

2. ASARUM Linnaeus, Sp. Pl. 1: 422. 1753.

细辛属 xi xin shu

Asiasarum F. Maekawa; *Geotaenium* F. Maekawa; *Heterotropa* C. Morren & Decaisne; *Japonasarum* Nakai.

Herbs perennial; annual growth modules consisting of 2–4 cataphylls, 1 or 2 foliage leaves, and a terminal flower. Rhizomes short and vertical or long and horizontal; rhizomes and roots often pungently aromatic. Stems herbaceous. Foliage leaves solitary or paired on each growth module (when paired appearing opposite), usually long petiolate, often cordate or sagittate, margin entire. Flowers terminal, solitary (rarely paired). Perianth uniseriate, actinomorphic (rarely slightly zygomorphic). Calyx adnate to ovary to varying degrees; sepals either connate beyond attachment to ovary and forming a tube or free and forming false tube above ovary; tube cupular, urceolate, campanulate, funnellform, or cylindric, often ribbed or tessellate on adaxial surface, constricted or open at throat (orifice), throat with or without narrowly projected, contiguous shelf of tissue (orifice ring); lobes 3, erect, spreading, or reflexed. Stamens 12 in 2 series, rarely with 3 staminodes; filaments long to almost absent; anthers extrorse. Ovary inferior or half-inferior, 6-loculed; carpels fully connate. Styles 6, free or united into column, apex entire or 2-lobed; stigma terminal or lateral. Fruit a fleshy or spongy capsule, splitting irregularly when ripe. Seeds convex dorsally, plane or grooved ventrally, with fleshy funicle at base. $2n = 12, 24, 26$.

About 90 species: mostly in SE Asia, a few species in North America, one species endemic to Europe; 39 species (34 endemic) in China.

No material of *Asarum sprengeri* Pampanini (Nuovo Giorn. Bot. Ital., n.s., 18: 113. 1911) has been seen. It is possibly related to *A. chinense*. The unpublished name "*Asarum campaniforme*" is in use among horticulturalists for a plant of apparently Chinese origin, which has large bell-shaped flowers with whitish interior of the calyx tube and almost black calyx lobes.

- 1a. Sepals free or connate beyond attachment to ovary, without distinct tube or only with very short one; sepals abaxially pubescent; stamen filaments usually longer than anthers; styles connate into column, apex entire or notched; stigmas terminal; ovary inferior.
 - 2a. Sepals connate beyond attachment to ovary, forming a calyx tube.
 - 3a. Calyx actinomorphic, lobes triangular, apically acute; styles slender; stigmas not radiating downward; leaves paired on flowering shoots, solitary on nonflowering shoots.
 - 4a. Stamens 6–9; flowers (including lobes) less than 1 cm; calyx lobes erect 6. *A. debile*
 - 4b. Stamens 12; flowers (including lobes) more than 1.5 cm; calyx lobes spreading 7. *A. caudigerellum*
 - 3b. Calyx slightly zygomorphic, lobes triangular-orbicular to rounded-ovate, apically rounded; styles short and thick, stigmas radiating downward, subdecurrent; leaves paired on flowering and nonflowering shoots.
 - 5a. Leaf blade narrowly ovate or ovate-lanceolate, apex acuminate; anthers 0.8–1.2 mm; connectives less than 0.3 mm 11. *A. epigynum*
 - 5b. Leaf blade ovate, ovate-cordate, or broadly ovate, apex acute or obtuse; anthers 2–3 mm; connectives 0.7–1.3 mm.
 - 6a. Leaf blade 13–22 cm; stamen filaments 0.4–0.7 mm 9. *A. yunnanense*
 - 6b. Leaf blade 5–10 cm; stamen filaments less than 0.4 mm 10. *A. geophilum*
 - 2b. Sepals free beyond attachment to ovary (sometimes connivent but not connate).
 - 7a. Calyx lobes erect or spreading, caudate to acuminate, rarely acute.
 - 8a. Shoots elongate, internodes 2–6 cm 3. *A. cardiophyllum*
 - 8b. Shoots condensed, internodes less than 2 cm.
 - 9a. Calyx lobe abruptly caudate at apex, tail 10–25 mm; style lobes entire, stigmas terminal 1. *A. caudigerum*
 - 9b. Calyx lobe gradually caudate at apex, tail 2–4 mm; style lobes notched, stigmas at base of notch 2. *A. renicordatum*
 - 7b. Calyx lobes reflexed and appressed to false tube, rounded, obtuse, or acute.
 - 10a. Plants densely covered with long white hairs, hairs turning black when dried 4. *A. pulchellum*
 - 10b. Plants only sparingly to moderately pubescent, hairs remaining white when dried.
 - 11a. Leaves paired on vegetative shoots; stamens and styles slightly exerted 5. *A. caulescens*
 - 11b. Leaves solitary on vegetative shoots; stamens and styles included 8. *A. himalaicum*
 - 1b. Sepals connate beyond attachment to ovary, forming variously shaped tube; sepals abaxially glabrous, rarely pubescent; stamen filaments very short or nearly lacking; styles free or rarely united at base, apex often notched or 2-cleft; stigmas lateral, rarely terminal; ovary superior or inferior.
 - 12a. Stamen filaments longer than anthers; leaves paired on vegetative shoots; styles short; calyx tube without laminate ring.
 - 13a. Calyx lobes erect or spreading, never reflexed at anthesis; leaf blade apex shortly acuminate or acute, adaxially sparsely pubescent 12. *A. sieboldii*
 - 13b. Calyx lobes reflexed at anthesis; leaf blade apex acute or obtuse, adaxially shortly pubescent along veins 13. *A. heterotropoides*
 - 12b. Stamen filaments usually very short; leaves solitary on vegetative shoots; styles long; calyx tube usually with

lamine ring at throat.

- 14a. Styles entire at apex, rarely slightly 2-cleft; stigmas terminal or subterminal.
- 15a. Calyx tube strongly constricted at throat, adaxial surface tessellate (sometimes only inconspicuously transversely corrugate), orifice ring present.
- 16a. Rhizomes long spreading, horizontal; leaf blade elliptic or ovate, rarely cordate, apex acuminate; calyx tube gradually dilated above orifice forming short neck, then divided into lobes 14. *A. chinense*
- 16b. Rhizomes short, vertical; leaf blade cordate or ovate-cordate, apex acute to obtuse; calyx tube without neck, divided immediately into lobes 15. *A. ichangense*
- 15b. Calyx tube slightly or not constricted at throat, adaxial surface longitudinally rugose, orifice ring absent.
- 17a. Leaf blade ovate-cordate to ovate, both surfaces glabrous, adaxially shiny; lateral calyx lobes erect or spreading; connectives obtuse; styles connate, apex with 6, erect, slightly 2-cleft arms 16. *A. hongkongense*
- 17b. Leaf blade triangular-ovate to narrowly ovate, pubescent, adaxially not shiny; lateral calyx lobes reflexed; connectives awl-shaped; styles 6, free, apex entire 17. *A. fukienense*
- 14b. Styles conspicuously 2-fid or notched at apex; stigmas lateral.
- 18a. Calyx tube inner surface tessellate.
- 19a. Calyx tube slightly or not at all constricted at throat, orifice ring narrow (ca. 1 mm or less wide) or absent.
- 20a. Calyx tube broadly cupular or subglobose, orifice ca. 15 mm in diam., ring absent 18. *A. splendens*
- 20b. Calyx tube subcylindric to campanulate, orifice 4–8 mm in diam., ring absent or present.
- 21a. Calyx lobes adaxially pubescent, spreading, orifice ring absent 22. *A. taipingshanianum*
- 21b. Calyx lobes adaxially glabrous (sometimes papillose), erect or slightly spreading, orifice ring present.
- 22a. Leaf blade broadly cordate to reniform-cordate, length and width subequal; calyx lobes adaxially smooth, without papillate area 19. *A. forbesii*
- 22b. Leaf blade triangular-oblong to triangular-ovate, length greater than width; calyx lobes adaxially papillose or rugose at base.
- 23a. Leaves 6–17 × 5–16 cm; petiole 8–25 cm; calyx lobes 1.5–2 × 2–2.5 cm, with rounded papillose area at base (Sichuan) 21. *A. bashanense*
- 23b. Leaves 3–7 × 2.3–2.9 cm; petiole 5–8 cm; calyx lobes ca. 0.4 × 0.5 cm, irregularly thickened, glandular-rugose at base (Taiwan) 20. *A. crassisepalum*
- 19b. Calyx tube strongly constricted at throat, orifice ring broad and evident (2.5–5 mm wide).
- 24a. Stigmas elongate, linear-oblong or oblong-ovoid; style apex hooked; calyx lobe margins undulate.
- 25a. Leaf blade triangular-ovate, abaxially with purple veins; petiole streaked reddish brown; stamens oblong; connectives thick and notched at apex; stigmas linear-oblong; style apex distinctly hooked 23. *A. macranthum*
- 25b. Leaf blade ovate-cordate or narrowly ovate, abaxially with green veins; petiole uniformly green; stamens triangular; connectives obtuse or acute, entire at apex; stigma oblong-ovoid; style apex obscurely hooked 24. *A. crispulatum*
- 24b. Stigmas not elongate, rounded to ovoid; style apex not hooked; calyx lobe margins hardly undulate.
- 26a. Flower 2–2.5 cm in diam., calyx tube urceolate, 1–1.2 × 1.1–1.4 cm, orifice ring ca. 1 mm wide 28. *A. porphyronotum*
- 26b. Flowers more than 3 cm in diam.; calyx tube subcylindric or conic, 1.5–2 × 0.7–1.5 cm, orifice ring 1.5–3 mm wide.
- 27a. Petiole 4–7 cm, pilose at maturity; calyx 2.5–3 cm in diam. 27. *A. chengkouense*
- 27b. Petiole 10–21 cm, glabrous at maturity; calyx 3–6 cm in diam.
- 28a. Connectives slightly extended beyond anthers, apex awl-shaped; calyx lobes broadly ovate, 2–3 × 3–4 cm 25. *A. delavayi*
- 28b. Connectives not extended beyond anthers, apex rounded; calyx lobes subrotund, ca. 1 × 2 cm 26. *A. hypogynum*
- 18b. Calyx tube inner surface with longitudinal ridges, sometimes with crossbars, but not tessellate.
- 29a. Calyx tube abruptly swollen toward middle or above, forming barrel-shaped dilated zone.
- 30a. Calyx lobes with pinkish, triangular papillate area at base; tube above abruptly swollen into broad disk which is longitudinally ridged, orifice very constricted, ring broad 29. *A. inflatum*
- 30b. Calyx lobes with white or yellowish, circular or semicircular pulvinate area at base; tube with robust dilated zone at middle inner surface without ridges, orifice ring absent.
- 31a. Calyx tube swollen forming girdle-like ring near middle, lobes with papillate transverse rows at base, orifice ca. 1 cm in diam.; peduncle 1–5 cm 30. *A. maximum*
- 31b. Calyx tube swollen with girdle-like ring near apex, lobes without papillate transverse rows, orifice small, less than 1 cm in diam.; peduncle 2–9.5 cm 31. *A. insigne*

