

22. FISSISTIGMA Griffith, Not. Pl. Asiat. 4: 706. 1854.瓜馥木属 *gua fu mu shu*

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

Climbers, with simple hairs, usually pubescent to tomentose and sometimes copiously so. Leaf blade with many stout parallel secondary veins. Inflorescences mostly leaf-opposed or terminal, less often axillary or infra-axillary, 1- to many flowered and forming cymes, glomerules, or branched panicles. Pedicel often with several bracteoles from base to middle. Flower buds ovoid or oblong-conic. Sepals 3, small, valvate, connate at very base. Petals 6, in 2 whorls, valvate, leathery, margin thickened; outer petals slightly larger than inner petals, erect or spreading, inside flat to convex; inner petals 3-edged, base concave. Stamens many; connectives slightly enlarged, apically oblique, obtuse, or slightly apiculate. Carpels many, free, often pubescent, slightly curved, grooved on inner side; ovules 1–16 per carpel, in 1 or 2 sutural series; styles sometimes narrowly clavate but usually not enlarging; stigmas very short and not clearly differentiated from style, apex 2-cleft or entire. Fruit apocarpous; monocarps few to many, stipitate, spherical, ovoid, or oblong, thick walled, usually pubescent to tomentose. Seeds 1–10 per monocarp, in 1 or 2 series, smooth, shiny.

About 75 species: Old World tropics and subtropics; 23 species (eight endemic) in China.

- 1a. Inflorescence 1- or 2-flowered.
- 2a. Flowers leaf-opposed, ca. 1.2 cm in diam.; outer petals rounded, ca. 6 mm; inner petals ca. 4 mm 1. *F. cupreonitens*
- 2b. Flowers axillary or subaxillary, 3–4 cm in diam.; outer petals ovate-triangular or oblong, 14–24 mm; inner petals 10–14 mm.
- 3a. Leaf blade oblong; pedicel ca. 2 cm; stigmas apically entire; ripe carpels 4–5 × ca. 4 cm 2. *F. uonicum*
- 3b. Leaf blade lanceolate to elliptic-lanceolate; pedicel ca. 0.5 cm; stigmas apically 2-cleft; ripe carpels ca. 1.8 × 1.5 cm 3. *F. maclurei*
- 1b. Inflorescence usually more than 2-flowered, often in cymes, glomerules, or panicles.
- 4a. Leaf blade abaxially glabrous or obscurely sparsely pubescent, glabrescent.
- 5a. Leaf blade abaxially grayish white or grayish green and glaucous when dry.
- 6a. Leaf blade 1.2–6 cm wide; inflorescences thyrses; petals 5–6 mm; ovaries 1-ovuled; stigmas apically 2-cleft 4. *F. glaucescens*
- 6b. Leaf blade 6–8 cm wide; inflorescences cymes; petals ca. 15 mm; ovaries ca. 30-ovuled; stigmas apically entire 5. *F. pallens*
- 5b. Leaf blade greenish or abaxially grayish green and not glaucous.
- 7a. Leaf blade base truncate to slightly cordate, secondary veins 18–20 on each side of midvein; stigmas apically entire; ripe monocarps 3.5–4 cm wide; ovules ca. 10 per carpel 6. *F. chloroneurum*
- 7b. Leaf blade base rounded, obtuse, or broadly cuneate, secondary veins 13–15 on each side of midvein; stigmas apically 2-cleft; ripe monocarps 2–3 cm wide; ovules 4 or ca. 22 per carpel.
- 8a. Young branchlets ferruginous pubescent; cymes usually leaf-opposed or alternate; ovules 4 per carpel; ripe monocarps glabrescent 7. *F. wallichii*
- 8b. Branchlets glabrous; panicles terminal or axillary; ovules ca. 22 per carpel; ripe monocarps densely fulvous tomentulose 8. *F. tonkinense*
- 4b. Leaf blade abaxially densely tomentose, densely pubescent, or hispid.
- 9a. Flowers in panicles or cymes.
- 10a. Inflorescence rachides 1–28 cm.
- 11a. Leaf blade apex acute; flower buds ovoid; petals ovate; stamen connectives ovoid, apex obtuse 9. *F. latifolium*
- 11b. Leaf blade apex rounded or retuse; flower buds conic or lanceolate; petals oblong-lanceolate or ovate-elliptic; stamen connectives conic or broadly ovoid, apex acuminate or truncate.
- 12a. Peduncle to 28 cm; pedicel 2–3 mm; petals ovate-elliptic to ovate-oblong; stamen connectives apically acuminate; stigma apex 2-cleft 10. *F. tungfangense*
- 12b. Peduncle ca. 1 cm; pedicel ca. 15 mm; petals oblong-lanceolate to narrowly lanceolate; stamen connectives apically truncate; stigma apex entire 11. *F. tientangense*
- 10b. Inflorescence rachides 0.1–0.5 cm.
- 13a. Leaf blade secondary veins adaxially flattened; stigma apex 2-cleft.
- 14a. Sepals connate at base, broadly triangular, ca. 3 × 3.5 mm; stamen connectives broadly triangular 12. *F. polyanthoides*
- 14b. Sepals free at base, ovate-triangular, ca. 2 × 2 mm; stamen connectives obliquely triangular 13. *F. poilanei*
- 13b. Leaf blade secondary veins adaxially concave; stigma apex entire.

