Fl. China 19: 699–700. 2011.

18. ALPHONSEA J. D. Hooker & Thomson, Fl. Ind. 1: 152. 1855.

藤春属 teng chun shu

Li Bingtao (李秉滔 Li Ping-tao); Michael G. Gilbert

Trees or shrubs, glabrous or with simple hairs. Petiole short; leaf blade usually leathery to thinly leathery, shiny. Inflorescences internodal, leaf-opposed, rarely extra-axillary or axillary, 1-flowered or flowers to 12 forming clusters. Flowers bisexual. Torus cylindric to hemispheric, hairy. Sepals 3, much smaller than petals, valvate in bud. Petals 6, in 2 whorls, basally saccate, apically recurved and valvate in bud; outer petals spreading, ± as long as inner petals but slightly wider. Stamens many, in several series; connectives produced but not concealing dorsal anther locules, apex apiculate. Carpels 1–8(–15), free; ovules 4–24 per carpel, in 2 series; styles cylindric, short; stigmas inconspicuously capitate, with a slit down inner side. Fruit apocarpous; monocarp stipes with thick walls or almost absent; monocarps few, globose or cylindric, succulent or woody, glabrous, tomentose, or verrucose. Seeds several per monocarp, not separating from fruit wall.

About 23 species: S and SE Asia; six species (four endemic) in China.

1a. Young stems and abaxial leaf surfaces densely villous to tomentose ..... 1. *A. mollis*
1b. Stems and abaxial leaf surfaces glabrous or obscurely puberulent only along midvein.
2a. Leaf blade apex caudate with a 1–1.7 cm acumen, secondary veins 15–19 on each side of midvein; flowers solitary; monocarps cylindric ..... 6. *A. tsangyuanensis*
2b. Leaf blade apex acute to acuminate but without an acumen, secondary veins 9–13 on each side of midvein; flowers fascicled; monocarps ovoid, subglobose, ellipsoid, or obovoid.
3a. Peduncle with 4–12 bracts, pedicel with up to 8 persistent bracteoles; monocarp verrucose.
4a. Peduncle with 8–12 bracts; sepals longer than wide, apex acuminate or acute ..... 2. *A. squamosa*
4b. Peduncle with 4 or 5 bracts; sepals shorter than wide, apex rounded ..... 3. *A. boniana*
3b. Peduncle and fruiting pedicel with not more than 2 bracts and bracteoles; monocarp smooth.
5a. Leaf blade adaxially not glossy, glaucous when dry; outer petals glabrous inside; carpel 1, with ca. 22 ovules ..... 4. *A. monogyna*
5b. Leaf blade adaxially glossy, yellowish green when dry; outer petals pubescent inside; carpels 3–5, with 10–12 ovules per carpel ..... 5. *A. hainanensis*

1. Alphonsea mollis Dunn, J. Linn. Soc., Bot. 35: 485. 1903.

毛叶藤春 mao ye teng chun

Trees to 20 m tall, evergreen, d.b.h. to 40 cm. Bark grayish brown, bast reddish. Branches densely tomentose when young, glabrescent. Petiole 2–3 mm, pubescent; leaf blade elliptic to ovate-oblong, 6–12 × 2.5–5.6 cm, papery, abaxially villous, adaxially glabrous except for puberulent area along midvein, secondary veins ca. 10 on each side of midvein and slender, reticulate veins conspicuous, base obtuse to rounded, apex shortly acuminate. Inflorescences 1- or 2-flowered. Pedicel 1–2 cm, pubescent, bracteolate. Sepals triangular, ca. 1 × 1 mm. Petals yellowish white; outer petals ca. 11 × 7 mm, outside tomentose, inside glabrescent, apex recurved; inner petals slightly shorter than outer petals. Stamens many; anthers ovoid; connectives apically acute. Carpels 3, tomentose. Monocarps 1 or 2, yellow when ripe, ovoid to ellipsoid, 2–4 × 1.5–2.5 cm, fulvous tomentose. Seeds several per monocarp, grayish brown, orbicular and flat, 1–1.5 cm in diam. Fl. Mar–May, fr. Jun–Aug.

● Evergreen broad-leaved forests on slopes; 600–1000 m. Guangdong, SW Guangxi, Hainan, S Yunnan.

The fruit of *Alphonsea mollis* are edible when ripe. The wood is used for the construction of carts, agricultural implements, etc.