- 29b. Calyx tube cylindric or enlarged gradually, but lacking prominent dilated zone.
- 32a. Calyx tube and abaxial surface of leaf blade densely yellowish brown pubescent; peduncle recurved, pubescent 37. *A. wulingense*
- 32b. Calyx tube and leaf blade abaxially glabrous or only veins with hairs; peduncle erect, subglabrous.
- 33a. Orifice ring absent or inconspicuous (rarely formed by papillae, but not as a contiguous ring); calyx tube 2–5 cm, slightly or not at all constricted at throat.
- 34a. Calyx 2.5–3 cm wide; tube 2–2.5 cm, lobes with minute pulvinate area (ca. 2 mm in diam.) or scattered papillae at base, papillae not forming ribs in tube; petiole 2.5–7.5 cm 32. *A. nanchuanense*
- 34b. Calyx 4–5 cm wide; tube 3–5 cm, lobes usually with prominent papillate area at base, over 5 mm in diam., papillae extending in longitudinal rows from base to form ribs in tube; petiole 6–23 cm.
- 35a. Calyx tube erect and symmetric, throat not constricted, rarely with papillate ring; leaf blade triangular-ovate to elliptic-ovate, apex acute to shortly acuminate; rhizomes short, vertical 38. *A. magnificum*
- 35b. Calyx tube often inclined to one side, slightly asymmetric, throat slightly constricted; leaf blade narrowly ovate, triangular-ovate, or oblong-hastate, apex long acuminate; rhizomes elongated, horizontal 39. *A. petelotii*
- 33b. Orifice ring present, conspicuous, 2–3 mm wide; calyx tube 1–2.5 cm, slightly to strongly constricted at throat.
- 36a. Calyx lobes not conspicuously pubescent adaxially.
- 37a. Plants robust, with short rhizomes and thick, fleshy roots; leaf blade narrowly or broadly ovate to triangular-ovate, 11–14 cm wide; flowers usually paired; stamen connectives awl-shaped 33. *A. sagittarioides*
- 37b. Plants slender, with long rhizomes and fibrous roots; leaf blade oblong-ovate or narrowly elliptic-ovate, 5–8 cm wide; flowers solitary; stamen connectives ligulate 34. *A. longerhizomatosum*
- 36b. Calyx lobes densely pubescent adaxially.
- 38a. Calyx tube cylindric, 0.9–1.5 cm in diam.; leaf blade adaxially uniformly green 36. *A. tongjiangense*
- 38b. Calyx tube lantern-shaped, slightly swollen at middle, ca. 2 cm in diam.; leaf blade adaxially faintly white spotted 35. *A. nobilissimum*

1. *Asarum caudigerum* Hance, J. Bot. 19: 142. 1881.

尾花细辛 wei hua xi xin

Asarum arrhizoma H. Léveillé & Vaniot; *A. caudigerum* var. *leptophyllum* (Hayata) S. S. Ying; *A. caudigerum* var. *triangulare* (Hayata) S. S. Ying; *A. leptophyllum* Hayata; *A. leptophyllum* var. *triangulare* Hayata.

Herbs. Rhizomes vertical, 2–4 mm in diam., internodes less than 1 cm. Leaves paired; petiole 5–20 cm, villous; leaf blade adaxially dark green with white blotches along veins, broadly ovate, triangular-ovate, or ovate-cordate, 4–10 × 3.5–10 cm, abaxial surface densely pubescent, adaxial surface sparsely pubescent, base auriculate or cordate, lateral lobes 3–4 × 3–3.5 cm, apex acute or long acuminate; cataphylls ovate or ovate-lanceolate, 0.8–1.3 × 0.4–0.6 cm. Peduncle erect to ascending, 1–2 cm. Calyx green to purplish green, ± campanulate, 2–5 × 1–2 cm; sepals free beyond attachment to ovary, abaxially white villous; pseudotube subglobose, 0.6–1.0 × 0.9–1.5 cm; lobes erect or spreading, 1–3 × 0.4–1.2 cm, base ovate-oblong, apex abruptly narrowed to a slender cauda 10–25 mm. Stamens 12; filaments as long as anthers; connectives extended beyond anthers, ligulate to awl-shaped. Ovary inferior. Styles connate, apex 6-cleft, lobes entire; stigmas terminal. Fl. Mar–May.

Mixed forests, mountain slopes, along streams; 300–1700 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Sichuan, Taiwan, Yunnan [Vietnam].

This species is used medicinally, know as 土细辛 (tu xi xin).

2. *Asarum renicordatum* C. Y. Cheng & C. S. Yang, J. Arnold Arbor. 64: 569. 1983.

肾叶细辛 shen ye xi xin

Herbs. Rhizomes horizontal, ca. 3 mm in diam., internodes less than 1 cm. Leaves paired; petiole 10–14 cm, villous; leaf blade uniformly colored, reniform-cordate or subcordate, 3–4 × 6–7.5 cm, abaxial surface and along margin densely pubescent, adaxial surface sparsely pubescent, base cordate, lateral lobes ca. 0.2 × 0.3 cm, apex rounded or obtuse; cataphylls broadly ovate, ca. 1 × 1 cm. Peduncle recurved, ca. 2.5 cm. Calyx yellowish brown, campanulate, 1.5–2 × 1–1.5 cm; sepals free beyond attachment to ovary, abaxially brown pubescent; pseudotube subglobose, 0.5–1.0 × 1–1.5 cm; lobes erect or spreading, triangular-lanceolate, ca. 1 × 0.4 cm, apex gradually narrowed to a slender cauda 2–4 mm. Stamens 12; filaments longer than anthers; connectives extended beyond anthers, awl-shaped. Ovary inferior. Styles connate, apex 6-cleft, lobes notched; stigmas at base of style lobe notches. Fl. May.

• Mixed forests, mountain slopes, along streams; ca. 700 m. Anhui.

This species is used medicinally.

3. *Asarum cardiophyllum* Franchet, Bull. Mus. Hist. Nat. (Paris) 1: 65. 1895.

花叶细辛 hua ye xi xin

Asarum caudigerum var. *cardiophyllum* (Franchet) C. Y.

Cheng & C. S. Yang.

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes 2–6 cm. Leaves paired; petiole 2–5 cm, puberulent to villous; leaf blade sometimes with white blotches along veins, cordate, 3–5 × 3–5 cm, both surfaces strigose puberulent, base cordate, lateral lobes 2–3 × 2–3 cm, apex acute to rounded; cataphylls linear to broadly elliptic, 4–14 × 2–9 cm. Peduncle erect to ascending, 1.5–2 cm. Calyx green, ± campanulate, 2–3 × 0.6–1 cm; sepals free beyond attachment to ovary, abaxially sparsely white villous; pseudotube subglobose, 0.3–0.6 × 0.8–1 cm; lobes erect or spreading, 1–1.5 × 0.3–0.6 cm, base linear-triangular, apex abruptly narrowed to a slender cauda 5–11 mm. Stamens 12; filaments as long as anthers; connectives extended beyond anthers, rhomboid. Ovary inferior. Styles connate, apex 6-cleft; stigmas terminal. Fl. Mar–May.