- 15a. Leaf blade base cuneate to broadly cuneate; inner petals pubescent outside; ripe monocarps ca. 1.2 cm in diam. 14. *F. acuminatissimum*
- 15b. Leaf blade base shallowly cordate; inner petals glabrous outside; ripe monocarps 2–2.5 cm in diam. 15. *F. cavaleriei*
- 9b. Flowers in glomerules.
- 16a. Leaf blade secondary veins 25–35 on each side of midvein; ripe monocarps ca. 4 cm in diam. 16. *F. balansae*
- 16b. Leaf blade secondary veins 13–20 on each side of midvein; ripe monocarps 1.5–3 cm in diam.
- 17a. Leaf blade secondary veins adaxially flattened.
- 18a. Branches and abaxial leaf blade surfaces densely tomentose; outer petals with a prominent abaxial midrib; stamen connectives subrounded or truncate 17. *F. xylopetalum*
- 18b. Branches and abaxial leaf blade surfaces pubescent to glabrescent; outer petals without a prominent midrib; stamen connectives triangular or slightly obliquely triangular.
- 19a. Petals 2–2.1 cm; ovules 10 per carpel; stigmas apically 2-cleft 18. *F. oldhamii*
- 19b. Petals 0.9–1.2 cm; ovules 4–6 per carpel; stigmas apically entire 19. *F. polyanthum*
- 17b. Leaf blade secondary veins adaxially concave.
- 20a. Bracteoles many, longer than or as long as sepals; stigmas apically 2-cleft 20. *F. bracteolatum*
- 20b. Bracteoles few or absent, if present shorter than sepals; stigmas apically entire.
- 21a. Leaf blade oblong-lanceolate to narrowly oblong, apex slightly acute; stamen connectives long lanceolate 21. *F. kwangsiense*
- 21b. Leaf blade broadly ovate, obovate, or obovate-oblong, apex rounded or retuse; stamen connectives broadly or obliquely triangular.
- 22a. Leaf blade base rounded, truncate, or shallowly cordate; inflorescences leaf-opposed; sepals ovate-lanceolate, ca. 1 cm; outer petals ovate-oblong, ca. 1.5 cm; ovules 4 per carpel; ripe monocarps globose 22. *F. retusum*
- 22b. Leaf blade base broadly cuneate or rounded; inflorescences extra-axillary; sepals broadly triangular, ca. 5 mm; outer petals ovate, ca. 1 cm; ovules 10 per carpel; ripe monocarps oblong 23. *F. shangtzeense*

1. *Fissistigma cupreonitens* Merrill & Chun, Sunyatsenia 2: 8. 1934.

