

## DIPENTODONTACEAE

十齿花科 shi chi hua ke

Ma Jinshuang (马金双)<sup>1</sup>; Bruce Bartholomew<sup>2</sup>

Trees or shrubs, with bisexual flowers or dioecious, semievergreen or deciduous. Stipules small, distinct, caducous. Leaves alternate, simple, petiolate. Inflorescences axillary, on current year's growth, abbreviated cymes in a pedunculate umbel or thyrses in a raceme or panicle. Flowers (4 or)5(-7)-merous, actinomorphic, 1–4 mm in diam. Sepals and petals ± undifferentiated, distinct. Stamens inserted at or in margin of a disk; anthers introrsed, longitudinally dehiscent. Ovary superior. Fruit a drupaceous tardily dehiscent capsule with 1 seed or a berry with 2–4 seeds. Seeds with or without an aril; endosperm present but thin.

Two genera and about 16 species: tropical Asia, America, Australia, and Pacific islands, extending into warm temperate E Asia; two genera and three species (two endemic) in China.

Both *Dipentodon* and *Perrottetia* have often been treated in the Celastraceae. However, both morphological and molecular evidence indicate that they are better treated in the family Dipentodontaceae (Zhang & Simmons, Syst. Bot. 31: 122–137. 2006).

Cheng Chingyung. 1999. *Dipentodon*. In: Cheng Chingyung & Huang Puhua, eds., Fl. Reipubl. Popularis Sin. 45(3): 175–177; Cheng Chingyung. 1999. *Perrottetia*. In: Cheng Chingyung & Huang Puhua, eds., Fl. Reipubl. Popularis Sin. 45(3): 184–186.

- 1a. Plants with perfect flowers; inflorescences abbreviated cymes in a pedunculate umbel; fruit a drupaceous tardily dehiscent capsule, ellipsoid-ovoid, 1-seeded, apex beaked ..... 1. *Dipentodon*  
1b. Plants dioecious; inflorescences thyrses in a raceme or panicle; fruit a dry berry, subglobose or depressed globose, 2–4-seeded, apex with a persistent style but not beaked ..... 2. *Perrottetia*

### 1. DIPENTODON Dunn, Bull. Misc. Inform. Kew 1911: 311. 1911.

十齿花属 shi chi hua shu

Shrubs or trees, with bisexual flowers, semievergreen. Leaf blade margin sharply serrulate. Inflorescences abbreviated cymes in a pedunculate umbel; bracts at apex of peduncle, forming an involucre, caducous. Flowers yellowish green, 2–4 mm in diam., mainly 5–7-merous, pedicellate. Stamens 5–7, attached outside disk margin, opposite sepals. Disk flat cup-shaped, fleshy, with 5–7 yellow lobes opposite petals. Ovary connected with disk at base, 3-loculed basally but incompletely loculed apically; ovules 2 per locule, all but 1 aborting before maturity, placentation axile at top of a free basal placentation; funicle and placenta developing into a seed stipe when mature. Fruit a drupaceous capsule, ellipsoid-ovoid, puberulent, 1-seeded, perianth persistent, style persistent and developing into a beak. Seeds with rough stipe at base; aril absent.

One species: S and SW China, N Myanmar.

**1. *Dipentodon sinicus*** Dunn, Bull. Misc. Inform. Kew 1911: 311. 1911.

十齿花 shi chi hua

*Dipentodon longipedicellatus* C. Y. Cheng & J. S. Liu.

Shrubs or trees, 3–10(–15) m tall, semievergreen. Branchlets purplish brown, sparsely lenticellate. Stipules narrowly lanceolate, ca. 1 cm, membranous, caducous, margin serrulate. Petiole 7–10 mm; leaf blade ovate, elliptic, lanceolate, narrowly elliptic, or oblong-elliptic, 7–15(–20) × 2–9 cm, thinly leathery to papery, abaxially glabrous but puberulent along midvein and base of secondary veins particularly when young, adaxially glabrous and shiny, base often slightly oblique and nearly rounded, cuneate, broadly cuneate, subtruncate, or subcordate, margin sharply serrulate, apex narrowly acuminate. Inflorescences globose umbels of abbreviated cymes, 1.5–2.5 cm in diam. at anthesis, to 100- or more flowered; peduncle (2.5–)4–7(–10) cm, puberulent; bracts 4 or 5, at apex of peduncle, membranous, abaxially puberulent, caducous usually before anthesis. Pedicel

5–10 mm, somewhat elongating after anthesis, puberulent. Sepals and petals undifferentiated, 10–14, linear, ca. 1 mm, erect, puberulent, persistent, apex acuminate. Stamens 5–7; filaments ca. 2 mm, exerted from perianth; anthers purplish, ellipsoid, ca. 0.4 mm. Ovary pubescent; style 2–3 mm at anthesis, basally puberulent, apically glabrous, becoming a beak in fruit; stigma subdiscooid, small. Capsule purplish brown, drupaceous, broadly ellipsoid to ovoid, 6–10 mm including persistent style, slightly longitudinally ridged, sparsely puberulent but apically more densely so, base with a ca. 5 mm stipe usually bending when mature, 1-seeded. Seeds blackish brown, ellipsoid, 4–5 mm. Fl. May–Sep, fr. Aug–Oct.

Mountain slopes in broad-leaved evergreen forests, riverbanks, trailsides; 900–3200 m. NW Guangxi, SW Guizhou, SE Xizang (Médog), NW and S Yunnan [?NE India, N Myanmar].

Reported from NE India by Bhattacharyya and Johri (Fl. Pl. Taxon. & Phylogeny, 75. 1998) but no specimens from there have been seen by the authors.

<sup>1</sup> Brooklyn Botanic Garden, 1000 Washington Avenue, Brooklyn, New York 11225-1099, U.S.A.