2. Alphonsea squamosa Finet & Gagnepain, Bull. Soc. Bot. France 53(Mém. 4): 161. 1906.

多包藤春 duo bao teng chun

Trees to 5 m tall. Bark grayish white. Branches pubescent when young, glabrous and lenticellate with age. Petiole 3–4 mm, transversely striate, puberulent or glabrescent; leaf blade elliptic, ovate, or sometimes oblong-elliptic, 4.5–11.5 × 2–4.5 cm, papery, puberulent or glabrous, midvein adaxially impressed, secondary veins 10–13 on each side of midvein and adaxially flat, base rounded, apex shortly acuminate to acute. Inflorescences superaxillary, 1- or 2-flowered; peduncle ca. 6 mm; bracts 11 or 12. Pedicel ca. 1 cm, with 7 or 8 persistent bracteoles. Sepals triangular, ca. 3 × 2 mm, outside pubescent, inside glabrous, apex acuminate or acute. Outer petals ovate, ca. 7 × 5 mm; inner petals slightly smaller than outer petals. Stamens ovoid; connectives apically acute. Carpels 1–5, ovoid-oblong, pubescent; ovules ca. 10 per carpel, in 2 series; stigmas subglobose, glabrous, apex 2-cleft. Fruiting pedicel ca. 1.3 cm, with 7 or 8 bracteoles; monocarps 1–5, ovoid to subglobose, 2–2.5 × 1.2–2 cm, densely pubescent. Fl. Mar–Jun, fr. Jun–Sep.

Forested slopes, usually in ravines; 1500–2300 m. Guangxi, Yunnan [Vietnam].

Alphonsea squamosa was treated as a synonym of the following species, *A. boniana*, by Kessler (Bot. Jahrb. Syst. 118: 86–87. 1995).

3. Alphonsea boniana Finet & Gagnepain, Bull. Soc. Bot. France 53(Mém. 4): 162. 1906.

金平藤春 jin ping teng chun

Shrubs to 3 m tall. Branches pubescent when young, glabrescent. Petiole ca. 3 mm, transversely striate, puberulent or glabrous; leaf blade elliptic to oblong-elliptic, 5–11 × 1.4–3 cm, thinly leathery, abaxially greenish and glabrous except occasionally for puberulent midvein, adaxially shiny green and glabrous, secondary veins 10–13 on each side of midvein, slender,

abaxially slightly prominent, and adaxially flat, base broadly cuneate, apex acuminate to shortly acuminate. Inflorescences leaf-opposed or superaxillary, 1- or 2-flowered; peduncle 2–3 mm, glabrous, with 4 or 5 bracts. Pedicel 4–7 mm, puberulent, with several bracteoles from base to middle. Sepals broadly ovate-reniform, ca. 1 × 2 mm, outside puberulent, inside glabrous, apex rounded. Outer petals ovate-lanceolate, ca. 7 × 4 mm, incurved at base, outside densely pubescent, inside glabrous; inner petals lanceolate, ca. 6 × 3.5 mm, incurved at base. Stamens 3, whorled; anther locules ovoid; connectives apically acute. Carpel 1, oblong, ca. 4 mm, densely villous; ovules 6–12, in 1 or 2 series; stigmas subglobose, glabrous, apex 2-cleft. Fruit not seen. Fl. Apr, fr. May–Jun.

Sparsely forested slopes; 300–700 m. SE Yunnan [Thailand, Vietnam].

Chinese material identified as *Alphonsea tonquinensis* Aug. Candolle (C. Y. Wu & W. T. Wang, Acta Phytotax. Sin. 6: 210. 1957) belongs here.

4. Alphonsea monogyna Merrill & Chun, Sunyatsenia 2: 26. 1934.

藤春 teng chun

Trees to 12 m tall. Peduncles, pedicels, sepals, and petals outside pubescent. Petiole 5–7 mm; leaf blade elliptic to oblong, 7–14 × 3–6 cm, thinly leathery to papery, glaucous when dry, glabrous, secondary veins 9–11 on each side of midvein, slender, and slightly prominent, reticulate veins prominent on both surfaces, base broadly cuneate to slightly obtuse, apex acute to acuminate. Inflorescences leaf-opposed; bracts ovate, puberulent. Pedicel 5–10 mm, with 1 or 2 bracteoles at base. Sepals broadly ovate, ca. 2 mm. Outer petals oblong-ovate to ovate, ca. 1 cm, apex acute; inner petals smaller than outer petals. Stamens ca. 1 mm; connectives apically acute. Carpel 1, cylindric, puberulent; ovules ca. 22, in 2 series. Fruiting carpel subglobose to ellipsoid, 2–4 × 1–3 cm, densely hispidulous when young, inconspicuously verruculose with age. Fl. Jan–Sep, fr. Sep–Dec.

