

5. MYRSINE Linnaeus, Sp. Pl. 1: 196. 1753.

铁仔属 tie zai shu

Rapanea Aublet.

Shrubs or small trees. Inflorescences axillary, umbellate or fascicled, on short scaly branchlets or spurs, bracteate. Flowers bisexual or unisexual and plants monoecious, dioecious, or polygamous, 4- or 5(or 6)-merous. Sepals nearly free or united to 1/2 length, imbricate, usually ciliate, punctate, persistent. Petals nearly free or rarely united to 1/2 their length, usually ciliate, glandular granulose, punctate. Filaments free or united at base, adnate to corolla, with apical free portions minute or absent; anthers ovate or reniform, rarely sagittate, 2-celled, dehiscing by longitudinal slits. Ovary glabrous or glabrescent; ovules few, in 1 series. Fruit a globose or subovoid drupe, with somewhat fleshy exocarp and crusty or leathery endocarp, 1-seeded. Seeds occupying cavity; endosperm horny, ruminate; embryo cylindrical, transverse.

About 300 species: pantropical; 11 species in China.

Myrsine and *Rapanea* have traditionally been regarded as separate genera, especially in regional and local floras. However, when the two genera are examined on worldwide basis, the alleged differences between them do not hold. *Myrsine* and *Rapanea* are poorly represented in China, as evidenced by the presence of only 11 out of the approximately 300 species in the entire world. The Chinese species are easily assigned to *Myrsine* and *Rapanea* as traditionally circumscribed. For that reason, most Chinese authors prefer to maintain both genera.

- 1a. Leaf blade up to 3.3 × 1.2 cm; petiole less than 5 mm.
 - 2a. Branchlets angular or verruculose, reddish glandular granulose apically, without lenticels.
 - 3a. Branchlets angular, smooth; leaf blade apex emarginate; calyx epunctate 1. *M. cicatricosa*
 - 3b. Branchlets terete, densely verrucose; leaf blade apex obtuse to rounded; calyx red punctate-lineate 2. *M. verruculosa*
 - 2a. Branchlets subterete, smooth, glandular puberulent, with branched or capitate trichomes, lenticellate.
 - 4a. Branchlet trichomes 2- or 3-branched; leaf blade linear or elliptic, margin entire 3. *M. affinis*
 - 4b. Branchlet trichomes capitate; leaf blade obovate to orbicular, rarely oblanceolate, margin serrate-dentate 4. *M. africana*
- 1b. Leaf blade 3.4–18 × 1.4–8 cm; petiole 6–25 mm.
 - 5a. Branchlets (2.6–)3–7 mm in diam.
 - 6a. Branchlets smooth, glandular granulose; leaf blade apex broadly rounded to truncate; petiole 6–8 mm 11. *M. linearis*
 - 6b. Branchlets rugose, glabrous or reddish puberulent; leaf blade apex acute; petiole 9–25 mm.
 - 7a. Terminal bud glabrous; petiole 2–2.5 cm; leaf blade broadly oblanceolate or obovate, secondary veins conspicuous abaxially; calyx lobes not ciliate 9. *M. kwangsiensis*
 - 7b. Terminal bud reddish puberulent, early glabrescent; petiole 0.9–1.5 cm; leaf blade narrowly linear-lanceolate or elliptic, secondary veins inconspicuous abaxially; calyx lobes ciliate 10. *M. sequinii*
 - 5b. Branchlets 1.5–2.5 mm in diam.
 - 8a. Leaf blade margin subentire to sharply toothed.
 - 9a. Calyx cupular, lobes ovate, keeled, apex acuminate; leaf blade slightly asymmetric, glossy on both sides 5. *M. semiserrata*
 - 9b. Calyx disc-shaped, lobes oblong, flat, apex obtuse; leaf blade symmetric, glossy adaxially 6. *M. stolonifera*
 - 8b. Leaf blade margin entire.
 - 10a. Leaf blade very narrowly lanceolate or oblanceolate, apex caudate or long acuminate, base cuneate, margin flat; calyx papery, lobes ovate 7. *M. faberi*
 - 10b. Leaf blade oblong or elliptic, apex abruptly short acuminate, base obtuse, margin revolute; calyx leathery, lobes linear-oblong 8. *M. elliptica*

1. *Myrsine cicatricosa* (C. Y. Wu & C. Chen) Pipoly & C. Chen, *Novon* 5: 360. 1995.