• Forests, on mountain slopes, along streams; ca. 1100 m. Sichuan, Yunnan.

4. *Asarum pulchellum* Hemsley, Gard. Chron., ser. 3, 7: 422. 1890.

长毛细辛 chang mao xi xin

Geotaenium pulchellum (Hemsley) F. Maekawa, comb. inval.; *Asarum caulescens* var. *setchuenense* Franchet.

Herbs densely covered with long white hairs, hairs turning black when dried. Rhizomes horizontal, 2–7 mm in diam., internodes 3.5–7.5 cm. Leaves paired; petiole 10–20 cm, densely white villous; leaf blade uniformly colored, ovate-cordate or broadly ovate, 5–8 × 5–9.5 cm, both surfaces densely white villous, base cordate, lateral lobes 1–2.5 × 2–3 cm, apex acute or acuminate; cataphylls ovate, 1.5–2 × 1 cm. Peduncle pendent, 1–2.5 cm. Calyx abaxially purple, adaxially white, urceolate-cylindric, 1–2 × 0.8–1.5 cm; sepals free beyond attachment to ovary, abaxially long villous; pseudotube urceolate, 0.8–1.2 × 0.8–1.4 cm; lobes reflexed, triangular, 0.4–0.8 × 0.6–1 cm, apex obtuse or acute. Stamens 9–12; filaments longer than anthers; connectives extended beyond anthers, ligulate. Ovary inferior. Styles connate, apex 6-cleft; stigmas terminal. Fl. Apr–May.

• Mixed forests; 700–1700 m. Anhui, Guizhou, Hubei, Jiangxi, Sichuan, NE Yunnan.

This species is used medicinally.

5. *Asarum caulescens* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 17: 162. 1872.

双叶细辛 shuang ye xi xin

Asarum brevistylum Franchet; *A. caulescens* f. *geroense* J. Ohara; *A. franchetianum* Diels; *Japonasarum caulescens* (Maximowicz) Nakai.

Herbs sparsely to moderately white pubescent, hairs remaining white when dried. Rhizomes horizontal, 2–3 mm in diam., internodes 3–6 cm. Leaves paired; petiole 6–12 cm, sparsely villous; leaf blade uniformly colored, subcordate, 4–9 × 5–10 cm, adaxial surface sparsely pubescent, base cordate, lateral lobes 1.5–2.5 × 2.5–4 cm, apex acuminate; cataphylls

broadly ovate, ca. 1.3 × 1.3 cm. Peduncle pendent, 1–2 cm. Calyx pink to purplish, cupulate, 0.8–1.3 × 0.8–1.4 cm; sepals free beyond attachment to ovary, abaxially villous, adaxially puberulent; pseudotube subglobose, 0.3–0.6 × 0.8–1.3 cm; lobes reflexed, triangular, 0.3–0.6 × 0.6–0.8 cm. Stamens 12, slightly exerted; filaments as long as anthers; connectives extended beyond anthers, subcylindric. Ovary inferior. Styles connate, apex 6-cleft, slightly exerted; stigmas terminal. Fl. Apr–May.

• Mixed forests, in humus; 700–1700 m. Gansu, Guizhou, Hubei, Shaanxi, Sichuan.

This species is used medicinally.

6. *Asarum debile* Franchet, J. Bot. (Morot) 12: 305. 1898.

铜钱细辛 tong qian xi xin

Herbs. Rhizomes horizontal, 1–2 mm in diam., internodes 1.5–4.5 cm. Leaves paired on flowering modules, solitary on nonflowering modules; petiole 5–12 cm, glabrous; leaf blade uniformly colored, cordate, 2.5–4 × 3–6 cm, both surfaces pubescent along veins or abaxial surface glabrous, base cordate, lateral lobes 0.7–2 × 1–2.5 cm, apex acute or obtuse; cataphylls ovate, ca. 1 × 0.7 cm. Peduncle pendent, 1–1.5 cm. Calyx actinomorphic, purple, campanulate, 0.7–1.4 × 0.5–0.9 cm; sepals connate beyond attachment to ovary, abaxially sparsely white villous; tube subglobose, 0.3–0.5 × 0.5–0.7 cm; lobes erect, triangular, 0.3–0.4 × 0.2–0.3 cm. Stamens 6–9; filaments as long as anthers; connectives not extended beyond anthers, obconic. Ovary inferior. Styles connate, slender, apex 6-cleft; stigmas terminal. Fl. May–Jun.

• Mixed forests, along streams, moist places, rock crevices; 1300–2300 m. Anhui, Hubei, Shaanxi, Sichuan.

This species is used medicinally.

7. *Asarum caudigerellum* C. Y. Cheng & C. S. Yang, J. Arnold Arbor. 64: 571. 1983.

短尾细辛 duan wei xi xin

Herbs. Rhizomes horizontal, 2–3 mm in diam., internodes 3.5–8 cm. Leaves paired on flowering module, solitary on nonflowering modules; petiole 4–10 cm, glabrous; leaf blade uniformly colored, cordate, 3–7 × 4–10 cm, abaxial surface pubescent along veins, adaxial surface sparsely pubescent, base cordate, lateral lobes 1–3 × 2–4 cm, apex acuminate; cataphylls broadly ovate, 1.5–2 × 1–1.5 cm. Peduncle ascending to pendent, 1–1.5 cm. Calyx actinomorphic, brownish purple, campanulate, 1.8–2.7 × 0.8–1.4 cm; sepals connate beyond attachment to ovary, abaxially sparsely white villous; tube subglobose, 0.6–1.2 × 0.9–1.5 cm; lobes spreading, triangular, 0.7–1.0 × 0.7–1.6 cm. Stamens 12; filaments slightly longer than anthers; connectives extended beyond anthers, ligulate. Ovary inferior. Styles connate, slender, apex 6-cleft; stigmas terminal. Fl. Apr–May.

• Thickets, along streams, moist places; 1600–2100 m. Guizhou, Hubei, Sichuan, NE Yunnan.

This species is used medicinally.

8. *Asarum himalaicum* J. D. Hooker & Thomson ex Klotzsch,

Monatsber. Konigl. Preuss. Akad. Wiss. Berlin 1: 585. 1859 ["*himalaycum*"].

蒼叶細辛 tiao ye xi xin

Asarum himalaicum var. *bhutanicum* W. W. Smith.

Herbs sparingly to moderately white pubescent, hairs remaining white when dried. Rhizomes horizontal, 1–2 mm in diam., internodes 3.5–4.5 cm. Leaves solitary (one per module); petiole 10–25 cm, glabrate; leaf blade uniformly colored, cordate or rounded-cordate, 4–8 × 6.5–11 cm, abaxial surface long puberulent, adaxial surface short puberulent, base cordate, lateral lobes 2–4 × 2.5–5 cm, apex shortly acuminate; cataphylls ovate-rounded, 0.5–1 × 0.5–0.7 cm. Peduncle pendent, 3–7 cm. Calyx purplish, subcampanulate, 1–1.5 × 0.8–1.4 cm; sepals free beyond attachment to ovary, abaxially glabrous to white villous, adaxially dark red puberulent; pseudotube subglobose, 0.6–0.8 × 0.8–1.4 cm; lobes reflexed, triangular, 0.3–0.5 mm × 0.6–0.8 cm. Stamens 12, included; filaments ca. 2 × as long as anthers; connectives slightly extended beyond anthers, obconic. Ovary inferior. Styles connate, apex 6-cleft, included; stigmas terminal. Fl. Apr–Jun.

Mixed forests, along streams, moist places; 1300–3100 m. Gansu, Guizhou, W Hubei, Shaanxi, Sichuan, Xizang [Bhutan, India, Nepal, Sikkim].

9. *Asarum yunnanense* T. Sugawara, Ogisu & C. Y. Chen, Acta Phytotax. Geobot. 41: 7. 1990.

云南細辛 yun nan xi xin

Herbs. Rhizomes vertical, 3–4 mm in diam., internodes 0.5–1 cm. Leaves paired; petiole 5–8 cm, villous; leaf blade adaxially deep green with white speckles on veins, cordate-ovate, 13–22 × 7–14 cm, abaxial surface glabrous or pubescent on veins, adaxial surface sparsely hispid, base cordate, apex acute; cataphylls not seen. Peduncle declinate, 2–2.5 cm. Calyx slightly zygomorphic, purplish, campanulate, 1.5–2.5 × 2–3 cm; sepals connate beyond attachment to ovary, abaxially pilose, adaxially dark red pubescent; tube obconic, 0.7–0.8 × 0.7–0.8 cm; lobes spreading, triangular-orbicular, ca. 1.5 × 1.5 cm. Stamens 12; filaments 0.4–0.7 mm, shorter than anthers; anthers 2–3 mm; connectives 0.7–1.3 mm, extended beyond anthers, subcylindric. Ovary inferior. Styles connate, short and thick, apex 6-cleft; stigmas terminal, radiating downward, decurrent. Fl. Mar–Apr.

• S Yunnan (Hekou).

No specimens were seen; the data above are from the original description and figure.

10. *Asarum geophilum* Hemsley, Gard. Chron., ser. 3, 7: 422. 1890.