金果瓜馥木 jin guo gua fu mu

Climbers to 13 m tall. Branchlets, petioles, and flowers densely appressed reddish brown pubescent, glabrescent. Petiole 0.8–1.2 cm; leaf blade oblong to oblong-elliptic, 5–10 × 1.5–3 cm, leathery, abaxially densely appressed reddish brown pubescent, adaxially glabrous except for appressed pubescence on midvein, secondary veins 8–13 on each side of midvein, slender, and adaxially flat, base rounded, apex acute to shortly acuminate. Inflorescences leaf-opposed, 1-flowered; bracts triangular. Flowers ca. 1.2 cm in diam. Pedicel ca. 1 cm. Sepals broadly triangular, ca. 6 mm, basally connate. Outer petals rounded, ca. 6 mm, incurved; inner petals ca. 4 mm, inside basally depressed. Stamens oblong, ca. 1 mm; connectives 3-angular. Carpels oblong, ca. 2 mm, sericeous pubescent; ovules ca. 14 per carpel, in 2 series; stigma apex entire. Fruiting pedicel ca. 2 mm, robust; monocarp stipes ca. 1.5 cm; monocarps globose, ovoid-ellipsoid, or ellipsoid, ca. 3 × 2 cm, densely reddish brown tomentose, apex rounded or mucronulate. Seeds ca. 14 per monocarp, brown, in 2 series, ovoid, subflattened, ca. 1.4 × 0.9 cm. Fl. Apr–Nov, fr. Jun–Dec.

- Densely forested slopes; 300–1000 m. SE Guangxi.

Fissistigma cupreonitens is listed as Endangered (EN B2ab(ii,iv)) by the *IUCN Red List of Threatened Species* (Version 2010.3; <http://www.iucnredlist.org>; accessed on 8 Oct 2010).

2. *Fissistigma uonicum* (Dunn) Merrill, Philipp. J. Sci. 15: 137.

1919.

香港瓜馥木 xiang gang gua fu mu

Melodorum uonicum Dunn, J. Bot. 48: 323. 1910; *Fissistigma clementis* Merrill.

Climbers to 5 m tall. Branches glabrous. Petiole 5–10 mm, blackish and minutely transversely wrinkled when dried; leaf blade oblong, 4–20 × 1–5 cm, papery, abaxially yellowish, very sparsely puberulent, and reddish yellow when dry, adaxially glabrous, secondary veins 8–12[–18] on each side of midvein and adaxially flat to slightly prominent, tertiary veins inconspicuously raised, base rounded to cuneate, apex acute. Inflorescences axillary or subaxillary, sometimes ± grouped into terminal thyrses, 1- or 2-flowered; peduncle 1–3 mm; bracts minute, scalelike. Flowers fragrant. Pedicel ca. 2 cm, minutely appressed pubescent, minutely bracteolate below middle. Sepals ovate-triangular, ca. 2 mm, outside pubescent, inside glabrous. Petals yellow; outer petals ovate-triangular, ca. 2.4 × 1.4 cm, thickened, outside fulvous pubescent, inside glabrous, apex obtuse; inner petals lanceolate, 1.2–1.4 × ca. 0.6 cm, inside basally concave and apically convex. Stamens oblong; connectives 3-angular. Carpels oblong, pubescent; ovules 9–16 per carpel, in 2 series; styles cylindrical, short, glabrous; stigmas apically entire. Monocarp stipes short, thick; monocarps globose to shortly cylindrical, 4–5 × ca. 4 cm, pubescent to glabrescent. Seeds 9–16 per monocarp, in 2 series. Fl. Mar–Jun, fr. Jun–Dec.

Forest margins, scrub; 100–800 m. Fujian, Guangdong, Guizhou, Hainan, Hunan [Indonesia].

The fruit of *Fissistigma uonicum* are edible; its leaves are used as

yeast powder to start fermentation when making liquor in Guangxi and Hainan.

3. Fissistigma maclurei Merrill, Philipp. J. Sci. 21: 342. 1922.

毛瓜馥木 mao gua fu mu

Meiogyne maclurei (Merrill) Sinclair; *Melodorum maclurei* (Merrill) Jovet-Ast ["Ast"].