多痕密花树 duo hen mi hua shu

Rapanea cicatricosa C. Y. Wu & C. Chen in C. Chen, *Fl. Yunnan*. 1: 381. 1977.

Shrubs ca. 2 m tall. Branchlets angular, 2–3 mm in diam., smooth, reddish glandular granulose apically, without lenticels. Petiole marginate, 3–5 mm; leaf blade obovate, 1–2.5 cm × 7–9 mm, leathery, glabrous, punctate in areoles,

base cuneate, decurrent, margin scarious, entire, apex obtuse and emarginate; midrib impressed; lateral veins and veinlets inconspicuous adaxially, raised abaxially, marginal vein evident. Bracts ovate or broadly so, ciliate. Flowers (3–)5-merous, ca. 2 mm. Pedicel 1–1.5(–2) mm, glabrous. Calyx lobes spreading, nearly free, ovate, 0.8–1 mm, glabrous, flat, margin entire, ciliate, sparsely punctate, apex acute. Corolla lobes oblong to ovate, ca. 2 mm, reflexed, glabrous except for densely glandular granulose margin, apex obtuse. Anthers puberulent at apex, inconspicuously punctate dorsally. Style

short conical, obtusely angular; stigma ligulate, apiculate. Fruit globose (immature); persistent sepals united at base. Fl. Dec, fr. Aug–Sep.

Shrubby areas, limestone hillsides; ca. 2000 m. Yunnan [Vietnam].

2. *Myrsine verruculosa* (C. Y. Wu & C. Chen) Pipoly & C. Chen, *Novon* 5: 360. 1995.

瘤枝密花树 liu zhi mi hua shu

Rapanea verruculosa C. Y. Wu & C. Chen in C. Chen, *Fl. Yunnan*. 1: 381. 1977.

Shrubs 1–2.5 m tall. Branchlets terete, 3–4 mm in diam., minutely glandular granulose, densely verrucose. Petiole marginate, 2–3 mm; leaf blade obovate, 1–1.5 cm × 5–7 mm, leathery to subleathery, glabrous, sparsely punctate abaxially, base cuneate, margin opaque, entire, apex obtuse to rounded; midrib impressed; lateral veins raised adaxially, inconspicuous abaxially, marginal vein absent. Bracts broadly ovate, ciliate. Flowers unknown. Fruiting pedicel ca. 2 mm, glandular granulose. Persistent calyx 4-merous; lobes spreading, nearly free, ovate, 0.8–1 mm, flat, minutely puberulent, densely red punctate-lineate, margin entire, ciliate, apex acute. Fruit ovate-globose, 3–4 mm in diam. (immature), glabrous, densely punctate. Fr. Oct–Nov.

* Sparse evergreen broad-leaved forests, limestone hillsides; 900–1500 m. Guizhou, Yunnan.

3. *Myrsine affinis* A. de Candolle, *Prodr.* 8: 96. 1844.

拟密花树 ni mi hua shu

Rapanea affinis (A. de Candolle) Mez.