地花細辛 di hua xi xin

Asarum cavaleriei H. Léveillé & Vaniot; *A. cavaleriei* var. *esquirolii* Léveillé; *A. taiwanense* S. S. Ying; *Geotaenium geophilum* (Hemsley) F. Maekawa, comb. inval.

Herbs. Rhizomes horizontal, 3–4 mm in diam., internodes 0.5–1.5 cm. Leaves paired; petiole 3–15 cm, villous; leaf blade

uniformly colored, orbicular-cordate, ovate-cordate, or broadly ovate, 5–10 × 5.5–12.5 cm, abaxial surface densely yellow-brown pubescent or glabrescent, adaxial surface sparsely pubescent or glabrous, apex acute or obtuse; cataphylls ovate or narrowly ovate, ca. 0.8 × 0.4 cm. Peduncle declinate, 0.5–1.5 cm. Calyx slightly zygomorphic, purplish, subrotate, 1.5–2 × 2–2.5 cm; sepals connate beyond attachment to ovary, abaxially pubescent, adaxially dark red pubescent; tube obconic, ca. 0.5 × 0.6–1 cm; lobes spreading, triangular-orbicular, ca. 0.8 × 1–1.2 cm. Stamens 12; filaments less than 0.4 mm, shorter than anthers; anthers 2–3 mm; connectives extended beyond anthers, subcylindric, 0.7–1.3 mm. Ovary inferior. Styles connate, short and thick, apex 6-cleft; stigmas terminal, radiating downward, decurrent. Fl. Apr–Jun.

• Dense forests, moist valleys; 200–700 m. Guangdong, Guangxi, S Guizhou.

This species is used medicinally, know as 土細辛 (tu xi xin).

11. *Asarum epigynum* Hayata, Icon. Pl. Formosan. 5: 140. 1915.

台灣細辛 tai wan xi xin

Geotaenium epigynum (Hayata) F. Maekawa.

Herbs. Rhizomes horizontal, 4–5 mm in diam., internodes 1–2 cm. Leaves paired; petiole 4–6 cm, villous; leaf blade uniformly colored, narrowly ovate or ovate-lanceolate, 4–9 × 2.5–6.5 cm, abaxial surface densely pubescent, adaxial surface sparsely pubescent on veins and margin, base cordate, lateral lobes 1–2.5 × ca. 2 cm, apex acuminate; cataphylls oblong, ca. 0.8 × 0.4 cm. Peduncle declinate, 1–2 cm. Calyx slightly zygomorphic, greenish purple, subrotate, 1.5–2 × 2–2.5 cm; sepals connate beyond attachment to ovary, abaxially densely pubescent, adaxially dark red pubescent; tube obconic, 0.5–1 × 0.7–0.8 cm; lobes spreading, triangular-reniform or ovate-rounded, ca. 0.8 × 1 cm. Stamens 12; filaments shorter than anthers; anthers 0.8–1.2 mm; connectives extended beyond anthers, ligulate, less than 0.3 mm. Ovary inferior. Styles connate, short and thick, apex 6-cleft; stigmas terminal, radiating downward, decurrent. Fl. Feb–Mar.

• Forests, valleys. Hainan, Taiwan.

12. *Asarum sieboldii* Miquel, Ann. Mus. Bot. Lugduno-Batavi 2: 134. 1865.

漢城細辛 han cheng xi xin

Asarum sieboldii f. *seoulense* (Nakai) C. Y. Chang & C. S. Yang; *A. sieboldii* var. *seoulense* Nakai; *Asiasarum heterotropoides* (F. Schmidt) F. Maekwa var. *seoulense* (Nakai) F. Maekawa; *A. sieboldii* (Miquel) F. Maekawa.

Herbs. Rhizomes vertical or horizontal, 2–3 mm in diam., internodes 1–2 cm. Leaves paired; petiole 8–18 cm, glabrous or pubescent; leaf blade uniformly colored, cordate or ovate-cordate, 4–11 × 4.5–13.5 cm, abaxial surface pubescent only along veins or densely pubescent, adaxial surface sparsely puberulent, base deeply cordate, lateral lobes 1.5–4 × 2–2.5 cm, apex shortly acuminate or acute; cataphylls reniform-rounded, ca. 1.3 × 1.3 cm. Peduncle declinate, 2–4 cm. Calyx dark pur-

ple, urceolate to campanulate, 1–1.5 × 1–1.5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subglobose, 6–8 × 1–1.5 cm, adaxially longitudinally ribbed; lobes erect or spreading, triangular-ovate, ca. 0.7 × 1 cm. Stamens 12; filaments slightly longer than anthers; connectives shortly extended beyond anthers, awl-shaped. Ovary superior. Styles free, short, apex shallowly 2-cleft; stigmas lateral. Fl. Apr–May.

Forests, moist valleys. Liaoning [Korea].

13. *Asarum heterotropoides* F. Schmidt, Mém. Acad. Imp. Sci. Saint Pétersbourg, Sér. 7, 12: 71. 1868.

细辛 xi xin

Asiasarum heterotropoides (F. Schmidt) F. Maekawa.

Herbs. Rhizomes horizontal, 2–3 mm in diam., internodes 0.1–0.5 cm. Leaves paired; petiole 1–15 cm, puberulent; leaf blade uniformly colored, ovate-cordate to subreniform, 4–9 × 5–13 cm, abaxial surface densely pubescent, adaxial surface pubescent along veins, base cordate, lateral lobes 3–4 × 4–5 cm, apex obtuse or acute; cataphylls subrounded, ca. 0.8 × 0.8 cm. Peduncle recurved at anthesis, erect in fruit, 3–5 cm. Calyx purplish brown, broadly urceolate, 1–1.5 × ca. 1 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subcylindric, ca. 1 × 1 cm, adaxially longitudinally ribbed; lobes reflexed, triangular-ovate, ca. 0.7 × 0.9 cm. Stamens 12; filaments slightly longer than anthers; connectives not extended beyond anthers. Ovary superior. Styles free, short, apex shallowly 2-cleft; stigmas lateral. Fl. May.

Forests, mountain slopes, valleys, moist shady areas, occasionally cultivated in S China. Heilongjiang, Jilin, Liaoning [Japan].

Material from China belongs to the endemic form, *Asarum heterotropoides* f. *mandshuricum* (Maximowicz) Kitagawa (*A. sieboldii* Miquel var. *mandshuricum* Maximowicz; *Asiasarum heterotropoides* (F. Schmidt) F. Maekawa var. *mandshuricum* (Maximowicz) F. Maekawa); whereas f. *heterotropoides* is restricted to Japan. The authentic traditional Chinese medicine 细辛 (xi xin).

14. *Asarum chinense* Franchet, J. Bot. (Morot) 12: 303. 1898.

川北细辛 chuan bei xi xin

Asarum chinense f. *fargesii* Franchet; *A. fargesii* Franchet; *A. wulongense* Z. L. Yang.

Herbs. Rhizomes spreading, horizontal, ca. 1 mm in diam., internodes ca. 2 cm. Leaves solitary; petiole 5–15 cm, glabrous; leaf blade adaxially green or along veins white, rarely near midvein white blotched, elliptic or ovate, rarely cordate, 3–7 × 2.5–6 cm, abaxial surface glabrous, adaxial surface sparsely pubescent, base auriculate-cordate, lateral lobes 1.5–2 × ca. 2.5 cm, apex acuminate; cataphylls ovate, 1–1.5 × 0.7–0.8 cm. Peduncle ascending, ca. 1.5 cm. Calyx purple or greenish purple, campanulate, 1.5–2 × 2–2.5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube globose or ovoid-globose, ca. 0.8 × 1 cm, apically constricted and gradually dilated forming a short neck below lobes, adaxially longitudinally ribbed and sometimes inconspicuously transversely corrugate, orifice ring ca. 1 mm wide; lobes spreading, broadly ovate, ca. 1 × 1 cm, base with dense papillae forming semicir-

cular area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, obtuse. Ovary superior or half-inferior. Styles free, apex truncate or slightly notched; stigmas subterminal. Fl. Apr–May.

• Forests, moist valleys; 1300–1500 m. W Hubei, NE Sichuan.

15. *Asarum ichangense* C. Y. Cheng & C. S. Yang, J. Arnold Arbor. 64: 579. 1983.

小叶马蹄香 xiao ye ma ti xiang

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes 0.5–1 cm. Leaves solitary; petiole 3–15 cm, glabrous; leaf blade adaxially dark green, with white patches along midvein, cordate or ovate-cordate, rarely subhastate, 3–6 × 3.5–7.5 cm, abaxial surface glabrous, adaxial surface puberulent along veins and margin, base cordate, lateral lobes 2–4 × 2.5–6 cm, apex acute or obtuse; cataphylls ovate or oblong, ca. 1 × 0.7 cm. Peduncle recurved, ca. 1 cm. Calyx purplish green to dark purple, campanulate-urceolate, 1–1.5 × 1–1.5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube globose, ca. 1 × 1 cm, apically constricted and abruptly dilated to lobes, adaxially tessellate, orifice ring ca. 1 mm wide; lobes triangular-ovate, 1–1.4 × 0.8–1 cm, base corrugate-papillate. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, obtuse, shallowly notched. Ovary superior. Styles free, apex subtruncate; stigmas terminal. Fl. Apr–May.

