

17. DRYPETES Vahl, *Eclogae Amer.* 3: 49. 1810.

核果木属 he guo mu shu

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Cyclostemon Blume.

Trees or shrubs, dioecious; indumentum of simple hairs, often absent. Leaves alternate; stipules 2; petioles short; leaf blade simple, base often asymmetrical, margin entire or serrate, venation pinnate. Inflorescences axillary, sometimes grouped into glomerules, racemes, or panicles. Male flowers pedicellate or sessile; sepals 4–6, distinct, usually unequal, imbricate; petals absent; stamens 1–25, 1 to several whorls surrounding disk or outer ones inserted at margin or sinus of disk, inner ones inserted on disk; filaments free; anthers bilocular, usually introrse, rarely extrorse, longitudinally dehiscent; disk flattened or concave, margin shallowly or deeply fid; rudimentary ovary very small or absent. Female flowers solitary, axillary, sometimes on older branches; sepals as in male; petals absent; disk annular; ovary 1- or 2(or 3)-loculed; ovules 2 per locule; style short, stigmatiform; stigmas 1 or 2(or 3), usually dilated, peltate or reniform. Fruit a drupe, subglobose or ovoid, 1- or 2(or 3)-celled, seeds 1 per locule; exocarp leathery or nearly so; mesocarp fleshy or woody; endocarp woody, papery, or crustaceous. Seeds without caruncle; endosperm fleshy; cotyledons larger and flattened.

About 200 species: tropical and subtropical Africa, America, and Asia; 12 species (two endemic) in China.

The timber from several species is valued.

Key to fruiting material

- 1a. Ovary and drupe 1-locular.
 - 2a. Fruits glabrous.
 - 3a. Branchlets and petioles puberulent when young; lateral veins 6–8 pairs; stipules linear, persistent; stamens ca. 25; fruits 1.8–2.5 cm 1. *D. perreticulata*
 - 3b. Branchlets and petioles glabrous when young; lateral veins 9–13 pairs; stipules small, caducous; stamens 12–15; fruits 1–2 cm 2. *D. hoensis*
 - 2b. Fruits pubescent.
 - 4a. Leaf blade acuminate at apex, margin sparsely obtuse-serrate, lateral veins prominent 3. *D. arcuatineria*
 - 4b. Leaf blade shortly acuminate at apex, margin entire or sometimes obscurely obtuse-serrate at upper part, lateral veins obscure.
 - 5a. Trees; branchlets and petioles pubescent when young; fruits angular and rugose 4. *D. obtusa*
 - 5b. Shrubs; branchlets and petioles glabrous; fruits rounded and smooth 5. *D. integrifolia*
- 1b. Ovary and drupe 2(or 3)-locular.
 - 6a. Leaf margins serrate.
 - 7a. Branchlets and petioles pubescent; pedicels 2–4 mm; stamens 13–15; fruits globose, glabrous 6. *D. congestiflora*
 - 7b. Branchlets and petioles glabrous; pedicels 13–18 mm; stamens 10; fruits oblong or ellipsoid, pubescent ... 7. *D. cumingii*
 - 6b. Leaf margins entire.
 - 8a. Fruits ellipsoid-ovoid; leaf blade slightly falcate 8. *D. littoralis*
 - 8b. Fruits globose or subglobose; leaf blade not falcate.
 - 9a. Leaf apex obtuse.
 - 10a. Fruiting pedicels stout, ca. 0.5 cm; leaf blade with 8–10 pairs of lateral veins; fruits 2–2.5 cm in diam. 9. *D. hainanensis*
 - 10b. Fruiting pedicels slender, 1.5–2 cm; leaf blade with 4 or 5 pairs of lateral veins; fruits ca. 1 cm in diam. 10. *D. longistipitata*
 - 9b. Leaf apex caudate-acuminate or acuminate.
 - 11a. Female pedicels to 2 cm, 2.5–4 cm in fruit; leaf blade elliptic-oblong to lanceolate; stamens 4–8 11. *D. indica*
 - 11b. Female pedicels 0.2–0.4 cm in fruit; leaf blade linear-oblong; stamens 12 12. *D. salicifolia*