Climbers to 6 m tall, most parts fulvous to blackish brown tomentose. Petiole 5–8 mm, blackish brown tomentose; leaf blade lanceolate to elliptic-lanceolate, 7–12 × 2–3.5 cm, thinly leathery, abaxially fulvous to blackish brown tomentose, adaxially glabrous, secondary veins 13–17 on each side of midvein and adaxially flat, reticulate veins prominent, base obtuse, apex acute to acuminate. Inflorescences axillary, 1-flowered. Pedicel ca. 5 mm, robust. Sepals ovate-oblong, ca. 5 mm, blackish brown villous. Petals thickened; outer petals oblong, ca. 1.4 cm, villous; inner petals shorter than outer petals, pubescent. Stamens oblong, nearly as long as carpels; connectives 3-angular, apex acute. Carpels fulvous pubescent; ovules 10 per carpel, in 2 series; stigmas apically 2-cleft. Fruiting pedicel 2–2.5 cm, densely blackish brown tomentose; monocarps globose to subglobose, ca. 1.8 × 1.5 cm, densely blackish brown tomentose. Seeds 7–9 per monocarp, deep yellow, reniform, ca. 10 × 6 mm. Fl. Feb–Aug, fr. Apr–Oct.

Forested slopes, often in valleys or beside water; 200–1100 m. Guangxi, Hainan, S Yunnan [Vietnam].

4. Fissistigma glaucescens (Hance) Merrill, Philipp. J. Sci. 15: 132. 1919.

白叶瓜馥木 bai ye gua fu mu

Melodorum glaucescens Hance, J. Bot. 19: 112. 1881; *Fissistigma obtusifolium* Merrill.

Climbers to 6 m tall, most parts glabrous except for inflorescences. Petiole 4–12 mm, blackish and minutely transversely wrinkled when dried, pubescent when young, glabrescent; leaf blade oblong, oblong-elliptic, or sometimes obovate-oblong, 3–20 × 1.2–6 cm, thinly leathery, abaxially grayish green and glaucous when dry, secondary veins 10–15 on each side of midvein and adaxially very slightly prominent or flat, tertiary veins inconspicuously raised, base rounded, apex rounded to slightly retuse. Inflorescences terminal, thyrsoid, to 6 cm, sometimes continuing vegetatively and cymes apparently axillary, cymules 2- or 3-flowered, brownish tomentose; peduncle very short. Pedicel to 1.2 cm. Sepals broadly triangular, ca. 2 mm. Outer petals broadly ovate, ca. 6 mm, fulvous pubescent; inner petals ovate-oblong, ca. 5 mm, grayish white pubescent. Stamens oblong; connectives 3-angular. Carpels ca. 15, ellipsoid, fulvous pubescent; ovule 1 per carpel; styles elongate, glabrous; stigmas apically 2-cleft. Monocarp stipes ca. 3 mm; monocarps ca. 8 mm in diam., glabrous. Seed 1 per monocarp. Fl. Jan–Sep, fr. Mar–Dec.

Sparsely forested slopes, scrub, often in ravines; 100–1000 m. Fujian, Guangdong, Guangxi, Hainan, Taiwan [Vietnam].

A fine strong bast fiber obtained from the inner bark of *Fissistigma glaucescens* is used to make rope, sacks, and paper; its roots are used as medicine for rheumatism and injury; and its leaves are used as

yeast powder to start fermentation when making liquor in Guangdong and Hainan.

5. Fissistigma pallens (Finet & Gagnepain) Merrill, Philipp. J. Sci. 15: 134. 1919.

苍叶瓜馥木 cang ye gua fu mu

Melodorum pallens Finet & Gagnepain, Bull. Soc. Bot. France 53(Mém. 4): 137. 1906; *Fissistigma petelotii* Merrill.