• Forests, along streams, moist shady areas, open grasslands; 300–1400 m. Anhui, Fujian, Guangdong, Guangxi, Hubei, Hunan, Jiangxi, Zhejiang.

16. *Asarum hongkongense* S. M. Hwang & T. P. Wong Siu, Acta Phytotax. Sin. 28: 406. 1990.

香港细辛 xiang gang xi xin

Herbs. Rhizomes horizontal, ca. 3 mm in diam., internodes 0.8–15 mm. Leaves solitary; petiole 12–30 cm, glabrous; leaf blade uniformly colored, ovate-cordate to ovate, 6–11 × 5–8 cm, both surfaces glabrous, adaxially shiny, base deeply cordate, lateral lobes slightly divaricate, ca. 1.5 × 2–3.5 cm, apex acute; cataphylls ovate, ca. 1.2 × 1 cm. Peduncle ascending, 1.5–4 cm. Calyx purple-green, campanulate-urceolate, ca. 2 × 2.5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube broadly ovoid to subglobose, ca. 1.5 × 1.5 cm, slightly constricted at throat, adaxially longitudinally papillate-rugose, orifice ring inconspicuous; lobes broadly ovate, ca. 1.5 × 1.2 cm, base with purple papillate-corrugate area; lateral lobes erect or spreading. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, obtuse. Ovary subsuperior. Styles connate, apex with 6, erect, slightly 2-cleft arms; stigmas subterminal. Fl. Feb–May.

• Thickets, mountain slopes, moist shady areas; 500–700 m. Hong Kong.

17. *Asarum fukienense* C. Y. Cheng & C. S. Yang, J. Arnold Arbor. 64: 581. 1983.

福建细辛 fu jian xi xin

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes 0.5–1 cm. Leaves solitary; petiole 7–17 cm, yellow pubescent; leaf blade adaxially dark green, occasionally with white

patches, triangular-ovate to narrowly ovate, 4.5–10 × 4–7 cm, abaxial surface densely yellowish brown pubescent, adaxial surface pubescent along midvein, base auriculate-cordate, lateral lobes 2–3 × 1.5–3.5 cm, apex acute or shortly acuminate; cataphylls ovate, ca. 1.5 × 1 cm. Peduncle often recurved, 1–2.5 cm. Calyx purplish green, campanulate, 2–3 × 1.5–2 cm; sepals connate beyond attachment to ovary, abaxially yellowish pubescent; tube cylindrical, ca. 1.5 × 1 cm, not constricted apically, adaxially longitudinally ribbed, orifice ring absent; lobes reflexed, broadly ovate, ca. 1.5 × 1 cm, basal 1/2 with yellowish semicircular pulvinate ring. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, awl-shaped. Ovary superior. Styles 6, free, entire; stigmas subterminal. Fl. Apr–Nov.

• Forests, moist shady valleys; 300–1000 m. Anhui, Fujian, Jiangxi, Zhejiang.

18. *Asarum splendens* (F. Maekawa) C. Y. Cheng & C. S. Yang in H. S. Kiu & Y. R. Ling, Fl. Reipubl. Popularis Sin. 24: 180. 1988.

花脸细辛 hua lian xi xin

Heterotropa splendens F. Maekawa, J. Jap. Bot. 57: 261. 1982; *Asarum chingchengense* C. Y. Cheng & C. S. Yang.

Herbs. Rhizomes horizontal, 2–3 mm in diam., internodes ca. 1.5 cm. Leaves solitary; petiole 8–16 cm, glabrous; leaf blade adaxially often with white blotches, ovate-cordate or nearly hastate, 6–10 × 5–9 cm, abaxial surface glabrous, adaxial surface sparsely pubescent along midvein, base auriculate to subcordate, lateral lobes 2–3.5 × 2–3.5 cm, apex acute; cataphylls oblong, ca. 2 × 1.5 cm. Peduncle recurved, ca. 1 cm. Calyx purplish green, campanulate, 2–3 × 2.5–3 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube broadly cupular to subglobose, ca. 1.4 × 2 cm, slightly constricted at throat, adaxially tessellate, orifice ring narrow, inconspicuous; lobes broadly ovate, ca. 2 × 2.5 cm, base with semicircular corrugate-papillate area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, rounded. Ovary superior. Styles free, apex 2-forked or notched; stigmas lateral. Fl. Apr–May.

• Thickets, grasslands, moist mountain slopes; 800–1300 m. Guizhou, Hubei, Sichuan, NE Yunnan.

19. *Asarum forbesii* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 31: 92. 1887.

杜衡 du heng

Herbs. Rhizomes vertical, 1–2 mm in diam., internodes 0.5–1 cm. Leaves solitary; petiole 3–15 cm, glabrous; leaf blade adaxially dark green with white blotches along midvein, broadly cordate to reniform-cordate, 3–8 × 3–8 cm, abaxial surface glabrous, adaxial surface with short hairs along midvein, base cordate, lateral lobes 1–3 × 1.5–3.5 cm, apex obtuse to rounded; cataphylls reniform-cordate or obovate, ca. 1 × 1 cm. Peduncle ascending, 1–2 cm. Calyx dark purple, cylindrical to campanulate, 1.5–2.5 × ca. 1 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subcylindrical, 1–1.5 × 0.8–1 cm, not constricted at throat, adaxially tessellate, orifice

ring less than 1 mm wide; lobes broadly ovate, 0.5–0.7 × 0.5–0.7 cm, base smooth. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, rounded. Ovary half-inferior. Styles free, apex 2-lobed; stigmas lateral. Fl. Apr–May.

• Forests, moist shady valleys; below 800 m. Anhui, Henan, Hubei, Jiangsu, Jiangxi, Sichuan, Zhejiang.

This species is used medicinally, known as 土细辛 (tu xi xin).

20. *Asarum crassisepalum* S. F. Huang et al., Taiwania 40: 100. 1995 [*“crassusepalum”*].

鸳鸯湖细辛 yuan yang hu xi xin

Herbs. Rhizomes horizontal, 1–2 mm in diam., internodes 0.5–1 cm. Leaves solitary; petiole 5–8 cm, villous; leaf blade abaxially uniformly purplish green, adaxially green with white spots, triangular-oblong to triangular-ovate, 3–7 × 2.3–2.9 cm, abaxial surface glabrous, adaxial surface dotted with glands, pubescent when young, glabrescent with age, base cordate, lateral lobes divaricate, 1–1.4 × ca. 1.7 cm, apex acuminate or acute; cataphylls oblong, to 1 × 0.6 cm. Peduncle ascending to erect, ca. 0.4 cm. Calyx purple, campanulate, 1.5–2 × 1–1.5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subcylindrical, 0.4–0.5 × 0.7–1 cm, slightly constricted at throat, adaxially tessellate, orifice ring less than 1 mm wide; lobes ovate-deltoid, ca. 0.4 × 0.5 cm, base irregularly thickened and glandular-rugose. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, ligulate. Ovary nearly superior. Styles free, apex shallowly 2-lobed; stigmas lateral. Fl. Feb–Apr.

• Forests, lake shores; 1600–1700 m. Taiwan.

No specimens were seen; the data above are from the original description and figure.

21. *Asarum bashanense* Z. L. Yang, Acta Bot. Boreali-Occid. Sin. 5: 50. 1985.

巴山细辛 ba shan xi xin

Herbs. Rhizomes vertical, 2–5 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 8–25 cm, glabrous to sparsely pilose; leaf blade uniformly colored, ovate-cordate to hastate-cordate, 6–17 × 5–16 cm, abaxial surface glabrous, adaxial surface pubescent, base broadly cordate, lateral lobes 2–3 × 3.5–6 cm, apex acute to acuminate; cataphylls ovate to ovate-lanceolate, ca. 1.5 × 1 cm. Peduncle ascending to recurved, 1–5 cm. Calyx deep red, campanulate-rotate, 2–3 × 4–5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube cylindrical, ca. 0.9 × 1–1.5 cm, slightly constricted at throat, adaxially reticulate-corrugate, orifice ring ca. 1 mm wide; lobes broadly ovate, 1.5–2 × 2–2.5 cm, base with a rounded papillose area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, obtuse. Ovary half-inferior. Styles free, apex notched; stigmas lateral. Fl. Mar–Jun.

• Forests, mountain slopes, moist shady areas; 700–900 m. Sichuan.

No specimens were seen; the data above are from the original description and figure. That figure was labeled *“Asarum infaustum”* Z.

L. Yang," but this was clearly in error because this name is otherwise unknown and the same vernacular name as *A. bashanense* was used.

22. *Asarum taipingshanianum* S. F. Huang C. X. Xie & T. C. Huang, *Taiwania* 40: 106. 1995.

