

# 1. KADSURA Jussieu, Ann. Mus. Natl. Hist. Nat. 16: 340. 1810.

南五味子属 nan wu wei zi shu

Vines, woody, glabrous (except *Kadsura induta*), dioecious or monoecious. Leaf blade elliptic, ovate, or obovate, papery to leathery, base cuneate (especially when young), broadly cuneate, truncate, or subcordate, margin denticulate to entire, apex acute to acuminate. Flowers unisexual, in axils of leaves or fugacious bracts or occasionally cauliflorous, generally solitary or sometimes in clusters of 2–4. Tepals 7–24. Staminate flowers: stamens 13–80, ± distinct but basally connate or sometimes tightly aggregated into a subglobose mass; pollen 6-colpate, distally syncolpate. Pistillate flowers: carpels 17 to ca. 300, distinct; stigmatic crest forming subulate or laterally flattened “pseudostyle” or modified as subpeltate or irregular “pseudostigma”; ovary with 1–5(–11) pendulous or ventrally attached ovules. Fruit aggregates of apocarps; receptacle ellipsoid or clavate; apocarps ripening red or yellow, subglobose, obovoid, or elongate-obovoid. Seeds 1–5(–11) per apocarp, smooth.

Sixteen species: mainly in E and SE Asia; eight species (four endemic) in China.

- 1a. Stamens essentially distinct with filaments only basally connate; staminate flowers generally with staminodes but occasionally staminodes absent; seeds 10–18 × 7–11 mm ..... 1. *K. coccinea*
- 1b. Stamens tightly aggregated into a compact subglobose head with filaments ± connate but anthers distinct; staminate flowers without staminodes; seeds 2.5–8.5 × 3–8.5 mm.
  - 2a. Young shoots, petioles, and abaxial surface of leaf blades pubescent-tomentose ..... 3. *K. induta*
  - 2b. Entire plant glabrous.
    - 3a. Fruit large, with individual apocarps 7–22 × 6–15 mm; seeds pyriform, discoid, or reniform, 4–8.5 × 4.5–8.5 mm; pistillate flowers with 28–80 carpels.
      - 4a. Leaf blade broad, 1.6–3.2 × as long as wide; apex of torus in staminate flowers generally lacking stamens and with a short extension; seeds pyriform, discoid, or reniform ..... 2. *K. heteroclita*
      - 4b. Leaf blade narrow, 2.2–5.2 × as long as wide; apex of torus in staminate flowers covered with stamens; seeds discoid.
        - 5a. Leaf blade elliptic, papery to subleathery, with slightly arcuate secondary veins ..... 4. *K. angustifolia*
        - 5b. Leaf blade elliptic to oblong, papery, with strongly arcuate secondary veins ..... 5. *K. renchangiana*
    - 3b. Fruit small, with individual apocarps 3.5–11(–15) × 3.5–7(–11) mm; seeds reniform, 2.5–4.5 × 3–6 mm; pistillate flowers with 20–58 carpels.
      - 6a. Flower peduncle 1.2–4(–6.4) cm (staminate), (1–)3–5(–16) cm (pistillate); tepals 10–15(–20) ..... 6. *K. longipedunculata*
      - 6b. Flower peduncle 0.8–2.6 cm (staminate), 1–4 cm (pistillate); tepals 8–13.
        - 7a. Leaf blade 2.5–5(–6.5) cm wide; apocarps 5.5–7.5 mm wide; seeds 4.5–5.5 mm wide ..... 7. *K. japonica*
        - 7b. Leaf blade 2–3 cm wide; apocarps 3.5–4.5 mm wide; seeds 3–4.5 mm wide ..... 8. *K. oblongifolia*

**1. *Kadsura coccinea*** (Lemaire) A. C. Smith, Sargentia 7: 166. 1947.

黑老虎 hei lao hu

*Cosbaea coccinea* Lemaire, Ill. Hort. 2: 71. 1855; *Kadsura ananosma* Kerr; *K. cavaleriei* H. Léveillé; *K. chinensis* Hance ex Benth; *K. coccinea* var. *sichuanensis* Y. W. Law; *K. hainanensis* Merrill; *Schisandra hanceana* Baillon.

Plants glabrous throughout. Petiole 0.9–3(–4.1) cm; leaf blade elliptic to rarely ovate, 7–19 × 2.5–10 cm, papery to leathery, secondary veins 3–8(–12) on each side of midvein, base cuneate, broadly cuneate, or rarely truncate, margin entire or rarely denticulate, apex acute, shortly acuminate, or rarely obtuse. Flower peduncle 0.4–2(–3.1) cm (staminate), 0.7–3.8 cm (pistillate). Tepals 8–16(–24), white, red, purplish red, or occasionally yellowish, largest (0.8–)1.2–2.3 × 0.6–1.2(–1.5) cm. Staminate flowers: stamens 10–50; staminodes generally present at apex of torus. Pistillate flowers: carpels 20–68. Fruit peduncle 2.6–4.9 cm; apocarps red to purplish red, 1.4–2.4 × 0.7–1.7 cm. Seeds 1 or 2 per apocarp, pyriform, 1–1.8 × 0.7–1.1 cm. Fl. May–Jul, fr. Oct–Dec.