Climbers to 12 m tall. Branches robust, grayish black, glabrous. Petiole ca. 2 cm, rugose, glabrous; leaf blade oblong, 15–20 × 6–8 cm, papery, abaxially grayish white and sparsely puberulent, adaxially glabrous, secondary veins 13–16 on each side of midvein, reticulate veins apparent, base obtuse to rounded, apex obtuse to acute. Inflorescences leaf-opposed or terminal, 1–3-flowered; peduncle ca. 1.5 cm; bracts triangular. Pedicel ca. 2 cm, puberulent, with triangular bract at base. Sepals triangular, outside puberulent. Petals ovate, ca. 1.5 × 1 cm, puberulent; inner petals slightly smaller than outer petals. Stamens oblong, ca. 2.5 mm; connectives broadly triangular, apex obtuse. Carpels many, cylindrical, ca. 5 mm, villous; ovules ca. 30 per carpel, in 2 series; styles oblique, glabrous; stigmas 3-angular, apex entire. Fruit not seen. Fl. Mar–May, fr. Jun–Aug.

Forested slopes; 600–800 m. W Guangxi [Vietnam].

6. Fissistigma chloroneurum (Handel-Mazzetti) Tsiang, J. Bot. Soc. China 2: 693. 1935.

阔叶瓜馥木 kuo ye gua fu mu

Melodorum chloroneurum Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 61: 83. 1924.

Climbers to 12 m tall. Branches puberulent when young, glabrescent. Petiole 0.8–2 cm, abaxially grooved, glabrous; leaf blade oblong, 14–30 × 5.5–12 cm, papery, abaxially puberulent when young but glabrescent and greenish with age, adaxially dark green and glabrous, secondary veins 15–20 on each side of midvein and adaxially flat, reticulate veins conspicuous, base truncate to shallowly cordate, apex shortly acuminate. Inflorescences leaf-opposed or subopposed, cymose, 2–8-flowered; peduncle 1–2 mm; bracts ovate, pubescent. Pedicel 0.5–2.3 cm, fulvous pubescent, bracteolate at middle. Flower buds broadly ovoid. Sepals triangular, ca. 4 × 4 mm, outside pubescent. Petals yellowish white; outer petals ovate-oblong, ca. 12 × 5(–10) mm, outside fulvous pubescent, inside glabrous; inner petals ovate-triangular, ca. 8(–11) × 4(–7) mm, outside pubescent, inside glabrous. Stamens oblong, ca. 1.2 mm; connectives apically rounded. Carpels ca. 15, ovate-oblong, 2–3 mm, densely pubescent; ovules 10 per carpel, in 2 series; styles short; stigmas ellipsoid, apex entire. Fruiting monocarps globose, subglobose, ellipsoid, or obovoid, 3.5–6 × 3.5–4 cm, glabrous. Seeds 10–20 per monocarp, in 2 series. Fl. Mar–Nov, fr. Jul–Dec.

Open woodland slopes, moist disturbed scrub; 100–900 m. Guangxi, Guizhou, SW Hunan, Yunnan [Vietnam].

7. Fissistigma wallichii (J. D. Hooker & Thomson) Merrill, Philipp. J. Sci. 15: 137. 1919.

贵州瓜馥木 *gui zhou gua fu mu*

Melodorum wallichii J. D. Hooker & Thomson, Fl. Ind. 1: 118. 1855; *Fissistigma oligocarpum* W. T. Wang.

Climbers to 7 m tall. Branchlets ferruginous pubescent when young, glabrescent. Petiole 1–2.5 cm, blackish and minutely transversely wrinkled when dried, pubescent when young, glabrescent; leaf blade oblong-lanceolate, oblong-elliptic, or sometimes obovate-oblong, 7–24 × 2.4–6 cm, thinly leathery, abaxially ferruginous pubescent when young but glabrescent and grayish green with age, adaxially glabrous, secondary veins 10–14 on each side of midvein and adaxially flat, tertiary veins partly parallel and also often irregularly branched, reticulate veins inconspicuous, base rounded, obtuse, or sometimes broadly cuneate, apex obtuse to shortly acuminate. Inflorescences leaf-opposed or alternate, sometimes terminal, cymose, umbel-like, 3–7-flowered, ferruginous pubescent; peduncle short; bracts ovate, pubescent. Pedicel 0.3–2 cm, 1- or 2-bracteolate. Sepals ovate-triangular, ca. 3 × 2.3 mm, outside pubescent, inside glabrous. Petals leathery; outer petals ovate-oblong, 1.5–1.7 × ca. 0.7 cm, outside densely ferruginous pubescent, inside slightly puberulent; inner petals lanceolate, ca. 1.3 × 0.4 cm, inside basally glabrous and concave, apically puberulent. Stamens oblong; connectives ovoid. Carpels 2–6, densely pubescent; ovules 4 per carpel; styles cylindric, incurved; stigmas apically slightly 2-cleft. Monocarps subglobose, ca. 2.8 cm in diam., glabrescent. Fl. Mar–Nov, fr. Jul–Dec.