太平山细辛 *tai ping shan xi xin*

Herbs. Rhizomes horizontal, 2–3 mm in diam., internodes 1–3 cm. Leaves solitary; petiole 6–8 cm, sparsely pubescent to glabrescent; leaf blade abaxially uniformly pale green or purple, adaxially green with white spots, triangular-oblong, 3.2–5.3 × 2.1–4.7 cm, adaxial surface dotted with glands, glabrescent to sparsely pubescent along veins and margin, base cordate, lateral lobes 1–2 × 1.3–2.3 cm, apex obtuse; cataphylls ovate, to 1 × 1 cm. Peduncle ascending to recurved, ca. 0.4 cm. Calyx purple, campanulate, 1.5–2 × 1–1.5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube campanulate, ca. 1 × 1 cm, slightly constricted at throat, adaxially inconspicuously tessellate, orifice ring absent; lobes spreading, broadly ovate, 0.5–0.8 × 0.4–0.7 cm, adaxially pubescent. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, obconic. Ovary nearly superior. Styles free, apex emarginate; stigmas lateral. Fl. Jan.

- Forests, shady mountain slopes; ca. 1900 m. Taiwan.

No specimens were seen; the data above are from the original description and figure.

23. *Asarum macranthum* J. D. Hooker, *Bot. Mag.* 114: t. 7022. 1888.

大花细辛 *da hua xi xin*

Asarum albomaculatum Hayata; *A. infrapurpleum* Hayata; *A. taitonense* Hayata; *Heterotropa albomaculata* (Hayata) F. Maekawa ex Nemoto; *H. infrapurea* (Hayata) F. Maekawa ex Nemoto; *H. macrantha* (J. D. Hooker) F. Maekawa ex Nemoto; *H. taitoensis* (Hayata) F. Maekawa ex Nemoto.

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes less than 1 cm. Leaves solitary; petiole streaked reddish brown, 10–20 cm, glabrous; leaf blade abaxially greenish, purple along principal veins, adaxially greenish with yellow-green blotches, triangular-ovate, 10–13 cm, both surfaces sparsely pubescent, base deeply cordate, lateral lobes rounded, 1–1.5 × 2–2.5 cm, apex acute; cataphylls broadly ovate, 0.8–1 × 0.6–0.8 cm. Peduncle ascending to erect, ca. 0.9 cm. Calyx dark purple, campanulate, 3–3.5 × 5–6 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube obconic, ca. 1.7 × 2 cm, strongly constricted at throat, adaxially tessellate, orifice ring 4–5 mm wide, broadly laminate; lobes broadly ovate, ca. 2.5 × 2 cm, base with papillate-corrugate area, undulate along margin. Stamens 12, oblong; filaments much shorter than anthers; connectives slightly extended beyond anthers, notched; staminodes 3, petaloid. Ovary superior. Styles free, apex hooked; stigmas lateral, linear-oblong. Fl. May.

- Forests; 500–1000 m. Taiwan.

24. *Asarum crispulatum* C. Y. Cheng & C. S. Yang, *J. Arnold Arbor.* 64: 585. 1983.

皱花细辛 *zhou hua xi xin*

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes less than 1 cm. Leaves solitary; petiole uniformly green, 6–15 cm, pubescent; leaf blade abaxially uniformly light green, adaxially dark green, occasionally with white blotches, ovate-cordate or narrowly ovate, 5–9 × 2.5–5 cm, abaxial surface glabrous, adaxial surface sparsely pubescent along veins and margin, base cordate or auriculate-cordate, lateral lobes 2–3.5 × ca. 4.5 cm, apex acute or shortly acuminate; cataphylls ovate, ca. 2 × 1.3 cm. Peduncle ascending to recurved, ca. 1 cm. Calyx purple-green, rotate, 3–4 × 3–5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube obconic, ca. 1.5 × 1.2–2 cm, strongly constricted at throat, adaxially tessellate, orifice ring ca. 1.5 mm wide; lobes ovate, 1.8–2.2 × 2–2.8 cm, base with papillate-corrugate area, slightly undulate along margin. Stamens 12, triangular; filaments much shorter than anthers; connectives slightly extended beyond anthers, acute to obtuse. Ovary half-inferior. Styles free, apex 2-forked and slightly uncinat; stigmas lateral; oblong-ovoid. Fl. Apr.

- Forests, moist shady areas, mountain slopes, roadsides. Sichuan.

25. *Asarum delavayi* Franchet, *Bull. Mus. Hist. Nat. (Paris)* 1: 66. 1895.

川滇细辛 *chuan dian xi xin*

Asarum maekawae Hara.

Herbs robust. Rhizomes horizontal, 2–3 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 10–21 cm, glabrous; leaf blade abaxially greenish, rarely reddish purple, glossy, adaxially green, occasionally with white blotches or white reticulate veins, ovate or sagittate, 7–15 × 6–11 cm, adaxial surface sparsely pubescent along veins, base auriculate-cordate, lateral lobes 2–6 × 1.5–5 cm, apex long acuminate; cataphylls oblong or ovate, 1–3 × 0.8–1 cm. Peduncle ascending to recurved, 1–3.5 cm. Calyx purple-green, campanulate, 4–5 × 4–6 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subcylindric, ca. 2 × 1.5 cm, strongly constricted at throat, adaxially tessellate, orifice ring 2–3 mm wide; lobes broadly ovate, 2–3 × 3–4 cm, base with papillate-rugose area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, awl-shaped. Ovary nearly superior or half-inferior. Styles free, apex 2-forked; stigmas lateral. Fl. Apr–Jun.

- Forests, thickets, moist shady areas, mountain slopes; 800–1600 m. SW Sichuan, NE Yunnan.

26. *Asarum hypogynum* Hayata, *Icon. Pl. Formosan.* 5: 144. 1915.

下花细辛 *xia hua xi xin*

Asarum grandiflorum Hayata (1915), not Klotzsch (1859); *A. grandiflorum* var. *colocasiifolium* Hayata; *A. hayatanum* F. Maekawa ex Masamune; *Heterotropa hayatana* F. Maekawa; *H. hayatana* f. *colocasiifolia* (Hayata) F. Maekawa ex Nemoto; *H. hypogyna* (Hayata) F. Maekawa ex Nemoto.

Herbs. Rhizomes vertical, 5–6 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 10–18 cm, glabrescent;

leaf blade adaxially green with white spots, oblong-triangular, 13–19.5 × 6.6–20 cm, abaxial surface uniformly pale green, dotted with glands, adaxial surface initially glabrescent, base deeply cordate, lateral lobes 3–9 × 2.8–9.5 cm, apex acuminate or caudate; cataphylls ovate, ca. 0.4 × 0.5 cm. Peduncle ascending, 3–6 cm. Calyx purple-green, campanulate-rotate, 3–3.5 × 3–4 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subcylindric, ca. 0.9 × 1 cm, strongly constricted at throat, adaxially tessellate, orifice ring ca. 1.5 mm wide; lobes subrotund, ca. 1 × 2 cm, base with abundant glands and papillate-corrugate area. Stamens 12; filaments much shorter than anthers; connectives not extended beyond anthers, rounded. Ovary superior or half-inferior. Styles free, apex 2-cleft; stigmas subterminal. Fl. Oct–Jul.

- Forests, shady areas, mountain slopes; 1000–2000 m. Taiwan.

No specimens were seen; the data above are from the original description and figure.

27. *Asarum chengkouense* Z. L. Yang, Acta Bot. Boreal.-Occid. Sin. 5: 54. 1985.

城口细辛 cheng kou xi xin

Herbs. Rhizomes horizontal, 2–3 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 4–7 cm, pilose; leaf blade abaxially light green to purplish, adaxially white variegated between the veins, ovate-cordate to elongate cordate, 7–9 × 4–8 cm, abaxial surface subglabrous, adaxial surface subglabrous, base cordate, lateral lobes 2–4 × 2–5 cm, apex acuminate; cataphylls lanceolate to broadly ovate, ca. 1.5 × 1–1.5 cm. Peduncle recurved, ca. 1 cm. Calyx campanulate, 3–4 × 2.5–3 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subcylindric, 1.2–1.5 × 0.6–1.3 cm, slightly constricted at throat, adaxially corrugate-reticulate, orifice ring ca. 2 mm wide; lobes broadly ovate, 1.5–2 × ca. 1.5 cm, base with papillate-corrugate area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, rounded. Ovary half-inferior. Styles free, apex notched; stigmas lateral. Fl. Jun.

- Forests, mountain slopes; 1000–1200 m. Chongqing.

No specimens were seen; the data above are from the original description and figure.

28. *Asarum porphyronotum* C. Y. Cheng & C. S. Yang, J. Arnold Arbor. 64: 586. 1983.

紫背细辛 zi bei xi xin

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 5–15 cm, glabrescent; leaf blade abaxially uniformly purple-red or greenish, adaxially with or without white blotches, elliptic-oblong to broadly ovate, rarely nearly hastate, 6–10 × 5–7 cm, abaxial surface glabrescent, adaxial surface sparsely pubescent along veins and margin, base auriculate to cordate, apex acute or obtuse; cataphylls broadly ovate, 1–2 × 8–1 cm. Peduncle ascending, 3–6 cm. Calyx purple-green, rotate-urceolate, 1.5–2 × 2–2.5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube urceolate, 1–1.2 × 1.1–1.4 cm, strongly constricted at throat, adaxially tessellate, orifice ring ca. 1 mm wide; lobes broadly triangular-ovate, ca. 0.8 × 1 cm, base densely papillate in a tri-

angular pattern. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, acute to obtuse. Ovary nearly superior. Styles free, apex 2-forked; stigmas lateral. Fl. Apr–May.