Key to material with male flowers (not known for *D. integrifolia*, *D. littoralis*, *D. longistipitata*, and *D. obtusa*)

- 1a. Male pedicels 13–18 mm 7. *D. cumingii*
- 1b. Male pedicels to 5 mm.
 - 2a. Stamens 4–8, inserted in sinuses between disk lobes; flowers in elongated inflorescences, branched or unbranched.
 - 3a. Leaf blade margin toothed, reticulate veins distant; filaments short and slightly flattened; shrub to 4 m 3. *D. arcuatineria*

- 3b. Leaf blade margin entire, reticulate veins dense and prominent; filaments terete; trees to 15 m 11. *D. indica*
- 2b. Stamens 10–25, disk annular; flowers in sessile clusters.
 - 4a. Stamens 18–25, filaments flattened, wider at base.
 - 5a. Petiole 8–10 mm; leaf apex obtuse, margin entire 9. *D. hainanensis*
 - 5b. Petiole 3–6 mm; leaf apex acute, margin obtusely serrate 1. *D. perreticulata*
 - 4b. Stamens 10–15, filaments slender, terete.
 - 6a. Branchlets pubescent; leaf blade 4.5–6 cm, lateral veins 7–9 pairs 6. *D. congestiflora*
 - 6b. Branchlets glabrous; leaf blade 6–11 cm, lateral veins 8–14 pairs.
 - 7a. Flowers 1–3 per cluster, with cup-shaped rudimentary ovary 12. *D. salicifolia*
 - 7b. Flowers 3–5 per cluster, without rudimentary ovary 2. *D. hoensis*

1. *Drypetes perreticulata* Gagnepain, Bull. Soc. Bot. France 71: 260. 1924.

网脉核果木 wang mai he guo mu

Trees up to 16 m tall, to 30 cm d.b.h.; bark gray-yellowish, smooth; branchlets angulate, brown pubescent when young, glabrescent. Stipules linear; petiole 3–6 mm, puberulent, glabrescent; leaf blade ovate, elliptic, or oblong, 4.5–12 × 2.5–6 cm, leathery, mostly glabrous, sometimes midrib pubescent when young, base broadly cuneate or rounded, oblique, margin with distal 1/2 sparsely obtusely serrate, apex acute; lateral veins 6–8 pairs, reticulate veins dense and prominent. Male flowers axillary, usually 2 or 3 together, with several bractlets at base; pedicels very short; sepals 4, obovate or oblong, 4.5–6.5 mm, slightly unequal, slightly thickened; disk flattened; stamens ca. 25; filaments flattened, slightly wider at base; anthers oblong; rudimentary ovary absent. Female flowers axillary, usually solitary; sepals and disk as in male; ovary ovoid, 1-celled. Drupes ovoid or ellipsoid, 1.8–2.5 × 1.4–1.8 cm, smooth, glabrous, dark red when ripe; exocarp leathery; mesocarp fleshy; endocarp woody, thinner than mesocarp, 1-seeded. Seeds ovoid, ca. 15 mm; testa crustaceous. Fl. Jan–Mar, fr. May–Oct.

Evergreen forests; below 800 m. Guangdong, Guangxi, Guizhou, Hainan, Yunnan [Thailand, Vietnam].

The wood is used for making vehicles, machinery, building timber, etc.

2. *Drypetes hoensis* Gagnepain, Bull. Soc. Bot. France 71: 259. 1924.