Semi-open shrublands and forests; (200–)400–1400(–1900) m.

Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Sichuan, Yunnan [Myanmar, Vietnam].

This species is used medicinally. The fruit is edible.

**2. *Kadsura heteroclita*** (Roxburgh) Craib, Fl. Siam. 1: 28. 1925.

异形南五味子 yi xing nan wu wei zi

*Uvaria heteroclita* Roxburgh, Fl. Ind., ed. 1832, 2: 455. 1832; *Kadsura championii* C. B. Clarke; *K. interior* A. C. Smith; *K. polysperma* Y. C. Yang; *K. roxburghiana* Arnott; *K. watii* C. B. Clarke; *K. wightiana* Arnott.

Plants glabrous throughout. Petiole 0.7–2.9 cm; leaf blade ovate-elliptic to elliptic, 6.5–13.5(–16) × 2.5–6.5(–9.5) cm, ± papery to subleathery, secondary veins 5–9(–16) on each side of midvein, base cuneate to broadly cuneate and often shortly decurrent on petiole, margin entire or denticulate, apex acute to acuminate. Flower peduncle 0.1–2(–3.5) cm (staminate), 0.4–3.3 cm (pistillate). Tepals 10–17(–25), white, cream, or yellow, largest 4.5–20.5 × 3.5–12(–15) mm. Staminate flowers: stamens 40–74; staminodes absent. Pistillate flowers: carpels 28–72. Fruit peduncle 1.4–4.6 cm; apocarps red, 0.7–2.2 × 0.6–1.5 cm.

Seeds 1 or 2(–11) per apocarp, pyriform, discoid, or reniform, 4–5.5(–7.5) × 4.5–7 mm. Fl. Jun–Oct, fr. Oct–Dec.

Forests; 800–2000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Shaanxi, Sichuan, Yunnan [Bangladesh, Bhutan, India, Indonesia (Borneo, Java, Sumatra), Laos, Malaysia (peninsular), Myanmar, Sri Lanka, Thailand, Vietnam].

This species is used medicinally.

**3. *Kadsura induta*** A. C. Smith, *Sargentia* 7: 173. 1947.

毛南五味子 mao nan wu wei zi

Plants with young shoots pubescent-tomentose. Petiole 1.7–2.6 cm, pubescent-tomentose; leaf blade elliptic, 11–15.5 × 5–7 cm, ± papery, abaxially pubescent-tomentose, secondary veins 7–9 on each side of midvein, base cuneate, broadly cuneate, or truncate, margin entire or denticulate, apex shortly acuminate. Flower peduncle 1.1–1.8 cm. Tepals 17–19, largest 10–12 × 6–7 mm. Staminate flowers: stamens 66–72; staminodes absent. Pistillate flowers not seen. Fruit peduncle ca. 4 cm; apocarps red, 1.8–2.2 × 1.4–1.6 cm. Seeds 3 or 4 per apocarp, reniform to pyriform, 6.5–8.5 × 6.5–8 mm. Fl. Jul, fr. Nov.

• Dense forests; 700–1500 m. W Guangxi, SE Yunnan.

**4. *Kadsura angustifolia*** A. C. Smith, *Sargentia* 7: 177. 1947.

狭叶南五味子 xia ye nan wu wei zi

*Kadsura guangxiensis* S. F. Lan.

Plants glabrous throughout. Petiole 1–1.7 cm; leaf blade narrowly elliptic, 9.5–14 × 2.5–4.5 cm, papery to subleathery, secondary veins 7–13 on each side of midvein, base cuneate, margin subentire, denticulate, serrulate, or serrate, apex acuminate to long acuminate. Flower peduncle 9–10 mm (staminate), 1–1.2 cm (pistillate). Tepals 9–15, whitish, largest 7.5–8.5 × 5–6 mm. Staminate flowers: stamens ca. 50; staminodes absent. Pistillate flowers: carpels ca. 80. Fruit peduncle ca. 4 cm; apocarps 9–10.5 × 8–9.5 mm. Seed 1 per apocarp, discoid, 6–7.5 × 6.5–7 mm. Fl. Jun, fr. Sep.

Forests; 900–1800 m. Guangxi [Vietnam].

This species is used medicinally.