- Forests, thickets, moist shady areas. Sichuan.

This species contains carcinogenic substances.

- 1a. Leaf blade adaxially light green, with white blotches, abaxially purplish red; connectives acute 28a. var. *porphyronotum*
- 1b. Leaf blade adaxially dark green, without blotches, abaxially light green; connectives obtuse 28b. var. *atrovirens*

28a. *Asarum porphyronotum* var. *porphyronotum*

紫背细辛(原变种) zi bei xi xin (yuan bian zhong)

Leaf blade abaxially purplish red, adaxially light green, white blotched. Anther connectives acute. Fl. Apr–May.

- Forests, thickets, moist shady areas. Sichuan.

28b. *Asarum porphyronotum* var. *atrovirens* C. Y. Cheng & C. S. Yang, J. Arnold Arbor. 64: 586. 1983.

深绿细辛 shen lu xi xin

Leaf blade adaxially dark green, without blotches, abaxial surface greenish. Anther connectives obtuse.

- Sichuan.

29. *Asarum inflatum* C. Y. Cheng & C. S. Yang, J. Arnold Arbor. 64: 589. 1983.

灯笼细辛 deng long xi xin

?*Asarum dabiieshanense* D. Q. Wang & S. H. Hwang.

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 7–10 cm, puberulent; leaf blade uniformly colored, ovate, triangular-ovate, or subhastate, 4–11 × 5–11 cm, abaxial surface glabrous or puberulent, adaxial surface puberulent along veins and margin, base auriculate, lateral lobes divaricate, 2.5–3.5 × ca. 2.3 cm, apex acute; cataphylls ovate, ca. 1.5 × 1 cm. Peduncle ascending to recurved, ca. 1 cm. Calyx dull purple, campanulate-rotate, inflated at middle, 3–4 × 3–4.5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube lantern-shaped, basal 1/2 cylindric, ca. 1 × 1.5 cm, apical 1/2 abruptly swollen into broad disk with abaxial ridges, ca. 0.9 × 2 cm, narrowly constricted at throat, adaxially densely rugose-ribbed, orifice ring ca. 4 mm wide; lobes ovate, ca. 3.5 × 2.5 cm, base with pinkish triangular corrugate-papillate area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, obtuse. Ovary half-inferior. Styles free, apex 2-forked; stigmas lateral. Fl. May.

- Forests, valleys, moist places, rock fissures. ?Anhui, NE Sichuan.

Asarum dabiieshanense, described from Anhui (Changchong), is included here on the basis of the protologue; further research is needed to clarify its position and status.

This species is used medicinally.

30. *Asarum maximum* Hemsley, Gard. Chron., ser. 3, 7: 422. 1890.

大叶细辛 da ye xi xin

Herbs. Rhizomes horizontal, 2–3 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 10–23 cm, glabrous; leaf blade adaxially dull green, rarely with white blotches, narrowly to broadly ovate, or nearly hastate, 6–13 × 7–15 cm, abaxial surface glabrescent, adaxial surface pubescent along veins and margin, base cordate, lateral lobes 3–7 × 3.5–6 cm, apex acute; cataphylls ovate, 1–1.8 × 0.8–1 cm. Peduncle ascending to recurved, 1–5 cm. Calyx dark purple, campanulate-rotate, 3–4 × 4–6 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube campanulate, ca. 2.5 × 1.5–2 cm, middle portion abruptly swollen forming a robust girdle-like ring near middle abaxially lacking ridges, slightly constricted at throat, adaxially longitudinally ribbed, orifice ring absent or corrugate and not contiguous; lobes broadly ovate, 2–4 × 2–3 cm, basal 1/2 with transversely papillate-corrugate rows, base with white semicircular pulvinate area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, obtuse. Ovary half-inferior. Styles free, apex 2-forked; stigmas lateral. Fl. Apr–May.

• Forests, in humus; 600–800 m. Hubei, Sichuan.

31. *Asarum insigne* Diels, Notizbl. Bot. Gart. Berlin-Dahlem 10: 885. 1930.

金耳环 jin er huan

Asarum gracilipes C. S. Yang ex C. F. Liang; *A. longepedunculatum* O. C. Schmidt.

Herbs. Rhizomes vertical, 2–4 mm in diam., internodes 0.2–0.5 cm. Leaves solitary; petiole 10–20 cm, uncinat-sericeous; leaf blade adaxially with white blotches on lateral veins, narrowly ovate, ovate, or triangular-ovate, 10–15 × 6–11 cm, abaxial surface with tiny oily spots, uncinat-sericeous along veins and margin, adaxial surface sparsely uncinat-sericeous, base deeply auriculate, lateral lobes divaricate, ca. 4 × 4–6 cm, apex acute or acuminate; cataphylls ovate, 1.5–3.5 × 1–1.5 cm. Peduncle ascending to recurved, 2–9.5 cm. Calyx purplish, campanulate-rotate, 3–4 × 3.5–5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube campanulate, 1.5–2.5 × ca. 1.5 cm, apical portion swollen and expanded into a girdle-shaped ring without adaxial ridges, narrowly constricted and triangular at throat, adaxially longitudinally plicate, orifice ring absent; lobes broadly ovate to reniform-ovate, 1.5–2.5 × 2–3.5 cm, base with white semicircular pulvinate area ca. 1 cm wide. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, awl-shaped to broadly ligulate. Ovary inferior. Styles free, apex 2-forked; stigmas lateral. Fl. Apr–Mar.

• Forests, mountain slopes, rock fissures; ca. 500 m. Guangdong. Guangxi. Jiangxi.

32. *Asarum nanchuanense* C. S. Yang & J. L. Wu, J. Arnold Arbor. 64: 591. 1983.

南川细辛 nan chuan xi xin

Herbs. Rhizomes vertical, 3–4 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 2.5–7.5 cm, glabrous; leaf blade abaxially reddish purple, glossy, rarely green, adaxially green with white blotches along veins, cordate or ovate-cordate, 5–7.5 × 6–8.5 cm, abaxial surface glabrous, adaxial surface pubescent along lateral veins, base cordate, lateral lobes divaricate, 2–2.5 × ca. 3.5 cm, apex acute; cataphylls broadly ovate, ca. 2 × 1.8 cm. Flowers usually paired. Peduncle ascending, ca. 1.5 cm. Calyx purplish, urceolate-rotate, 3–4 × 2.5–3 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube cylindric, 2–2.5 × ca. 2 cm, slightly constricted at throat, adaxially longitudinally 10-ribbed, orifice ring inconspicuous or absent; lobes broadly ovate, ca. 1.5 × 1.5 cm, base with small pulvinate area and scattered papillae. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, awl-shaped. Ovary half-inferior. Styles free, apex notched; stigmas lateral. Fl. May.

• Thickets, rock crevices. Chongqing.

33. *Asarum sagittarioides* C. F. Liang, Acta Phytotax. Sin. 13(2): 23. 1975.

慈姑叶细辛 ci gu ye xi xin

Herbs robust, with fleshy roots. Rhizomes vertical, 3–4 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 15–25 cm, glabrous; leaf blade adaxially deep green, rarely blotched, narrowly or broadly ovate to triangular-ovate, 15–25 × 11–14 cm, abaxial surface glabrescent, adaxial surface glabrous, base auriculate-ovate or auriculate, lateral lobes divaricate, 6–11 × 4–6 cm, apex acuminate; cataphylls ovate, ca. 1 × 0.5 cm. Peduncle ascending, 1.5–6 cm. Calyx purplish green, campanulate, 2.5–3 × 2.5–3 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subcylindric, 1.5–2.5 × 0.7–1.2 cm, strongly constricted at throat, adaxially longitudinally ribbed, orifice ring ca. 2 mm wide; lobes ovate-reniform, 1–1.4 × 1.2–1.8 cm, base with papillate-corrugate area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, awl-shaped. Ovary half-inferior. Styles free, apex 2-forked; stigmas lateral. Fl. Nov–Apr.

• Thickets, moist shady areas, mountain slopes, near streams; 900–1200 m. Guangxi.

34. *Asarum longerhizomatosum* C. F. Liang & C. S. Yang, Acta Phytotax. Sin. 13(2): 21. 1975.

长茎金耳环 chang jing jin er huan

Herbs slender, with fibrous roots. Rhizomes horizontal, 2–3 mm in diam., internodes 6–12 cm. Leaves solitary; petiole 7–18 cm, glabrous; leaf blade uniformly colored, oblong-ovate or narrowly elliptic-ovate, 8–14 × 5–8 cm, abaxial surface glabrous, adaxial surface sparsely pubescent, more densely so along veins and margin, base auriculate or nearly hastate, lateral lobes nearly triangular, 3–3.5 × 2–2.5 cm, apex acuminate; cataphylls narrowly ovate, 1–1.5 × 0.5–0.7 cm. Flowers solitary. Peduncle ascending, ca. 1.5 cm. Calyx purplish green, urceolate-campanulate, 2–3 × 2–3 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube cylindric, ca. 1.5 × 1 cm, strongly constricted at throat, adaxially longitudinally

corrugate, orifice ring ca. 2 mm wide; lobes broadly ovate, ca. 1.5 × 1.5 cm, base with papillate-corrugate area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, ligulate. Ovary half-inferior. Styles free, apex 2-forked; stigmas lateral. Fl. Jul–Dec.