勐腊核果木 meng la he guo mu

Trees up to 20 m tall; branches ash gray, glabrous. Stipules small, ovate-triangular, 1.2–1.5 × ca. 0.8 mm, usually caducous; petiole 5–10 mm; leaf blade ovate to elliptic, 6–11 × 2–5 cm, leathery, base broadly cuneate to rounded, oblique, margin sparsely shallowly crenate, apex shortly caudate, sometimes obtuse; lateral veins 9–13 pairs, obliquely ascending to margins, reticulate veins prominent on both surfaces. Male flowers 3–5-clustered; pedicels ca. 4 mm; sepals 4, unequal, elliptic, 2–3 mm, margins ciliate; stamens 12–15; filaments filamentous; anthers oblong; rudimentary ovary absent. Female flowers solitary or paired; sepals as in male; ovary ovoid, 1-celled. Fruiting pedicels ca. 6 mm; drupes ovoid, 1–2 × 0.8–1.5 cm, glabrous, 1-celled, 1-seeded. Fl. May–Aug, fr. Jul–Oct.

Open evergreen forests on rocky limestone hills; ca. 500 m. S

Yunnan [Thailand, Vietnam].

Material from Thailand appears to differ from Yunnan material by the inconspicuous reticulate veins.

3. *Drypetes arcuatineria* Merrill & Chun, Sunyatsenia 5: 95. 1940.

拱网核果木 gong wang he guo mu

Drypetes arcuatineria var. *elongata* Merrill & Chun.

Erect shrubs up to 4 m tall, glabrous except for pubescent fruits; branches densely lenticellate; branchlets slightly flattened or terete. Petiole 2–5 mm; leaf blade oblong, oblong-lanceolate, or lanceolate, rarely elliptic, 6–15 × 2–6 cm, papery or thinly leathery, base obtuse, margin with sparse obtuse teeth, apex acuminate; lateral veins 7 or 8 pairs, reticulate veins distant. Flowers in racemes or panicles, to 7 cm, sometimes clustered. Male flowers: pedicels ca. 2 mm; sepals 4 or 5 (or 6), elliptic or rounded, margins eroded-lacerate; disk 4–6-fid; stamens 4–6, inserted at sinus of disk; filaments short and slightly flattened; anthers rounded, without rudimentary ovary. Female flowers: sepals and disk as in male; ovary ovoid, 1-celled. Fruiting pedicels ca. 2 mm; drupes solitary or 2–5 grouped in racemose infructescences, axillary or alternate at upper part of branchlets, ovoid, ca. 1 cm, apex acute, sometimes rostrate, 1-celled, 1-seeded; exocarp thinly leathery, pubescent; mesocarp woody; endocarp hard-crustaceous. Seeds ovate, 7–8 mm, apex mucronulate; testa thin, with several, slightly elevated longitudinal ribs. Fl. Apr–Oct, fr. Aug–Apr.

Open forests on slopes; 300–800 m. Guangdong, Guangxi, Hainan, Yunnan [Vietnam].

4. *Drypetes obtusa* Merrill & Chun, Sunyatsenia 5: 96. 1940.

钝叶核果木 dun ye he guo mu

Treelets, ca. 7 m tall; branches gray-white, rugged when dry; branchlets terete or sometimes slightly flattened, shallowly striate, glabrous or slightly pubescent when young. Petiole 6–8 mm; leaf blade oblong, 4–8 × 1.5–3.5 cm, papery or subleathery, abaxially greenish, adaxially green, base cuneate, margin entire, apex obtuse, sometimes retuse; lateral veins 8–10 pairs, obscure. Flowers not seen. Drupes solitary, subellipsoid, ca. 1.5 × 1 cm, usually rugose, angular, pubescent, 1-celled, 1-seeded; epicarp leathery; mesocarp woody, ca. 1 mm thick; endocarp hard-crustaceous; fruiting style very short; stigma 2-lobed, flexed-flabellate. Fr. Jun–Aug.

Evergreen forests; 200–600 m. Guangdong, Guangxi, Hainan, Yunnan [Vietnam].

5. *Drypetes integrifolia* Merrill & Chun, Sunyatsenia 5: 97. 1940.