Shrubs or trees 0.8–6 m tall. Branchlets subterete, 4–5 mm in diam., smooth, reddish glandular puberulent, trichomes 2- or 3-fid, glabrescent, lenticellate. Leaves sessile; petiole marginate, 2–3 mm; leaf blade linear or narrowly elliptic, 2–4(–5.8) cm × 7–11 mm, leathery, densely areolate and punctate abaxially, base acute and decurrent, margin entire, apex acute to a blunt tip; lateral veins numerous, raised on both surfaces, marginal vein evident. Inflorescences 1–3-flowered; bracts ovate, ciliate. Flowers yellow, 4-merous, ca. 1 mm. Calyx lobes spreading, nearly free, ovate, ca. 0.5 mm, flat, glabrous, sparsely punctate, margin entire, ciliate, apex acute. Petals united at base, elliptic, 0.8–1 mm, glabrous, sparsely punctate, margin densely glandular granulose, apex rounded. Anthers ovate, puberulent. Ovary glabrous. Stigma terete or sausage-shaped. Fruit dull purplish red to black, globose, ca. 5 mm in diam., densely punctate, glabrous. Fl. Feb–Jun, fr. Jan–Feb.

Dense evergreen broad-leaved forests, shrubby areas, limestone hillside; 1000–1300 m. Hainan, Yunnan [Indonesia].

4. *Myrsine africana* Linnaeus, *Sp. Pl.* 1: 196. 1753.

铁仔 tie zai

Myrsine africana var. *acuminata* C. Y. Wu & C. Chen; *M. africana* var. *bifaria* (Wallich) Franchet; *M. africana* var. *glandulosa* J. M. Zhang; *M. africana* var. *retusa* A. de

Candolle; *M. bifaria* Wallich; *M. microphylla* Hayata; *M. potama* D. Don; *M. vacciniifolia* Hayata; *Rhamnus myrtillos* H. Léveillé.

Shrubs 50–100 cm tall. Branchlets terete, 0.5–2 mm in diam., reddish glandular granulose and puberulent, with capitate trichomes, often glabrescent. Petiole marginate, 1–2.5 mm, strongly decurrent; leaf blade obovate, to orbicular, 1–5 × 0.7–1.6 cm, papery or leathery, glabrous, minutely punctate abaxially, base cuneate, margin serrate, apex obtuse, to rounded; lateral veins inconspicuous, marginal vein absent. Inflorescences axillary, subumbellate or fascicled; basal scales in 1 series. Flowers yellowish white, 2–2.5 mm, 4-merous. Pedicel 0.5–1.5 mm, glabrous or glandular puberulent. Calyx lobes spreading, nearly free, broadly ovate to elliptic, 0.3–0.5 mm, flat, glabrous, margin entire, ciliate, apex acute to obtuse. Corolla 0.8–1 mm, united to at least 1/2 length, glabrous outside, puberulent inside; lobes lanceolate, 0.8–1 mm, densely punctate, margin entire, glandular granulose, apex obtuse to acute. Stamens longer than petals; filaments united basally into a tube adnate to corolla tube, puberulent in staminate flowers. Pistil globose. Style short; stigma discoid, margin lobed. Fruit red or purple-black, globose, ca. 5 mm in diam., smooth. Fl. Feb–Jun, fr. Nov–Jan.

Sparse mixed forests, open mountain slopes, sunny dry places, scrub, fields, roadsides; 1000–3600 m. Gansu, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan [India; Azores, Africa, SW Asia].

5. *Myrsine semiserrata* Wallich in Roxburgh, *Fl. Ind.* 2: 293. 1824.

针齿铁仔 zhen chi tie zai

Celastrus cavaleriei H. Léveillé; *C. seguinii* H. Léveillé; *Myrsine semiserrata* var. *brachypoda* Z. Y. Zhu.