Densely forested slopes, open forests in valleys; 400–1600 m. W Guangxi, S Guizhou, S Yunnan [NE India].

8. *Fissistigma tonkinense* (Finet & Gagnepain) Merrill, Philipp. J. Sci. 15: 136. 1919.

东京瓜馥木 *dong jing gua fu mu*

Melodorum tonkinense Finet & Gagnepain, Bull. Soc. Bot. France 53(Mém. 4): 135. 1906; *Fissistigma globosum* C. Y. Wu ex P. T. Li.

Climbers to 8 m tall. Branches grayish black to grayish brown, glabrous. Petiole 0.5–1.5 cm, grayish black, verrucate, abaxially grooved; leaf blade oblong to oblong-ovate, 16–20 × 4–6 cm, papery, abaxially sparsely pubescent when young but glabrescent, adaxially glabrous, secondary veins 10–14 on each side of midvein, obliquely ascending to margin, and adaxially flat, reticulate veins prominent, base rounded, apex shortly acuminate. Inflorescences terminal or axillary, paniculate, puberulent; peduncle 1–3.5 cm, with bracts at base; bracts triangular, margins ciliate. Pedicel 0.5–1.5 cm, bracteolate at base and middle. Sepals broadly triangular, ca. 4 × 5 mm, outside puberulent. Outer petals ovate, ca. 10 × 7.5 mm, margins thickened, puberulent, apex obtuse; inner petals oblong-ovate, ca. 10 × 5 mm, thickened at middle, outside and inside puberulent from middle to apex, inside concave from base to middle. Stamens oblong, ca. 3 mm; connectives ovoid, apex subrounded. Carpels subcylindric, villous; ovules ca. 22 per carpel, in 2 series; styles short; stigmas obliquely ovoid, glabrous, apex 2-cleft. Fruiting pedicel ca. 1.2 cm, fulvous tomentulose; monocarp stipes 1.5–2 cm; monocarps globose, 2–3 cm in diam., densely fulvous tomentulose. Seeds ca. 7 per monocarp, reddish

brown, shiny, oblong, flat, ca. 1.5 × 0.9 cm. Fl. Nov–Jan, fr. Mar–May.

Forested slopes; 200–800 m. SE Yunnan [Vietnam].

9. *Fissistigma latifolium* (Dunal) Merrill, Philipp. J. Sci. 15: 132. 1919.

大叶瓜馥木 *da ye gua fu mu*

Unona latifolia Dunal, Monogr. Anonac. 115. 1817; *Melodorum latifolium* (Dunal) J. D. Hooker & Thomson.

