

#### 4. OROPHEA Blume, Bijdr. 18. 1825.

澄广花属 cheng guang hua shu

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*Mezzettiopsis* Ridley.

Trees or erect shrubs. Leaf blade often with pellucid dots. Inflorescences axillary or superaxillary, cymose, pedunculate or sessile, 1- or several flowered. Flowers bisexual. Sepals 3, smaller than outer petals. Petals 6, in 2 whorls, free, each whorl valvate; outer petals ovate or obovate, usually smaller than inner petals ( $\pm$  equal in *Orophea hainanensis* and *O. laui*); inner petals with base narrowly clawed, apical limbs lozenge-shaped and cohering by margins to form a mitriform cap, apex usually acute or acuminate and sometimes extended, thickened, and recurved. Stamens 3–14; anther locules ovoid, extrorse; connectives apically acute or obtuse but not truncate. Carpels 3–15, free; ovules 1–4 per carpel; stigmas sessile or subsessile, capitate or ellipsoid. Fruit apocarpous; monocarps shortly stipitate, usually globose or oblong, sometimes constricted between seeds. Seeds 1–4 per monocarp.

About 37 species: S and SE Asia; six species (three endemic) in China.

All the Chinese species of *Orophea* belong to *O.* subg. *Sphaerocarpon* Kessler, distinguished by carpels with 2(or 3) ovules per carpel producing globose monocarps with hemispherical seeds. *Mezzettiopsis* is included here following Leonardia and Kessler (Blumea 46: 141–163. 2001).

- 1a. Leaf blade base oblique; petals reddish or reddish yellow.
  - 2a. Shrubs to 4 m tall; leaf blade base shallowly cordate, abaxially hirsute; carpels 3–6; monocarps villous ..... 1. *O. hirsuta*
  - 2b. Trees to 10 m tall; leaf blade base rounded, abaxially glabrous or glabrescent; carpels 12; monocarps glabrous ..... 2. *O. polycarpa*
- 1b. Leaf blade base equilateral; petals white, yellowish green, or greenish.
  - 3a. Leaf blade leathery; stamens 9–14; carpels hairy.
    - 4a. Secondary veins of leaves 10–15 on each side of midvein; carpels 3; inner petals  $\pm$  as long as outer petals ..... 3. *O. yunnanensis*
    - 4b. Secondary veins of leaves 7–11 on each side of midvein; carpels 9–18; inner petals much longer than outer petals, tips conspicuously recurved and thickened ..... 6. *O. laui*
  - 3b. Leaf blade papery; stamens 6–9; carpels glabrous.
    - 5a. Shrubs 2–4 m tall; petioles, leaf blades abaxially, sepals, and petals outside pubescent; inner petals clearly longer than outer petals; carpels 3 ..... 4. *O. multiflora*
    - 5b. Trees 6–8 m tall; petioles, leaf blades, sepals, and petals glabrous; inner and outer petals subequal; carpels 6 ..... 5. *O. hainanensis*

**1. *Orophea hirsuta*** King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 61(2): 81. 1892.

毛澄广花 mao cheng guang hua

Shrubs to 4 m tall. Branchlets, petioles, leaf blades abaxially, and peduncles persistently ferruginous hispid. Petiole 1–2 mm; leaf blade elliptic to oblong, 3.5–12  $\times$  1.5–5 cm, papery, secondary veins 7–11 on each side of midvein, base obliquely shallowly cordate, apex acuminate to acute. Inflorescences superaxillary, cymose, 1–3-flowered; peduncle 1–1.5 cm. Pedicel ca. 4.5 mm, with 1 or 2 bracteoles at base. Sepals broadly ovate, puberulent. Petals reddish; outer petals broadly ovate, 3–4 mm, outside puberulent; inner petals ca. 8 mm, inside sparsely puberulent, basally long clawed, apically lozenge-shaped. Stamens 6. Carpels 3–6, glabrous; ovules 2 or 3 per carpel. Monocarp stipes 1–2 mm; monocarps globose, 0.8–1.3 cm in diam., sparsely villous. Fl. Apr–Jul, fr. Jul–Dec.

Forested slopes; 300–600 m. Hainan, S Yunnan [Cambodia, India, Laos, Malaysia, Vietnam].