Shrubs or trees 3–7 m tall. Branchlets slightly angular, 1.5–2 mm in diam., glabrous. Petiole marginate, 6–8 mm, decurrent at base; leaf blade elliptic to lanceolate, sometimes rhomboid, 5–9(–14) × 2–2.5(–4) cm, papery to subleathery, slightly asymmetric, glossy, glabrous, base cuneate, margin remotely serrulate to middle, teeth callose, apex acute to acuminate; lateral veins slightly raised, sparsely punctate, marginal vein evident. Inflorescences axillary, umbellate or fascicled, sessile; bracts ovate, ciliate, punctate. Flowers white to yellowish, ca. 2 mm, 4-merous. Pedicel ca. 2 mm, glabrous or puberulent, subtended by 1 bract. Calyx cupular; lobes ovate, keeled, sparsely puberulent outside, margin entire, ciliate, punctate, apex acuminate. Petals free or united to 1/3 length, long elliptic, oblong, or ligulate, glabrous, prominently punctate to middle, margin entire, ciliate, apex obtuse. Pistil puberulent. Stigma 2-cleft, fimbriate. Fruit red becoming purple-black, globose, 5–7 mm in diam., densely punctate. Fl. Feb–Apr, fr. Oct–Dec.

Broad-leaved forests, limestone hillsides, mountain slopes, roadsides, stream banks, sunny places; 500–2700 m. Guangdong, Guangxi, Guizhou, Hubei, Hunan, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

6. *Myrsine stolonifera* (Koidzumi) E. Walker, Philipp. J. Sci. 73: 247. 1940.

光叶铁仔 *guang ye tie zai*

Anantia stolonifera Koidzumi, Bot. Mag. (Tokyo) 37: 40. 1923; *A. marginata* Masamune; *A. mezii* Masamune; *Myrsine marginata* Mez (1902), not Hooker & Arnott (1834); *Rapanea stolonifera* (Koidzumi) Nakai.

Shrubs ca. 2 m tall. Branchlets terete, 1–1.5(–2) mm in diam., glabrous. Petiole canaliculate, 5–8 mm; leaf blade elliptic or lanceolate, 6–8(–10) × 1.5–2.5(–3) cm, papery or subleathery, glabrous, base cuneate, margin entire or sometimes with 1 or 2 pairs of teeth beyond middle, punctate, apex acuminate; lateral veins inconspicuous, densely and minutely areolate, marginal vein absent. Inflorescences axillary or on leafless branchlets, umbellate or fascicled, sessile, 3- or 4-flowered; bracts hastate or lanceolate, glabrous. Flowers 5-merous, 1.8–2 mm. Pedicel 2–3 mm, glabrous, subtended by 1 bract. Calyx lobes spreading, nearly free, narrowly elliptic or oblong, 0.8–1 mm, flat, glabrous, prominently punctate, apex acute or obtuse. Petals united into a very short tube, glabrous outside, densely glandular granulose inside except for tube; lobes oblong, punctate, apex obtuse. Stamens ca. 1/2 as long as petals; filaments free, adnate to base of petals; anthers broadly ovate or reniform, apex apiculate. Ovary glabrous, punctate. Stigma apiculate or lobed. Fruit red becoming bluish black, globose, ca. 5 mm in diam., glabrous. Fl. Apr–Jun, fr. Dec–Jan.

Mixed forests, damp places; 300–2100 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan].

7. *Myrsine faberi* (Mez) Pipoly & C. Chen, Novon 5: 360. 1995.

平叶密花树 *ping ye mi hua shu*

Rapanea faberi Mez in Engler, Pflanzenr. IV. 236(Heft 9): 358. 1902.

Trees 6 m or more. Branchlets terete, 1.5–2 mm in diam., glabrous. Petiole subterete, 7–10 mm; leaf blade elliptic to lanceolate, 7–11 × 1.5–3 cm, papery or subleathery, glabrous, base cuneate, glossy above, pale below, margin entire, apex caudate or long acuminate, acumen 1–2 cm; midrib impressed adaxially; lateral veins inconspicuous, marginal vein obscure. Bracts ovate, glabrous, margin sparsely glandular granulose, apex obtuse. Flowers papery, greenish, 5-merous, ca. 5 mm. Pedicel 1–2 mm, glabrous. Calyx lobes spreading, nearly free, ovate, 0.8–1 mm, flat, punctate, margin entire, glandular ciliate, apex obtuse. Petals oblong or ovate, ca. 3 mm, united to 1/3 their length, punctate, glandular granulose inside and along margin. Anthers sometimes puberulent at apex. Ovary glabrous. Stigma elongated, ligulate, apiculate at apex, as long as ovary. Fruit black, globose or ovoid, 5–6 mm in diam., glabrous, somewhat wrinkled when dry, not punctate. Fl. Apr–May, fr. Oct–Dec.