全缘叶核果木 *quan yuan ye he guo mu*

Erect shrubs. Petiole 6–9 mm, robust, glabrous; leaf blade elliptic to oblong, 8–16 × 3–6.5 cm, papery or subleathery, both surfaces glabrous, base broadly cuneate, margin entire or obscurely toothed toward leaf apex, apex obtuse to shortly acuminate; lateral veins 10–12 pairs, obscure. Flowers not seen. Fruits paired, along upper parts of branchlets; fruiting pedicels ca. 2 mm; persistent sepals 6, ovate or elliptic-ovate, ca. 3.5 mm, margins ciliate; drupes oblong, ca. 12 × 7 mm, pubescent, not angular, apex attenuate, 1-celled, 1-seeded; exocarp leathery when dry; mesocarp woody; endocarp crustaceous; persistent style very short; stigma bifid, nearly flexed-flabellate. Seeds ellipsoid, ca. 8 × 5 mm. Fr. Aug–Sep.

• Open riverine forests or scrub; 200–500 m. Guangdong, Guangxi, Hainan.

6. *Drypetes congestiflora* Chun & T. Chen, Acta Phytotax. Sin. 8: 175. 1963.

密花核果木 *mi hua he guo mu*

Drypetes confertiflora Merrill & Chun, Sunyatsenia 2: 259. 1935, not (J. D. Hooker) Pax & K. Hoffmann (1922).

Trees up to 12 m tall, to 35 cm d.b.h.; bark yellowish, glabrous except for pubescent branchlets, petioles, and bractlets. Petiole 4–10 mm; leaf blade oblong or oblong-ovate, 4.5–6 × 2–4 cm, leathery, base rounded, oblique, margin prominently serrate, apex acuminate; lateral veins ca. 7 pairs, prominent. Male flowers densely clustered; pedicels 2–4 mm; bractlets broadly ovate, ca. 1 mm; sepals 4, obovate or elliptic, 2–3 mm, apex rounded, incurved, slightly unequal, margins ciliate; stamens 13–15; filaments 1–1.5 mm; anthers elliptic, ca. 1.8 mm, connectives broader and red-brown; rudimentary ovary absent. Female flowers: sepals as in male; ovary ovoid, 2-celled. Capsule globose, ca. 1 cm in diam.; exocarp thinly leathery when dry, brownish yellow, smooth; endocarp woody, thin, 2-celled, 1-seeded in each cell. Fl. Feb–Jul, fr. Jun–Oct.

Forested slopes; 300–800 m. Guangdong, Guangxi, Hainan, Yunnan [Philippines].

7. *Drypetes cumingii* (Baillon) Pax & K. Hoffmann in Engler, Pflanzenz. 81(IV. 147. XV): 238. 1921.

青枣核果木 *qing zao he guo mu*

Cyclostemon cumingii Baillon, Étude Euphorb. 562. 1858; *C. iwahigensis* Elmer.

Trees 9–20 m tall, to 50 cm d.b.h.; branchlets yellow pubescent when young, lenticellate. Stipules caducous; petiole 4–8 mm; leaf blade ovate or oblong to ovate-lanceolate, 6–17 × 2.5–6.5 cm, leathery, both surfaces glabrous, adaxially glossy, base cuneate to obtuse, slightly oblique, margin irregularly un-

dulate-serrate or obscurely obtusely so, apex acute to long acuminate; lateral veins 7–9 pairs, reticulate veins prominent. Male flowers clustered, 5–6 mm in diam.; pedicels 13–18 mm, pubescent; sepals 4, broadly ovate, extrorsely flexed, pubescent at base on both surfaces; disk annular, apex lobed; stamens ca. 10. Female flowers: pedicels 10–12 mm; sepals 4, obovate, apex obtuse, densely pubescent; disk margin crenellate; ovary ovoid, 2-locular; stigma obtriangular. Drupes oblong to ellipsoid, 14–16 mm, pubescent; endocarp crustaceous, 2-celled, 1-seeded. Fl. May–Jun, fr. Aug–Dec.

Forested slopes; 300–800 m. Guangdong, Guangxi, Hainan, Yunnan [Philippines].