**5. *Kadsura renchangiana*** S. F. Lan, *Acta Sci. Nat. Univ. Sunyatseni* 1983(2): 120. 1983.

仁昌南五味子 ren chang nan wu wei zi

Plants glabrous throughout. Petiole 1–2.5 cm; leaf blade elliptic to oblong, 10–15.5 × 2.5–5.5 cm, papery, secondary veins 7–9 on each side of midvein, base cuneate to broadly cuneate, margin subentire, denticulate, lobed-serrulate, or serrulate, apex long acuminate to rarely shortly acuminate. Flower peduncle 2.9–4 cm (staminate), to 11 cm (pistillate). Tepals 9–15, yellow, largest 9.5–10.5 × 7.5–9.5 mm. Staminate flowers: stamens 42–50; staminodes absent. Pistillate flowers: carpels 42–70. Fruit peduncle (2–)10–16.5 cm; apocarps red to black, 1–1.5(–2) × 0.8–1.5 cm. Seed 1 per apocarp, discoid, 6.5–8.5 × 6.5–8.5 mm. Fl. Jun–Jul, fr. Sep–Nov.

• Dense forests; 900–1300 m. NE Guangxi, Guizhou.

**6. *Kadsura longipedunculata*** Finet & Gagnepain, *Bull. Soc. Bot. France* 52(Mém. 4): 53. 1906.

南五味子 nan wu wei zi

*Kadsura discigera* Finet & Gagnepain; *K. omeiensis* S. F. Lan; *K. peltigera* Rehder & E. H. Wilson.

Plants glabrous throughout. Petiole 0.6–1.7(–3) cm; leaf blade elliptic to rarely ovate-elliptic or obovate-elliptic, 5.5–12(–15) × 2–4.5(–6.5) cm, papery to leathery, secondary veins 4–8 on each side of midvein, base cuneate to rarely broadly cuneate, margin subentire, denticulate, serrulate, or serrate, apex shortly to long acuminate. Flower peduncle 1.2–4(–6.4) cm (staminate), (1–)3–5(–16) cm (pistillate). Tepals 10–15(–20), pale yellow, yellow, or occasionally reddish, largest 4–7(–13) × 3–6(–10) mm. Staminate flowers: stamens 26–54; staminodes absent. Pistillate flowers: carpels 20–58. Fruit peduncle 2.5–9.5 cm; apocarps red, purple, or rarely black, 6.5–11.5(–15) × 4.5–6.5(–11) mm. Seeds 1–3 per apocarp, reniform, 3.5–4.5 × 4.5–6 mm. Fl. Jun–Sep, fr. Sep–Dec.  $2n = 28^*$ .

• Forests, especially near rivers; 100–1300(–1700) m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang.

This species is used medicinally. The fruit is edible.

**7. *Kadsura japonica*** (Linnaeus) Dunal, *Monogr. Anonac.* 57. 1817.

日本南五味子 ri ben nan wu wei zi

*Uvaria japonica* Linnaeus, *Sp. Pl.* 1: 536. 1753; *Kadsura matsudae* Hayata.

Plants glabrous throughout. Petiole 0.6–2.3 cm; leaf blade elliptic to rarely ovate-elliptic or obovate-elliptic, 6–10.5(–12.5) × 2.5–5(–6.5) cm, papery to subleathery, secondary veins 5–8 on each side of midvein, base cuneate to broadly cuneate, margin subentire, denticulate, lobed-serrulate, serrulate, or serrate, apex shortly acuminate to acuminate. Flower peduncle 1.1–2.6 cm (staminate), 1.3–3.9 cm (pistillate). Tepals 8–12, yellow, largest 6–9(–12) × 4–7.5 mm. Staminate flowers: stamens 28–50; staminodes absent. Pistillate flowers: carpels 30–48. Fruit peduncle (2–)2.6–4(–6.1) cm; apocarps red to purple, 5.5–10 × 5.5–7.5 mm. Seeds 1–3 per apocarp, reniform, 3–4 × 4.5–5.5 mm. Fl. Apr–Oct, fr. Oct–Dec.  $2n = 28$ .

Forests, often near rivers; near sea level to 2000 m. Taiwan [Japan, Korea].

This species is a horticultural plant with edible fruit. It is used medicinally.

**8. *Kadsura oblongifolia*** Merrill, Philipp. J. Sci., Bot. 23: 241. 1923.

冷饭藤 leng fan teng

Plants glabrous throughout. Petiole 5–14 mm; leaf blade oblong-elliptic to elliptic, 6–10 × 2–3 cm, papery to subleathery, secondary veins 4–6 on each side of midvein, base cuneate to rarely broadly cuneate, margin entire, subentire, or rarely denticulate, apex rounded, acute, or shortly acuminate. Flower peduncle 0.8–1.5 cm (staminate), 1–3 cm (pistillate). Tepals 11–13, yellow to pink, largest 4.5–8 × 3.5–5.5 mm. Staminate flowers: stamens 24 or 25; staminodes absent. Pistillate flowers: carpels 30–50. Fruit peduncle 2–3.2(–3.7) cm; apocarps red, 3.5–8 × 3.5–4.5 mm. Seeds 1 or 2 per apocarp, reniform, 2.5–4 × 3–4.5 mm. Fl. Jul–Nov, fr. Oct–Nov.

• Forests over dry soils; 100–900 m. Guangdong, Guangxi, Hainan.

This species is used medicinally. The fruit is edible.

SCHISANDRACEAE