<sup>2</sup> Department of Botany, California Academy of Sciences, 55 Concourse Drive, Golden Gate Park, San Francisco, California 94118-4599, U.S.A.

## 2. PERROTTETIA Kunth in Humboldt et al., Nov. Gen. Sp. 7, ed. 4<sup>o</sup>: 73; ed. f<sup>o</sup>: 57. 1824.

核子木属 he zi mu shu

Shrubs or small trees, dioecious, deciduous. Branchlets smooth, usually slightly zigzagged. Stipules small, caducous. Leaf blade margin sharply serrulate, crenate, or subentire. Inflorescence a raceme or panicle of thyrses. Flowers usually 4- or 5-merous. Male flowers: stamens inserted on disk margin; filament subulate; anther subglobose or ellipsoid. Female flowers: disk cup- or ring-shaped; ovary semi-immersed in disk, mostly 2-loculed; ovules 2 per locule, basally attached, erect. Fruit a ± dry berry, subglobose or depressed globose, 2–4-seeded. Seeds subglobose, erect; aril thin.

About 15 species: tropical America, NE Australia, China, Indonesia, Malaysia, New Guinea, Pacific islands, Philippines; two species (both endemic) in China.

- 1a. Inflorescences thyrses in a raceme; flowers 4- or 5-merous; stamens exerted from perianth; capsule apex rounded ..... 1. *P. racemosa*  
 1b. Inflorescences thyrses in a panicle; flowers most 4-merous; stamens included in perianth; capsule apex emarginate ..... 2. *P. arisanensis*

**1. Perrottetia racemosa** (Oliver) Loesener in Engler & Prantl, Nat. Pflanzenfam., Nachtr. 1: 224. 1897.

核子木 he zi mu

*Ilex racemosa* Oliver, Hooker's Icon. Pl. 19: t. 1863. 1889;  
*Perrottetia macrocarpa* C. Y. Chang.

Shrubs, 1–4 m tall, dioecious. Branches and branchlets purplish brown, puberulent when young, glabrescent. Stipules ca. 1 mm, membranous, caducous. Petiole 0.5–2 cm; leaf blade long elliptic to narrowly ovate, 5–15 × 1.8–5.5 cm, papery, abaxially puberulent along midvein and secondary veins but ± glabrescent, adaxially glabrous, midvein and secondary veins abaxially elevated and adaxially ± flat, base slightly asymmetric and broadly cuneate to subrounded, margin sharply serrulate, crenulate, or rarely subentire, apex caudate-acuminate, cauda usually slightly curved. Inflorescences thyrses in a raceme, 2–4 cm at anthesis but on female plants to ca. 7 cm in fruit, puberulent. Flowers white, 4- or 5-merous. Sepals and petals similar but petal margin more distinctly fimbriate and slightly wider, triangular, ca. 1 mm on male flowers and ca. 0.5 mm on female flowers, persistent on female plants in fruit, apex acute. Pedicel ca. 1.5 mm at anthesis, puberulent. Male flowers 2–3 mm in diam.; stamens ca. 1.5 mm, inserted on disk margin, exerted from perianth; anthers ellipsoid, ca. 0.5 mm; disk compressed and flat. Female flowers ca. 1 mm in diam.; disk slightly cup-shaped; ovary 2-loculed, with 2 ovules per locule; style ca. 0.5 mm, persistent in fruit, apically 2-lobed. Berry red or dark red, subglobose, 2–3(–5) mm in diam., apex rounded. Seeds 1 or 2 per locule. Fl. May–Sep, fr. Aug–Nov.

- Mixed broad-leaved and deciduous forests, forest margins,

woodlands, scrub, valleys, riverbanks; 500–2900 m. Chongqing, Guangxi, Guizhou, SW Hubei, NW Hunan, Sichuan, S and SE Yunnan.

**2. Perrottetia arisanensis** Hayata, Icon. Pl. Formos. 5: 26. 1915.

台湾核子木 tai wan he zi mu

Shrubs or trees, 3–4 m tall, dioecious, spindly. Branchlets purplish brown, pale brown tomentulose when young, glabrescent. Stipules scalelike, triangular, ca. 1 mm, brown puberulent, caducous. Petiole 0.5–1.5(–2) cm; leaf blade elliptic-oblong to lanceolate, 5–12(–16) × 2–5(–7) cm, papery, abaxially pale brown tomentulose along midvein and secondary veins when young but soon glabrescent except sometimes along basal part of midvein and secondary vein axils, adaxially glabrous, midvein and secondary veins abaxially elevated and adaxially ± flat, base often slightly asymmetric and rounded to cuneate, margin sharply serrulate, apex caudate-acuminate, cauda usually slightly curved. Inflorescences thyrses in a panicle, 2–4.5 cm. Flowers mostly 4-merous, ca. 2.5 mm in diam. Pedicel 1.5–3 mm, jointed, sparsely tomentulose, glabrescent. Sepals and petals 8, undifferentiated, greenish yellow, narrowly oblong, ca. 1 mm, glabrous, persistent on female plants in fruit, margin sometimes reddish, apex acuminate. Male flowers: stamens 4, inserted on disk margin, included in perianth; anthers yellowish, subglobose to ellipsoid, ca. 0.4 mm. Female flowers: ovary glabrous; style ca. 1.5 mm, persistent in fruit, apically 2-lobed. Berry reddish turning black when mature, slightly depressed globose, ca. 1.5 × 1.7 mm, 2-loculed, apex emarginate. Seeds 2 per locule. Fl. Apr–Oct, fr. Jul–Nov.

- Broad-leaved evergreen forests, woodlands, scrub; 400–2500 m. Taiwan, C and SE Yunnan (Eshan, Xichou).