● Forested slopes; 400–1200 m. Guangxi, Hainan, S Yunnan.

The flowers of *Alphonsea monogyna* are fragrant and are used for perfumes. Its wood is hard and used in construction as supporting timber.

Alphonsea monogyna is listed as Vulnerable (VU A2c) by the *IUCN Red List of Threatened Species* (Version 2010.3; http://www.iucnredlist.org; accessed on 8 Oct 2010).

5. Alphonsea hainanensis Merrill & Chun, Sunyatsenia 5: 62. 1940.

海南藤春 hai nan teng chun

Trees to 20 m tall, evergreen, d.b.h. to 30 cm. Bark grayish brown, smooth, 5–6 mm thick; inner bark reddish brown, fragrant. Branchlets appressed ferruginous puberulent when young, glabrescent. Petiole 3–5 mm, puberulent or glabrous; leaf blade broadly ovate to elliptic, 4–9 × 2–3.5 cm, thickly papery, glabrous, adaxially shiny and green, secondary veins 7–10 on each side of midvein, slender, and prominent on both surfaces, base broadly cuneate to rounded, apex acute to shortly acuminate. Inflorescences leaf-opposed or subopposite, 2- or 3-flowered; peduncle subsessile; bracts broadly ovate. Pedicel 5–13 mm, pubescent, bracteolate at base. Sepals reniform, ca. 1 mm, outside pubescent, inside glabrous. Outer petals ovate to oblong-ovate, ca. 9 mm, pubescent, apex obtuse; inner petals smaller than outer petals, outside puberulent, inside glabrous or glabrescent. Stamens in 3 whorls; anther locules ovoid, ca. 1 mm; connectives apically acute. Carpels 3–5, densely pubescent; ovules 10–12 per carpel, in 2 series. Fruiting carpels yellowish green, subglobose to obovate, ca. 4 × 3–4 cm, densely tomentose. Seeds flat, semiorbicular. Fl. Oct–Mar, fr. Mar–Aug.

● Evergreen broad-leaved forests on slopes; 400–700 m. SW Guangxi, Hainan, Yunnan.

The fruit of *Alphonsea hainanensis* are edible when ripe. Its wood is hard and used for the construction of carts and agricultural implements, etc.

Alphonsea hainanensis is listed as Endangered (EN A2c) by the *IUCN Red List of Threatened Species* (Version 2010.3; http://www.iucnredlist.org; accessed on 8 Oct 2010).

6. Alphonsea tsangyuanensis P. T. Li, Acta Phytotax. Sin. 14(1): 112. 1976 [*"tsangyanensis"*].

多脉藤春 duo mai teng chun

Trees to 12 m tall, glabrous except for flowers. Petiole 3–5 mm; leaf blade oblong, 6–16 × 2.5–4.5 cm, papery, midvein abaxially elevated and adaxially impressed, secondary veins 15–19 on each side of midvein, abaxially slightly prominent, and adaxially flat, base broadly cuneate to obtuse, apex caudate with a 1–1.7 cm tip. Inflorescences leaf-opposed, 1-flowered. Pedicel ca. 3 mm, puberulent. Flower buds conic, ca. 10 × 8 mm. Sepals triangular, outside tomentulose, inside glabrous. Outer petals ovate-triangular, ca. 10 × 6 mm, outside tomentulose, inside glabrous; inner petals ca. 9 × 5 mm. Stamens many, in 3 whorls, ca. 1.5 mm; connectives apically apiculate. Carpels 4 or 5, oblong, slightly flat, hirsute; ovules 5 per carpel, in 2 series; styles short; stigmas apically 2-cleft. Fruiting carpels oblong, ca. 4 × 2.5 cm, densely tomentose. Fl. Apr–Jun, fr. Aug–Oct.

● Forested slopes; 700–1500 m. S Yunnan.

Alphonsea tsangyuanensis is listed as Endangered (EN B2ab (i,ii,v)) by the *IUCN Red List of Threatened Species* (Version 2010.3; http://www.iucnredlist.org; accessed on 8 Oct 2010). The type collection of this species (*Q. W. Wang 73312*) was originally identified as *A. lutea* J. D. Hooker & Thomson (C. Y. Wu & W. T. Wang, Acta Phytotax. Sin. 6: 210. 1957).

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