* Evergreen broad-leaved forests, stream banks, moist places; 500–1200 m. Guangdong, Guangxi, Guizhou, Hainan, Sichuan, Yunnan.

8. *Myrsine elliptica* E. Walker, Philipp. J. Sci. 73: 189. 1940.

广西铁仔 *guang xi tie zai*

Shrubs 1 m or more. Branchlets terete, 1.5–2.5 mm in diam., minutely puberulent when young, glabrescent. Petiole canaliculate, 6–8 mm, not decurrent at base; leaf blade broadly elliptic to oblong, 3–5 × 1.5–3 cm, papery or leathery, not punctate, glabrous, base obtuse, margin entire, revolute, apex abruptly short acuminate, apiculate; lateral veins inconspicuous. Inflorescences axillary, umbellate or fascicled, sessile; bracts broadly ovate. Flowers leathery, white, 2.7–3 mm, 5-merous. Pedicel 4–5 mm, glabrous, subtended by a scaly bract. Calyx lobes spreading, nearly free, linear-oblong, 1.5–2 mm, glabrous outside, sparsely puberulent inside, punctate, margin entire, glabrous, apex obtuse or rounded. Petals free or somewhat united, narrowly lanceolate or oblong, 2.8–3 mm, glabrous outside, sparsely and minutely glandular granulose inside, punctate, apex obtuse. Stamens shorter than petals; filaments basal 1/3 adnate to petals; anthers small, reniform, not punctate on back. Stigma apiculate. Fruit red, 3–5 mm in diam., usually longitudinally wrinkled, pellucid punctate. Fl. Jun, fr. Nov.

* Dense mixed forests, shrubby areas, limestone hillsides. Guangxi.

9. *Myrsine kwangsiensis* (E. Walker) Pipoly & C. Chen, Novon 5: 361. 1995.

广西密花树 *guang xi mi hua shu*

Rapanea kwangsiensis E. Walker, J. Wash. Acad. Sci. 21: 479. 1931; *R. kwangsiensis* var. *lanceolata* C. Y. Wu & C. Chen.

Trees 5–6 m tall. Branchlets terete, 5–7 mm in diam., rugose, glabrous. Petiole marginate, 1–2.5 cm; leaf blade obovate or broadly oblanceolate, 14–24 × 3.5–8 cm, leathery, glabrous, base cuneate, margin entire, slightly revolute, apex broadly acute; midrib and lateral veins flattened adaxially, lateral veins raised abaxially, marginal vein obscure. Bracts broadly ovate, glabrous, sparsely ciliate. Flowers 5(or 6)-merous, 3.5–4 mm. Pedicel 4–6(–8) mm, glabrous. Calyx lobes spreading, nearly free, ovate 1–2 mm, glabrous, obscurely punctate, margin entire, without cilia, apex acute. Petals oblong or lanceolate, 3.5–4 mm, punctate, glabrous or glandular granulose inside and on margin entire. Staminate flowers unknown. Ovary glabrous. Stigma lobed or subligulate, usually punctate near apex. Fruit purple or purplish red, globose or ovoid, 4–5 mm in diam., longitudinally ribbed, punctate. Fl. and fr. May.

* Evergreen broad-leaved forests, mixed forests, valleys, limestone hillsides; 700–1500 m. Guangxi, Guizhou, Xizang (Linzi), Yunnan.

10. *Myrsine seguinii* H. Léveillé, Fl. Kouy-Tcheou 288. 1915.

