

## OPILIACEAE

山柚子科 shan you zi ke

Qiu Huaxing (邱华兴 Chiu Hua-hsing, Kiu Hua-xing)<sup>1</sup>; Paul Hiepko<sup>2</sup>

Evergreen trees, shrubs, or lianas, root parasites. Stipules absent. Leaves alternate, simple, margin entire, penninerved. Inflorescences axillary or cauliflorous, spikes, racemes, or panicles [or umbels, in Africa]; bracts narrowly ovate or scale-like. Flowers small, actinomorphic, (3–)5-merous, bisexual or unisexual and plants then dioecious or gynodioecious (in *Champereia*). Perianth free or tepals partly united, valvate. Stamens as many as and opposite tepals, free or filaments inserted on tepals; anthers 2-loculed, introrse, dehiscence longitudinal. Disk intrastaminal, lobed, annular, or cupular. Ovary superior or semi-sunken in disk, 1-loculed; ovule 1, pendulous, unitegmic, tenuinucellar; placentation free-central. Style short or none; stigma entire or shallowly lobed. Fruit a drupe. Seed coat thin; endosperm oily; embryo terete, with 3 or 4 linear cotyledons.

Ten genera and 33 species: widespread in tropical and subtropical regions; five genera and five species in China.

Chen Pang-yu. 1988. Opiliaceae. In: Kiu Hua-shing & Ling Yeou-ruenn, eds., Fl. Reipubl. Popularis Sin. 24: 46–52.

- 1a. Inflorescences panicles, sometimes axillary, usually on branches and trunk ..... 5. *Champereia*
- 1b. Inflorescences spikes or racemes, axillary, rarely on old branches or trunk.
  - 2a. Flowers in spikes; bracts triangular, persistent ..... 1. *Cansjera*
  - 2b. Flowers in racemes; bracts broadly ovate to ovate, caducous.
    - 3a. Lianas, sometimes shrubs; rachis of racemes tomentose; drupe 2.5–3 cm ..... 2. *Opilia*
    - 3b. Trees or shrubs; rachis of racemes glabrous; drupe 1–1.8 cm.
      - 4a. Tepals united at base; filaments flattened; disk cupular; drupe 1.5–1.8 cm ..... 3. *Lepionurus*
      - 4b. Tepals free; filaments filiform; disk annular; drupe 1–1.5 cm ..... 4. *Urobotrya*

### 1. CANSJERA Jussieu, Gen. Pl. 448. 1789, nom. cons.

山柑藤属 shan gan teng shu

*Tsjeru-caniram* Adanson, nom. rej.

Lianas or shrubs. Spikes axillary; bracts small, persistent. Flowers bisexual, 1 per bract. Perianth urceolate or campanulate, 4(or 5)-lobed, pilose. Filaments filiform. Disk scales alternate with stamens. Ovary ovoid or cylindrical. Style short, hardly exceeding the perianth tube. Drupe mesocarp fleshy; endocarp thin; embryo with 3 or 4 cotyledons.

Three species: S and SE Asia, Australia, Pacific Islands; one species in China.

#### 1. *Cansjera rheedei* J. F. Gmelin, Syst. Nat. 2: 280. 1791.

山柑藤 shan gan teng

Lianas climbing to 8 m or erect shrubs. Branchlets yellowish tomentose. Petiole 2–4 mm, tomentulose; leaf blade ovate to elliptic, 4–13 × 2.5–6 cm, ± leathery, glabrescent, base broadly cuneate to rounded, apex acuminate; veins 4–6 on each side of midvein. Inflorescences fascicled, 1–3 cm, tomentulose; bracts triangular, ca. 1 mm. Perianth yellowish, urceolate, ca. 3 mm;

lobes 4, ovate-triangular, ca. 0.5 mm, recurved. Filaments ca. 2 mm; anthers broadly ovoid. Disk scales 4, ovate, apex acute. Ovary cylindrical. Style ca. 1 mm, persistent; stigma capitate, 4-lobed. Drupe orange-red, ellipsoid, 1.2–1.5 × 0.7–1 cm, glabrous. Fl. Oct–Dec, fr. Jan–Apr.

Forests, thickets; near sea level to 1400 m. Guangdong, Guangxi, Hainan, Yunnan [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam; Australia, Pacific Islands].

### 2. OPILIA Roxburgh, Pl. Coromandel 2: 31. 1802.

山柚子属 shan you zi shu

Lianas or shrubs. Racemes axillary, tomentose; bracts peltate, densely imbricate, margin short ciliate, caducous. Flowers bisexual, 3 per bract. Tepals (4 or)5, free, recurved. Disk (4 or)5-lobed; lobes thick, fleshy, alternate with tepals. Ovary cylindrical to ellipsoid. Stigma sessile. Drupe puberulent; mesocarp fleshy; endocarp thin, woody; embryo with 3 cotyledons.

Two species: tropical Africa and Asia, NE Australia; one species in China.