8. *Drypetes littoralis* (C. B. Robinson) Merrill, Philipp. J. Sci. 29: 380. 1926.

滨海核果木 *bin hai he guo mu*

Cyclostemon littoralis C. B. Robinson, Philipp. J. Sci., C, 3: 198. 1908; *C. mindorensis* Merrill; *C. yamadae* Kanehira & Sasaki; *Drypetes falcata* (Merrill) Pax & K. Hoffmann var. *yamadae* (Kanehira & Sasaki) Hurusawa; *D. yamadae* (Kanehira & Sasaki) Kanehira & Sasaki.

Trees; branches terete, glabrous. Petiole stout, 3–6 mm; leaf blade oblong to oblong-ovate, falcate, 6–10 × 3.5–5 cm, leathery, base acute or broadly cuneate, margin entire, apex obtuse or acute. Flowers not seen. Drupes solitary or 3- or 4-clustered, ellipsoid-ovoid, 12–15 × 8–10 mm; exocarp leathery, appressed-pubescent. Fr. May–Jun.

Seashore forests. Taiwan (Hengchun peninsula, Lan Yu) [Indonesia, Philippines].

9. *Drypetes hainanensis* Merrill, J. Arnold Arbor. 6: 134. 1925.

海南核果木 *hai nan he guo mu*

Trees up to 20 m tall; bark gray to gray-brown; branchlets angulate, with prominent lenticels. Petiole 8–10 mm, usually transversely wrinkled; leaf blade oblong or elliptic to ovate, 5–9 × 2–4 cm, papery or subleathery, base obliquely cuneate or broadly so, margin entire, apex obtuse; lateral veins 8–10 pairs, reticulate veins dense and prominent. Male flowers clustered, axillary; pedicels ca. 4 mm; sepals 4, membranous, ovate or rounded, 6–8 mm, concave, abaxially puberulent; stamens ca. 18; filaments flattened and broad; anthers oblong, ca. 2 mm; disk annular. Female flowers usually solitary, axillary; sepals and disk as in male; ovary ovoid, 2-locular. Fruiting pedicels ca. 5 mm; drupes globose, 2–2.5 cm in diam., scurfy-hairy; exocarp leathery; mesocarp fleshy; endocarp woody, thinner than mesocarp, 2-celled, 1-seeded in each cell. Seeds subelliptic, ca. 1.2 cm. Fl. Feb–Apr, fr. Jun–Aug.

Evergreen forests, among limestone rocks; 200–900 m. Hainan [Thailand, Vietnam].

The timber from *Drypetes hainanensis* is straight, hard, non-splintering, and fine-grained; it is used for vehicle construction, agricultural implements, machinery, etc.

The description given for material from Thailand shows a number

of possibly significant differences and the identity of these plants needs investigation.

10. *Drypetes longistipitata* P. T. Li, J. S. China Agric. Univ. 21(4): 59. 2000.

细柄核果木 xi bing he guo mu

Treelets 3–5 m tall; branchlets pubescent to glabrous. Petiole 3–5 mm, puberulent; leaf blade oblong-ovate, oblong, or lanceolate, 5.5–7.5 × 2–3 cm, papery, both surfaces glabrous, base cuneate or broadly so, margin entire, apex obtuse or shortly acuminate; lateral veins 4 or 5 pairs, delicate. Male flowers not seen. Female flowers solitary or paired; sepals 4, caducous; ovary ovoid, 2-celled, puberulent; styles 2, ca. 1 mm; stigma flabellate. Fruiting pedicels delicate, 1.5–2 cm, puberulent; drupe solitary or paired, subglobose or globose, ca. 1 cm in diam.; exocarp thin and puberulent. Fr. Aug–Sep.

- Forests; 200–500 m. Hainan (Baoting, Sanya).

Drypetes longistipitata is most closely related to *D. hainanensis* and *D. rhakodiskos* (Hasskarl) Bakhuizen f. in habit. It differs by the delicate, longer fruiting pedicels, fewer lateral veins, and smaller fruits.