**2. *Orophea polycarpa*** A. Candolle, Mém. Soc. Phys. Genève 5: 215. 1832.

广西澄广花 guang xi cheng guang hua

*Orophea anceps* Pierre; *O. gracilis* King; *O. polycarpa* var. *anceps* (Pierre) Jovet-Ast [“Ast”]; *O. polycarpa* var.

*undulata* (Pierre) Jovet-Ast [“Ast”]; *O. polycephala* Pierre; *O. undulata* Pierre.

Trees to 10 m tall. Branchlets grayish brown, pubescent when young, glabrescent. Petiole 1.5–3 mm, glabrous or glabrescent; leaf blade elliptic to oblong-elliptic, 4–10  $\times$  1.5–4.5 cm, thickly papery, glabrous or abaxially glabrescent, secondary veins 8–10 on each side of midvein, base obliquely rounded, apex shortly acuminate to obtuse. Inflorescences axillary, 1-flowered. Flowers small. Pedicel filiform, 5–10 mm, bracteolate near base. Sepals triangular, ca. 2  $\times$  1.5 mm, outside puberulent, inside glabrous. Petals reddish; outer petals elliptic to orbicular, 4–5  $\times$  3–4 mm, outside puberulent, inside glabrous; inner petals rhombic, 8–9  $\times$  ca. 5 mm, glabrous, base long clawed, margin apically ciliate and revolute toward apex. Stamens 6; connectives apically conic. Carpels 12, glabrous; ovules 2 per carpel. Monocarp stipes 5–7 mm; monocarps globose, 0.5–1.9 cm in diam. Fl. Jul–Sep, fr. Aug–Nov.

Open forests; ca. 600 m. Guangxi, Hainan, SE Yunnan [Bangladesh, Cambodia, Laos, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam].

**3. *Orophea yunnanensis*** P. T. Li, Acta Phytotax. Sin. 14(1): 106. 1976.

云南澄广花 yun nan cheng guang hua

Shrubs ca. 2 m tall. Bark grayish black. Branchlets glabrous. Petiole ca. 3 mm; leaf blade oblong-elliptic to oblong-ovate,  $2.5\text{--}7.5 \times 1\text{--}2.3$  cm, leathery, glabrous except abaxially puberulent on midvein, midvein adaxially flat, secondary veins 10–15 on each side of midvein and slightly elevated on both surfaces, base attenuate to broadly cuneate, apex acuminate. Inflorescences axillary, 1- or 2-flowered. Flowers ca. 3 mm in diam. Pedicel 2–5 mm, bracteolate at base or to near middle. Sepals triangular, outside puberulent, inside glabrous. Petals greenish yellow; outer petals ovate-triangular,  $2.5\text{--}3 \times 1.5\text{--}2$  mm, outside pubescent, inside glabrous; inner petals  $\pm$  as long as outer petals. Stamens ca. 12, ovoid; connectives apically acute. Carpels 3, densely villous; ovules 3 per carpel; stigmas capitate. Fruit not seen. Fl. Apr, fr. May–Jul.

- Forested slopes; ca. 600 m. Yunnan (Jiangchuan).

*Orophea yunnanensis* is listed as Critically Endangered (CR B1ab(i,ii,v)) by the IUCN Red List of Threatened Species (Version 2010.3; <http://www.iucnredlist.org>; accessed on 6 Oct 2010).

**4. *Orophea multiflora*** Jovet-Ast, Notul. Syst. (Paris) 9: 85. 1940.

多花澄广花 duo hua cheng guang hua

*Orophea chinensis* S. Z. Huang.

Shrubs to 4 m tall, erect. Bark grayish brown. Branchlets hispid when young, glabrescent. Petiole ca. 2 mm, hispid; leaf blade elliptic to oblong-elliptic,  $5\text{--}9 \times 2\text{--}3.5$  mm, thickly papery, abaxially sparsely hispid or glabrous, adaxially glabrous, secondary veins 6–9 on each side of midvein, base rounded, apex acuminate. Inflorescences axillary, cymose, 1–3-flowered. Flowers ca. 5 mm in diam. Pedicel ca. 2 mm, hispid. Sepals ovate-triangular,  $1\text{--}2 \times$  ca. 1 mm, outside pubescent, inside glabrous. Petals greenish yellow; outer petals orbicular, ca.  $3 \times 2\text{--}3$  mm, outside pubescent, inside glabrous; inner petals ovate-triangular,  $5\text{--}8 \times 2\text{--}4$  mm, outside densely pubescent, inside glabrous. Stamens 9; filaments very short. Carpels 3, glabrous; ovules 2 or 3 per carpel; stigmas capitate. Monocarps globose, ca. 1 cm in diam. Fl. Mar, fr. Apr–Jun.