#### 1. *Opilia amentacea* Roxburgh, Pl. Coromandel 2: 31. 1802.

山柚子 shan you zi

Lianas, to 30 m. Branches glabrescent. Petiole 5–10 mm; leaf blade lanceolate, ovate, or oblong, 7–14 × 3–5 cm, ± leathery, glabrous, base cuneate to sometimes rounded, apex acute

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to acuminate, midvein abaxially prominent; veins 7–9 on each side of midvein. Racemes 1 or 2, axillary, 2–4 cm, brownish tomentose; bracts broadly ovate, 2–3 mm. Pedicel 1.5–2 mm, puberulous. Tepals yellowish green, oblong, ca. 1.5 mm, pubescent. Filaments filiform, ca. 1.5 mm; anther ca. 0.3 mm. Disk

lobes ± clavate, ca. 0.5 mm. Ovary ca. 1 mm. Drupe reddish, ellipsoid, 2.5–3 × 1.4–1.6 cm; stipe thickened, ca. 5 mm. Fl. and fr. Apr–Jun.  $2n = 20$ .

Forests, thickets, mountain slopes; 500–800 m. S Yunnan [S and SE Asia; tropical Africa, Australia].

### 3. *LEPIONURUS* Blume, Bijdr. Fl. Ned. Ind. 1148. 1827.

鳞尾木属 lin wei mu shu

Shrubs, usually glabrous. Racemes axillary, glabrous; bracts densely imbricate, margin hyaline and short ciliate, usually caducous. Flowers bisexual, 3 per bract. Pedicel short. Perianth united, deeply (3 or)4(or 5)-lobed. Filaments flattened. Disk cupular, margin irregularly lobed. Ovary ovoid-conic. Stigma sessile, entire or shallowly 4-lobed. Drupe ellipsoid, sometimes ovoid; mesocarp fleshy; endocarp crustaceous; embryo with 3 or 4 cotyledons.

One species: SE Asia.

**1. *Lepionurus sylvestris*** Blume, Bijdr. Fl. Ned. Ind. 1148. 1827.

鳞尾木 lin wei mu

Shrubs ca. 1.5 m tall. Branchlets glabrous. Petiole 3–7 mm; leaf blade variable in shape, lanceolate to oblong, 8–17 × 1.5–4 cm, papery, base cuneate, apex acuminate; veins 6–12 on each side of midvein. Racemes 1 or 2, 2–2.5 cm; bracts greenish, broadly ovate, 5–7 mm, apex acute. Flowers on tubercle.

Pedicel ca. 1 mm. Perianth yellowish, 1.5–2 mm, tube ca. 0.5 mm; lobes 4, patent, ovate, apex acute. Stamens 4; filament ca. 0.3 mm; anther ca. 0.5 mm. Disk cupular. Ovary ca. 1 mm. Drupe orange, ellipsoid, 1.5–1.8 × ca. 1 cm, upon thickened disk; stipe 2–3 mm. Fl. and fr. Jul–Nov.  $2n = 20$ .

Thickets, mountain valleys; 300–1000 m. S to SW Yunnan [Bhutan, E India, Indonesia, Laos, Malaysia, Myanmar, Nepal, New Guinea, Sikkim, Thailand, Vietnam].

### 4. *UROBOTRYA* Stapf, J. Linn. Soc., Bot. 37: 89. 1905.

尾球木属 wei qiu mu shu

Shrubs or small trees. Branchlets glabrous or puberulous. Racemes axillary or at defoliate nodes; bracts narrowly lanceolate, ovate, or ± rounded, densely imbricate, margin hyaline and ciliate, usually caducous. Flowers bisexual, usually 3 per bract. Racemes glabrous. Pedicels glabrous or puberulous. Tepals 3 or 4(or 5), free, oblong, apex acute. Filaments filiform. Disk annular, fleshy. Ovary conic to cylindric. Stigma sessile. Drupe mesocarp thinly fleshy; embryo with 3 cotyledons.

Seven species: tropical Africa, SE Asia; one species in China.

**1. *Urobotrya latisquama*** (Gagnepain) Hiepko, Ber. Deutsch. Bot. Ges. 84: 662. 1972.

尾球木 wei qiu mu

*Lepionurus latisquamus* Gagnepain, Notul. Syst. (Paris) 1: 201. 1910.

Shrubs ca. 4 m tall. Branchlets glabrous. Petiole 1–3 mm, glabrous; leaf blade broadly lanceolate, sometimes obovate, 7–

13 × 3.5–5 cm, papery, base cuneate, apex acuminate; veins 7–12 on each side of midvein. Racemes (2–)7–11 cm; bract broadly ovate, 6–7 mm, apex acuminate. Pedicel 3–5 mm. Tepals 4, ca. 3 mm. Filaments 4–5 mm. Ovary conic, 1–1.5 mm. Drupe orange, ellipsoid 1–1.5 × 0.8–0.9 cm; stipe 4–5 mm. Fl. Apr–May, fr. Sep–Oct.

