovate, or rarely lanceolate, (5–)10–22 × 2–8 cm, membranous, abaxially glabrescent or minutely puberulous and with white spots, adaxially glabrous, appressed puberulous, sometimes sparsely strigose between veins, sparsely pilose, or sometimes with glandular trichomes and white spots, secondary veins 2 or 3 on each side of midvein, base subcordate to rarely subcuneate, margin inconspicuously serrulate with each tooth having a terminal seta, apex acuminate. Inflorescences terminal, cymose paniculate or umbellate, 13–20 × ca. 8 cm, to 50-flowered; peduncle 2–10(–15) cm, glabrous; bracts usually purplish red, imbricate at base of pedicel, broadly ovate to suborbicular, 1–1.8 × 1.2–2 cm, caducous. Pedicel 5–15 cm, 4-sided, with dense glandular trichomes or glabrous; bracteoles obovate to elliptic. Hypanthium funnel-shaped, 1–1.5 cm, 4-sided, 8-ribbed, with glandular trichomes, sometimes with white spots. Calyx lobes long triangular to ovate-triangular, 4.5–5 mm, with sparse glandular trichomes, margin glandular ciliate, apex obtuse. Petals pink to reddish purple, apex oblique with 1 glandular trichome at tip. Longer stamens with filament ca. 1.1 cm; anthers linear, ca. 1.5 cm, curved, base lengthened and forming a forked spur. Shorter stamens with filament ca. 7 mm; anthers oblong, ca. 3 mm, base obtuse. Ovary apex with membranous ciliate crown. Capsule campanulate, 6–10 mm, apex 4-lobed; hypanthium exceeding capsule, with glandular trichomes or glabrous. Fl. Jun–Oct, fr. Aug–Nov.

• Sparse to dense forests, mountain slopes, valleys, hillsides, side of ravines, shaded damp places, streamsides, grassy areas, soil rich in humus; 500–1800 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang.

6. *Fordiophyton cordifolium* C. Y. Wu ex C. Chen, Bull. Bot. Res., Harbin 4(3): 61. 1984.

心叶异药花 xin ye yi yao hua

Herbs to 70 cm tall. Stems 4-sided, narrowly winged on angles, glabrous. Petiole (3–)6–15 cm, both sides winged, apex ± setose; leaf blade cordate to ovate-cordate, 5–13 × 4–9.5 cm, papery to submembranous, often with small white spots, glabrous, secondary veins 4 or 5 on each side of midvein, base cordate, margin sparsely serrulate, apex broadly acuminate to acute. Inflorescences terminal, umbellate panicles, densely many-flowered; peduncle 10–17 cm, glabrous; bracts caducous. Pedicel 4-sided, 5–10 mm. Hypanthium funnel-shaped, ca. 8 mm, 4-sided, glabrous. Calyx lobes oblong to ovate, 6–8 × 3–4 mm, apex obtuse to acute. Petals lavender, ovate, ca. 11 × 7 mm, oblique, apex acute. Longer stamens ca. 2.1 cm; anthers linear, ca. 1 cm, base shortly spurred; connective decurrent, forming a spur. Shorter stamens ca. 1 cm; anthers ovate, ca. 4 mm. Ovary half inferior, obovate, apex with a membranous crown. Fl. Mar–Apr.

• Forests, valleys, damp places. Guangdong (Xinyi).

7. *Fordiophyton longipes* Y. C. Huang ex C. Chen, Fl. Yunnan. 2: 116. 1979.

长柄异药花 chang bing yi yao hua

Herbs 50–100 cm tall. Stems 4-sided, winged on angles, with small white spots, glabrous. Petiole 2.5–5.5 cm, white-spotted; leaf blade oblong-lanceolate to elliptic, 13–21 × 5–6.7 cm, abaxially furfuraceous squamose, adaxially glabrous and often with white spots near base, secondary veins 2 on each side of midvein, base cuneate, margin ciliate and entire or sparsely serrulate, apex acuminate. Inflorescences terminal, umbellate, many-flowered; peduncle (2.5–)4–7.5 cm, winged; bracts broadly obovate, ca. 1.6 × 1 cm, caducous, densely furfuraceous squamose. Pedicel ca. 5 mm but to 9 mm in fruit, glabrous. Hypanthium funnel-shaped, ca. 1.2 cm, 8-ribbed, glabrous. Calyx lobes triangular-ovate, ca. 4 mm, base subauriculate, apex obtuse. Petals white, elliptic (in bud), ca. 8 mm, oblique. Longer stamens (in bud) with filament ca. 5 mm; anthers linear, ca. 8 mm, base lengthened and forming a forked spur; connective minutely bulged. Shorter stamens ca. 5 mm; anthers oblong, ca. 2 mm. Ovary inferior, 4 lobed, apex with a membranous crown. Capsule campanulate, ca. 6 mm in diam., apex 4-lobed, crown exerted ca. 1.5 mm beyond calyx; hypanthium 8-ribbed, glabrous. Fl. May, fr. Jul.