- Forests on limestone; ca. 500 m. SW Guangxi [Vietnam].

The name *Orophea multiflora* was first published in 1938 (Fl. Indo-Chine, Suppl. 1: 121) but not validly so.

**5. *Orophea hainanensis*** Merrill, J. Arnold Arbor. 6: 132. 1925.

澄广花 cheng guang hua

Trees to 8 m tall. Branchlets sparsely pubescent or glabrous. Petiole 2–3 mm, glabrous or glabrescent; leaf blade elliptic to ovate,  $4\text{--}9.5 \times 2\text{--}4$  cm, thickly papery, glabrous, secondary veins 4–7 on each side of midvein, base broadly cuneate, apex shortly acuminate to acute. Inflorescences axillary or superaxillary, usually 1–3-flowered, sparsely pubescent; peduncle 4–20 cm; bracts ciliate. Flowers 3–5 mm in diam. Pedicel 4–10 mm. Sepals ovate-triangular,  $1.5\text{--}2 \times 1\text{--}1.5$  mm, golden pubescent, apex acute. Petals greenish white; outer petals broadly ovate to orbicular, ca.  $4 \times 4$  mm, margin ciliate, apex acute; inner petals 7–8 mm, basal half a long and incurved claw, apex rhombic to ovate-triangular. Stamens 6; connectives apically incurved and mucronulate. Carpels 6–10, glabrous; ovules 2 per

carpel; stigmas subcapitate, puberulent. Monocarp stipes 2–5 mm; monocarps globose, 7–8 mm in diam. Fl. Apr–Jul, fr. Jun–Dec.

- Dense woodlands; 400–700 m. Hainan, Guangxi.

**6. *Orophea laui*** Leonardia & Kessler, Blumea 46: 157. 2001.

蚊花 yi hua

Shrubs or small trees, 2.5–15 m tall. Branchlets slender, sparsely pubescent or glabrous. Petiole 3–7 mm; leaf blade oblong, narrowly oblong, or lanceolate,  $5.5\text{--}19 \times 2.2\text{--}7.5$  cm,  $\pm$  thickly papery to thinly leathery, sparsely pubescent or glabrous, midvein abaxially sometimes hispid and adaxially flat to slightly sunken, secondary veins 7–11 on each side of midvein, base cuneate, apex acute to shortly acuminate. Inflorescences axillary, cymose, 6-flowered or more, densely pubescent; peduncle 4–15 mm. Pedicel 0.9–1.2 cm, bracteolate near base. Sepals triangular to broadly ovate,  $2\text{--}2.5 \times$  ca. 2 mm, outside densely puberulent. Outer petals sepal-like, ovate,  $3\text{--}4 \times 3\text{--}4$  mm, outside greenish white, slightly warty, and pubescent; inner petals  $13\text{--}16 \times 2\text{--}4$  mm, slightly warty, sparsely hairy, basally clawed, limb strongly recurved and thickened. Stamens 9 in a single whorl or 12 (or 14) in 2 whorls; connectives apically rounded. Carpels 9–18, sparsely hairy, glabrescent; ovules 2–6 per carpel; stigmas capitate. Fruiting pedicel 4–9 mm, 1.5–2 mm thick; monocarp stipes  $6\text{--}10 \times$  ca. 1 mm; monocarps ca. 10, globose, 1–1.3(–2) cm in diam., glabrous. Seeds 1 or 2 per monocarp.

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

This species was originally included within *Orophea creaghii* (Ridley) Leonardia & Kessler (*Mezzettiopsis creaghii* Ridley), but Leonardia and Kessler believe that the Chinese material originally identified as that species (Merrill, Lingnan Sci. J. 14: 5. 1935) is better treated as a distinct species endemic to China. *Orophea creaghii* s.s. differs by the leaves drying dark reddish brown and with shortly caudate tips and is found in Indonesia, Malaysia, and the Philippines.

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