This taxon was first published as “*Drypetes hainanensis* var. *longistipitata*” (P. T. Li, Acta Phytotax. Sin 26(1): 58. 1988), but that name was not validly published as two types were cited.

11. *Drypetes indica* (Müller Argoviensis) Pax & K. Hoffmann in Engler, Pflanzenr. 81(IV. 147. XV): 278. 1921.

核果木 he guo mu

Cyclostemon indicus Müller Argoviensis, Linnaea 32: 81. 1863; *C. griffithii* J. D. Hooker; *C. hieranensis* Hayata; *C. karapinensis* Hayata; *C. lancifolius* J. D. Hooker; *Drypetes griffithii* (J. D. Hooker) Pax & K. Hoffmann; *D. hieranensis* (Hayata) Pax & K. Hoffmann; *D. karapinensis* (Hayata) Pax & K. Hoffmann; *D. karapinensis* var. *hieranensis* (Hayata) Hurusawa; *D. lancifolia* (J. D. Hooker) Pax & K. Hoffmann; *D. longipes* X. H. Song; *D. nienkui* Merrill & Chun.

Trees to 15 m tall, rarely monoecious, glabrous except for pubescent sepals, ovary, and fruits; branchlets densely lenticellate. Petiole 3–10 mm, usually transversely rugose when dry; leaf blade elliptic-oblong, ovate-oblong, oblong-lanceolate, or lanceolate, 8–15 × 3–6 cm, leathery or thickly papery, base cuneate to rounded, usually oblique, margin entire, apex caudate-acuminate; lateral veins 6–8 pairs, reticulate veins dense and prominent. Inflorescences on slender, leafy, axillary shoots. Male flowers: pedicels 2–10 mm; sepals 4, ca. 2 mm; disk rounded-discoid, entire or margin slightly elevated and shallowly divided; stamens 4–8, inserted at sinus of disk; filaments terete. Female flowers: ovary globose, 2- or 3-celled; styles 2 or 3, elongate; stigma peltate or flabellate, entire. Fruiting pedicels 2.5–4 cm; drupes solitary, globose, 12–22 mm in diam., 2- or 3-celled, 1-seeded; exocarp subleathery-dry; endocarp papery. Fl. and fr. Nov–Feb.

Evergreen forests; 400–1600 m. Guangdong, Guangxi, Guizhou, Hainan, Taiwan, Yunnan [Bhutan, India, Myanmar, Sri Lanka, Thailand].

12. *Drypetes salicifolia* Gagnepain, Bull. Soc. Bot. France 71:

261. 1924.

柳叶核果木 liu ye he guo mu

Trees up to 10 m tall, glabrous except pubescent sepals, ovary, fruits, and fruiting pedicels; branchlets angular. Stipules oblong, ca. 1 mm; petiole 5–8 mm; leaf blade linear-oblong, 8–16 × 1.5–3 cm, papery, usually with dark spots abaxially, base cuneate, margin entire, apex acuminate; midvein and lateral veins elevated on both surfaces, lateral veins 8–14 pairs, obliquely ascendant, anastomosing before margin, reticulate veins slightly prominent. Male flowers 1–3 together; pedicels short; sepals 4, obovate, inner narrower than outer; stamens ca. 12; filaments free; anthers oblong; rudimentary ovary cup-shaped, apex 4-fid. Female flowers solitary; pedicels very short; sepals 4, outer oblong, ca. 5 mm, inner elliptic; disk annular, obtusely 4- or 5-lobed; ovary ovoid, 2-celled; styles 2, apex peltate or plano-concave. Fruiting pedicels 2–4 mm; drupe globose, to 2 cm in diam., fulvous, usually 1-celled, 1-seeded. Fl. May–Jun, fr. Aug–Oct.

Evergreen forests; 400–600 m. S Yunnan [Laos, Vietnam].

Fl. China 11: 218–221. 2008.