密花树 *mi hua shu*

Athruphyllum neriifolium H. Hara; *A. seguinii* (H. Léveillé) Nakai; *A. taiwanianum* Nakai; *A. yunnanensis*

(Mez) Nakai; *Myrsine neriifolia* Siebold & Zuccarini (1846), not Casaratto (1843); *Rapanea neriifolia* Mez; *R. neriifolia* var. *yunnanensis* (Mez) E. Walker; *R. walkeriana* Handel-Mazzetti; *R. yunnanensis* Mez.

Shrubs or trees 2–7(–12) m tall. Branchlets terete, 3–5 mm in diam., white lenticellate, rugose, reddish puberulent, early glabrescent. Petiole subterete, 0.9–1.5 cm; leaf blade elliptic to narrowly linear-oblongate 7–17 × 1.3–6 cm, leathery, glabrous, base cuneate, decurrent, margin entire, apex acute; lateral veins numerous, obscure, marginal vein absent. Inflorescences 3–10-flowered; bracts broadly ovate, sparsely ciliate. Flowers white, greenish, or sometimes purplish red, (2–)3–4 mm. Pedicel 2–4 mm, to 7 mm in fruit, glabrous, thick. Calyx disc-shaped, lobes nearly free, ovate, 0.8–1 mm, sometimes punctate, ciliate, apex broadly acute or rarely rounded. Petals united to 1/4 length, ovate or elliptic, (2–)3–4 mm, reflexed, punctate, glabrous outside, densely glandular granulate inside and along margin, apex acute or obtuse. Anthers ovate, not punctate on back, usually glandular granulate at apex. Ovary glabrous. Stigma elongated, flattened at base, ca. 2 × as long as ovary. Fruit grayish green or purplish black, globose or subovate, 4–5 mm in diam., sometimes longitudinally punctate, striate or ribbed. Fl. Apr–May, fr. Oct–Dec. $2n = 46^*$.

Mixed forests, shrubby areas, roadsides; 700–2400 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, SE Xizang, Yunnan, Zhejiang [Japan, Myanmar, Vietnam].

11. *Myrsine linearis* (Loureiro) Poiret, Encycl. Suppl. 3: 709. 1813.

打铁树 da tie shu

Athruphyllum lineare Loureiro, Fl. Cochinch. 1: 120. 1790; *M. playfairii* Hemsley; *Rapanea linearis* (Loureiro) S. Moore; *R. playfairii* (Hemsley) Mez.

Shrubs or trees 1–8(–30?) m tall. Branchlets essentially terete, with longitudinal ridges, (2.6–)3–4 mm in diam., glandular granulate, glabrescent. Petiole marginate, 6–8 mm; leaf blade obovate spatulate, 3–7 × 1.2–2.5 cm, leathery to subleathery, glabrous, densely punctate on veins, base cuneate, margin entire, apex rounded or truncate, sometimes retuse; midrib flattened adaxially, lateral veins 8–10 on each side of midrib, marginal vein absent. Bracts broadly ovate, margin sparsely glandular granulate, apex obtuse. Flowers white or greenish, 4(–6)-merous, 2–2.5 mm. Pedicel (2–)4 mm, glabrous. Calyx disc-shaped; lobes nearly free, ovate, 0.8–1 mm, pellucid punctate, margin glandular granulate, apex obtuse. Petals united ca. 1/3 their length, elliptic or ovate, 2–2.2 mm, glandular granulate inside and along margin, sparsely punctate, tube glabrous. Stamens inserted at corolla throat; anthers puberulent at apex. Ovary glabrous. Stigma ligulate or lobed. Fruit purplish black, globose, 3–4 mm in diam., wrinkled, pellucid punctate. Fl. Dec–Jan, fr. Jul–Nov.

Mixed forests, scrub, hillsides, fields, limestone hillsides. Guangdong, Guangxi, Guizhou, Hainan [Vietnam].