• Thickets, open mountain slopes, moist shady areas; ca. 200 m. Guangxi.

The protologue apparently cites two types, “*C. L. Chang 001*” and “*C. L. Chang 002*” deposited in CMMI (Institute of Chinese Materia Medica, Beijing) and IBK (Guangxi Institute of Botany), respectively, which would make the name invalid. However, all other information for these specimens is identical, so we prefer to regard the specimens as holotype and isotype and the name, therefore, as valid.

35. *Asarum nobilissimum* Z. L. Yang, Acta Bot. Boreal.-Occid. Sin. 5: 56. 1985.

高贵细辛 gao gui xi xin

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes less than 1 cm. Leaves solitary; petiole 6–14 cm, glabrous; leaf blade adaxially faintly white spotted, ovate-cordate, 5–11 × 5–10 cm, abaxial surface glabrous, adaxial surface puberulent along veins and margin, base cordate, lateral lobes divaricate, 2.5–3.5 × 2–4 cm, apex shortly acuminate; cataphylls lanceolate. Peduncle recurved, 1–5.5 cm. Calyx deep purple, campanulate-rotate, 3–5 × 4–6 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube lantern-shaped, 1–2 × 1–2 cm, constricted at throat, adaxially longitudinally corrugate, becoming reticulate above, orifice ring 3–4 mm wide; lobes ovate to broadly ovate, 2–3 × ca. 2 cm, base with triangular corrugate-papillate area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, obtuse. Ovary half-inferior. Styles free, apex notched; stigmas lateral. Fl. May.

• Forests, mountain slopes; 800–1100 m. Sichuan.

No specimens were seen; the data above are from the original description and figure.

36. *Asarum tongjiangense* Z. L. Yang, Acta Bot. Boreal.-Occid. Sin. 5: 52. 1985.

同江细辛 tong jiang xi xin

Herbs. Rhizomes horizontal, ca. 3 mm in diam., internodes 0.5–2(–5) cm. Leaves solitary; petiole 8–22 cm, glabrous; leaf blade uniformly green, ovate-cordate to triangular-cordate, or rarely hastate-cordate, 5–13 × 4–10 cm, abaxial surface glabrous, adaxial surface velutinous, base cordate or rarely auriculate, lateral lobes 1.5–2 × 1.5–4 cm, apex acuminate; cataphylls lanceolate, ca. 1.8 × 0.6–1 cm. Peduncle ascending, 1–3.5 cm. Calyx purplish, campanulate, 4–5 × 3–4 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube subcylindrical, 1.2–1.5 × 0.9–1.5 cm, slightly constricted at throat, adaxially longitudinally corrugate, orifice ring 2–3 mm wide; lobes triangular-ovate, 1.5–2 × 1–2 cm, adaxially densely tomentose, base with triangular papillate-rugose area. Stamens 12; filaments shorter than anthers; connectives slightly extended beyond anthers, ligulate. Ovary nearly superior or half-inferior. Styles free, apex notched; stigmas lateral. Fl. Apr–Jun.

• Forests, mountain slopes; 800–1400 m. NE Sichuan.

No specimens were seen; the data above are from the original description and figure.

37. *Asarum wulingense* C. F. Liang, Acta Phytotax. Sin. 13(2): 22. 1975.

五岭细辛 wu ling xi xin

Herbs. Rhizomes vertical, 3–4 mm in diam., internodes less than 5 mm. Leaves solitary; petiole recurved, 7–18 cm, pubescent; leaf blade adaxially green with white blotches, narrowly ovate or ovate-elliptic, rarely triangular-ovate, 7–17 × 5–9 cm, abaxial surface densely brown-yellow pubescent, adaxial surface glabrous or pubescent along lateral veins and margin, base auriculate or auriculate-cordate, lateral lobes divaricate, 2–5 × 1.5–4 cm, apex acute to acuminate; cataphylls ovate, ca. 1.2 × 0.8 cm. Peduncle recurved, ca. 2 cm. Calyx purplish, urceolate-campanulate, 2–3 × 2–3 cm; sepals connate beyond attachment to ovary, abaxially densely yellow pubescent; tube cylindrical, ca. 2.5 × 1.2 cm, constricted at throat, adaxially longitudinally ribbed, orifice ring ca. 1 mm wide; lobes triangular-ovate, ca. 1.5 × 1.5 cm, base with papillate-corrugate area. Stamens 12; filaments much shorter than anthers; connectives extended beyond anthers, ligulate. Ovary inferior. Styles free, apex 2-forked; stigmas lateral. Fl. Dec–Apr.

• Forests, mountain slopes, moist shady areas; ca. 1100 m. Guangdong, Guangxi, Guizhou, Hunan, Jiangxi.

38. *Asarum magnificum* Tsiang ex C. Y. Cheng & C. S. Yang, J. Arnold Arbor. 64: 593. 1983.

祁阳细辛 qi yang xi xin

Herbs. Rhizomes vertical, 2–3 mm in diam., internodes less than 5 mm. Leaves solitary; petiole 6–16 cm, glabrescent; leaf blade adaxially with or without white blotches, triangular-ovate or nearly triangular to elliptic-ovate, 6–13 × 5–12 cm, abaxial surface glabrous, adaxial surface pubescent along mid-vein or over entire surface, base cordate-auriculate, apex acute or shortly acuminate; cataphylls ovate, ca. 1.5 × 0.7 cm. Peduncle recurved, ca. 1.5 cm. Calyx purplish green, urceolate-rotate, 3–5 × 4–5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube cylindrical, 1–5 × 0.8–1.5 cm, not constricted at throat, adaxially longitudinally ribbed with rows of papillae, orifice ring inconspicuous; lobes triangular-ovate, ca. 3 × 2.5–3 cm, base with triangular papillate area. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, acute. Ovary inferior. Styles free, apex 2-forked; stigmas lateral. Fl. Apr–May.

• Forests, thickets, mountain slopes, moist shady areas; 300–700 m. Guangdong, Hunan.

- 1a. Calyx tube 3–5 × ca. 1.5 cm; leaf blade triangular-ovate or nearly triangular, adaxially with white blotches, pubescent only on veins 38a. var. *magnificum*
- 1b. Calyx tube ca. 1 × 0.8 cm; leaf blade elliptic-ovate, adaxially without white blotches, sparsely pubescent 38b. var. *dinghuense*

38a. *Asarum magnificum* var. *magnificum*

祁阳细辛(原变种) qi yang xi xin (yuan bian zhong)

Leaf blade adaxially with white blotches, triangular-ovate or nearly triangular, adaxial surface pubescent only on veins. Calyx tube 3–5 × ca. 1.5 cm.

• Forests, mountain slopes, moist shady areas; 300–700 m. Hunan.

38b. *Asarum magnificum* var. *dinghuense* C. Y. Cheng & C. S. Yang, *J. Arnold Arbor.* 64: 596. 1983.

鼎湖细辛 ding hu xi xin

Leaf blade adaxially without white blotches, elliptic-ovate, adaxial surface sparsely pubescent. Calyx tube ca. 1 × 0.8 cm.

• Thickets, moist shady areas; 300–700 m. Guangdong.

39. *Asarum petelotii* O. C. Schmidt, *Notizbl. Bot. Gart. Berlin-Dahlem* 11: 100. 1931.

红金耳环 hong jin er huan

Herbs. Rhizomes horizontal, 3–4 mm in diam., internodes 6–8 cm. Leaves solitary; petiole 8–23 cm, glabrous; leaf blade uniformly colored, narrowly ovate, triangular-ovate, or oblong-hastate, 13–21 × 6.5–13 cm, abaxial surface pubescent along veins then glabrescent, adaxial surface glabrous, base auriculate or hastate, lateral lobes divaricate, ca. 7 × 6 cm, apex long acuminate; cataphylls ovate-lanceolate, ca. 1.6 × 0.5 cm. Peduncle ascending, 3–5 cm. Calyx purple or greenish purple, urceolate-rotate, 4–5 × 4–5 cm; sepals connate beyond attachment to ovary, abaxially glabrous; tube cylindric, asymmetrically inclined to one side, 3–5 × 1.5–2 cm, slightly constricted at throat, adaxially longitudinally ribbed with rows of papillae, orifice ring inconspicuous; lobes broadly ovate, ca. 2 × 2.5 cm, middle with semirounded purplish area, base with papillae, these forming vertical rows extending basally. Stamens 12; filaments much shorter than anthers; connectives slightly extended beyond anthers, ligulate. Ovary half-inferior. Styles free, apex 2-fid; stigmas lateral. Fl. Feb–May.

Forests, mountain slopes, moist shady areas; 1100–1700 m. S Yunnan [Vietnam].

No specimens were seen; the data above are from the original description and figure.

This species is used medicinally.

Flora of China 5: 246-257. 2003.