Forests, limestone hills; 200–400 m. SW Guangxi, S Yunnan [Laos, Myanmar, Thailand, Vietnam].

### 5. *CHAMPEREIA* Griffith, Calcutta J. Nat. Hist. 4: 237. 1844.

台湾山柚属 tai wan shan you shu

*Yunnanopilia* C. Y. Wu & D. Z. Li.

Shrubs or trees, polygamous. Branchlets glabrous. Inflorescences axillary, usually at defoliated nodes or on trunk, panicles, widely branched when with bisexual flowers, more dense and with thick branches when with female flowers; bracts minute. Flowers 4- or 5-merous. Pedicel glabrous. Bisexual flower: tepals reflexed; disk annular; ovary semi-sunken in disk; stigma sessile. Female flowers: tepals erect; stamens rudimentary; disk lobed. Drupe mesocarp fleshy; endocarp woody; embryo with 3 cotyledons.

One species: tropical SE Asia.

**1. *Champeriea manillana*** (Blume) Merrill, Philipp. J. Sci., C, 7: 233. 1912.

台湾山柚 tai wan shan you

Trees 2–10 m tall. Bark pale. Leaves glabrous; petiole 2–5 mm; leaf blade ovate, ± lanceolate, lanceolate, or oblong, 5–13 × 2.5–6 cm, ± leathery to papery, base cuneate to obtuse, apex acute to acuminate; veins 4–9 on each side of midvein. Panicles

1 or 2 fascicled, 4–20 cm; bracts ovate to lanceolate, ca. 0.5 mm, apex acute. Bisexual flower: pedicel 1–5 mm; tepals oblong, 1.5–1.7 mm; filaments filiform; anthers ovoid, ca. 0.3 mm; disk crenulate; ovary conic, ca. 0.5 mm. Female flowers: pedicel ca. 0.5 mm; tepals ca. 0.5 mm; staminodes ca. 0.2 mm; disk lobes smaller than staminodes; ovary cylindrical to ovoid, ca. 0.5 mm; stigma cushion-shaped. Drupe orange-red or red, ellipsoid, 1–2.5 × 0.7–1.7 cm; pedicel 1.5–5 mm. Fl. Feb–Jun, fr. Feb–Jul.

Forests, thickets, hills, valleys, slopes, along seashores; sea level to 1300 m. Guangxi, Taiwan, Yunnan [India (Andaman and Nicobar Islands), Indonesia, Malaysia, Myanmar, New Guinea, Philippines, Thailand, Vietnam].

- 1a. Drupe 1–1.5 cm; panicles 4–6 cm ..... 1a. var. *manillana*  
 1b. Drupe 2.2–2.5 cm; panicles 8–20  
 cm ..... 1b. var. *longistaminea*

**1a. *Champereia manillana* var. *manillana***

台湾山柚(原变种) tai wan shan you (yuan bian zhong)

*Cansjera manillana* Blume, Mus. Bot. 1: 246. 1851.

Trees 5–7 m tall. Leaf blade ovate to ± lanceolate, 5–8 × 2.5–5 cm, ± leathery; veins 4–8 on each side of midvein. Panicle 4–6 cm; bracts ovate, ca. 0.5 mm. Bisexual flowers: pedicel 2–5 mm; tepals ca. 1.5 mm; stamens ca. 1.5 mm. Drupe orange-red, 1–1.5 × 0.7–1 cm. Fl. and fr. Feb–Jun.

Forests, thickets, along seashores, hills; below 100 m. Taiwan [India (Andaman and Nicobar Islands), Indonesia, Malaysia, Myanmar, New Guinea, Philippines, Thailand, Vietnam].

**1b. *Champereia manillana* var. *longistaminea* (W. Z. Li) H. S. Kiu, J. Trop. Subtrop. Bot. 5(3): 3. 1997.**

茎花山柚 jing hua shan you

*Melientha longistaminea* W. Z. Li, Acta Bot. Yunnan. 11: 407. 1989; *Champereia longistaminea* (W. Z. Li) D. D. Tao; *Yunnanopilia longistaminea* (W. Z. Li) C. Y. Wu & D. Z. Li.

Shrubs or trees, 2–10 m tall. Leaf blade lanceolate, oblong, or ovate, 8–13 × 3–6 cm, papery to ± leathery; veins 5–9 on each side of midvein. Panicle 8–20 cm; bracts lanceolate, ca. 0.5 mm. Bisexual flowers: pedicel 1–2 mm; tepals 1.5–1.7 mm; stamens 1.5–1.7 mm. Drupe orange, 2.2–2.5 × 1.5–1.7 cm. Fl. Apr–May, fr. Jun–Jul.

- Forests, thickets, rocky limestone hills, valleys, slopes; 300–1300 m. Guangxi, Yunnan.

Wu Zhengyi (editor's note) does not agree with the treatment of this taxon at varietal rank under *Champereia manillana*. He believes it should be recognized at species rank under *Champereia*, if not as a distinct genus.

OPILIACEAE