• Dense forests, valleys, shaded damp places; 500–1200 m. Yunnan (Pingbian).

8. *Fordiophyton brevicaule* C. Chen, Acta Phytotax. Sin. 18: 62. 1980.

短茎异药花 duan jing yi yao hua

Herbs to 15 cm tall (including inflorescence), stoloniferous. Stems 2–3 cm, 4-sided, glabrous except for reddish spiny

trichomes at nodes. Leaves in a basal or sub-basal rosette; petiole 1–3 cm, both sides sparsely spreading setose, abaxially ± with glandular trichomes; leaf blade elliptic to ovate-elliptic, 3.5–8 × 2–5 cm, papery to subpapery, abaxially sparsely setose on veins otherwise glabrous, adaxially glabrous and minutely tuberculate, secondary veins 3 on each side of midvein, base cordate, margin sparsely denticulate with each tooth having a terminal seta, apex acute. Inflorescences terminal, cymose paniculate, 9–11-flowered; peduncle 4.5–11 cm, glabrous; bracts 2, lanceolate, ca. 6 mm. Pedicel ca. 5 mm but to 1.3 cm in fruit, glabrous. Hypanthium narrowly funnel-shaped, 4–6 mm, 4-sided, glabrous. Calyx lobes lanceolate, ca. 7 × 2 mm, apex acuminate. Petals purple, ovate, ca. 9 × 5 mm, apex with 1 glandular trichome at tip. Longer stamens ca. 1.4 cm; anthers linear, ca. 8 mm, base an obtuse forked spur; connective minutely bulged. Shorter stamens ca. 6.2 mm; anthers ovate, ca. 1.2 mm.

Ovary half inferior, obovate, apex truncate and with a membranous crown. Capsule broadly campanulate to almost cup-shaped, ca. 6 mm in diam.; hypanthium exceeding capsule, 4-sided. Fl. Jun.

• Near coast, below hills, grassy areas, shaded damp places; near sea level. Hong Kong.

9. *Fordiophyton repens* Y. C. Huang ex C. Chen, Fl. Yunnan. 2: 117. 1979.

匍匐异药花 pu fu yi yao hua

Herbs 7–12 cm tall (including inflorescence). Stems creeping, repent, 4-angular, villous. Petiole (2–)4–11 cm, white maculate, densely villous; leaf blade orbicular to ovate-orbicular, 4–7.5 × 4–6.5 cm, papery, abaxially villous on veins otherwise furfuraceous squamose, adaxially furfuraceous squamose and sparsely strigose, secondary veins 3 or 4 on each side of mid-vein, base cordate, margin densely denticulate with each tooth having a terminal seta, apex shortly acute to retuse. Inflorescences terminal, umbellate, 3–6-flowered; peduncle 7–12 cm, glabrous or sparsely villous. Pedicel ca. 5 mm, glabrous. Hypanthium funnel-shaped, ca. 1.4 cm, 4-sided, glabrous. Calyx lobes long triangular-ovate, ca. 5 mm, margin entire, apex obtuse. Petals pink, obovate, ca. 1.7 cm, oblique. Longer stamens pink; filaments linear, ca. 1.4 cm, base lengthened forming a forked spur; connective base slightly bulging. Shorter stamens white or whitish yellow; filaments ca. 6 mm; anthers oblong, ca. 3 mm. Ovary obovate, apex with a membranous ciliate crown. Capsule campanulate, ca. 5 mm in diam., apex 4-lobed, crown slightly exerted from calyx or not; hypanthium exceeding capsule, 8-ribbed, glabrous. Fl. and fr. May–Jun.

• Dense forests, valleys, shaded damp places; 1000–1600. Yunnan (Pingbian).

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