Climbers to 5 m tall. Branches tawny pubescent when young, glabrescent. Petiole 1–1.5 cm, robust, abaxially grooved, tawny pubescent; leaf blade oblong, oblong-elliptic, or obovate, 13–35 × 5–15 cm, papery, abaxially tawny pubescent and more densely so on veins, adaxially puberulent, secondary veins 18–22 on each side of midvein, at ca. 45° to midvein, anastomosing before margin, and adaxially impressed, reticulate veins dense and nearly at 90° to secondary veins, base rounded, apex acute. Inflorescences leaf-opposed, panicles borne on apical branches, to 20 cm, densely tawny pubescent; peduncle 1.5–1.8 cm; bracts broadly ovate, 3–4 × 3–4 mm, abaxially densely tawny pubescent. Pedicel ca. 2 cm, bracteolate at middle. Flower buds ovoid, recurved. Sepals broadly ovate, 5–6 × 5–6 mm, outside densely tawny pubescent. Outer petals outside reddish and basally orange, inside orangish red, ovate, 1.6–2.2 × 1.1–1.5 cm, thickened, outside brown pubescent, inside glabrous; inner petals ovate, 1.2–1.5 × 0.6–0.8 cm, glabrous. Stamens oblong, ca. 2.5 mm; connectives ovoid, apex obtuse. Carpels oblong, densely villous; ovules 8 per carpel; stigmas pubescent. Monocarp stipes ca. 3 cm, pubescent; monocarps globose, ca. 2 cm in diam., densely brown pubescent. Seeds 4–8 per monocarp. Fl. Mar–Nov, fr. Jun–Jan.

Forested slopes; 500–1200 m. S Yunnan [India, Indonesia, Malaysia, Philippines, Thailand, Vietnam].

10. *Fissistigma tungfangense* Tsiang & P. T. Li, Acta Phytotax. Sin. 9: 377. 1964.

东方瓜馥木 *dong fang gua fu mu*

Climbers to 6 m tall, most parts densely red tomentose, glabrescent. Petiole 1–1.5 cm; leaf blade spatulate to elliptic-oblong, 5–11 × 1.9–4.1 cm, leathery, abaxially yellowish brown pilose, adaxially glabrous, secondary veins 16–22 on each side of midvein and adaxially impressed, reticulate veins inconspicuous, base rounded to broadly cuneate, margin revolute, apex rounded to retuse. Inflorescences terminal or leaf-opposed, paniculate; peduncle to 28 cm; bracts broadly triangular, red tomentose. Pedicel 2–3 mm, 1- or 2-bracteolate. Flower buds conic, ca. 1.1 cm. Sepals broadly triangular, ca. 4 × 3 mm, glabrous. Outer petals ovate-elliptic, ca. 11 × 5 mm, inside glabrous; inner petals ovate-oblong, ca. 8 × 4 mm. Stamens oblong, ca. 1 mm; connectives conic. Carpels oblong, 1.5–2 mm, sericeous pubescent; ovules 10 per carpel, in 2 series; stigmas glabrous, apex 2-cleft. Fruit not seen. Fl. Oct, fr. Nov–Dec.

• Sparsely forested slopes; 400–600 m. W Hainan.

Fissistigma tungfangense is listed as Critically Endangered (CR B1ab(i,ii)) by the IUCN Red List of Threatened Species (Version 2010.3; <http://www.iucnredlist.org>; accessed on 8 Oct 2010).

11. *Fissistigma tientangense* Tsiang & P. T. Li, Acta Phytotax. Sin. 10: 326. 1965.

天堂瓜馥木 tian tang gua fu mu

Climbers to 9 m tall. Branchlets densely yellowish pubescent when young, glabrous and lenticellate with age. Petiole 3–5 mm; leaf blade oblong to elliptic-oblong, 8.5–17.5 × 3.2–6 cm, leathery, abaxially yellowish pubescent, adaxially glabrous except for sparsely pubescent midvein, secondary veins 16–18 on each side of midvein, obliquely ascending, anastomosing before margin, and adaxially impressed, base rounded, apex rounded to retuse. Inflorescences leaf-opposed, paniculate, 1–4 flowered, yellowish pubescent; peduncle ca. 1 cm. Pedicel ca. 1.5 cm, bracteolate above middle. Flower buds lanceolate in outline, ca. 2.8 × 0.8 cm. Sepals triangular, ca. 4 × 4 mm, outside pubescent, inside glabrous. Outer petals oblong-lanceolate, ca. 2.5 × 0.8 cm, outside glabrous, inside sparsely pubescent; inner petals narrowly lanceolate, ca. 2.3 × 0.6 cm, glabrous. Stamens oblong; connectives apically truncate. Carpels ovate-oblong, ca. 2.5 mm, densely sericeous pubescent; ovules 6–8 per carpel, in 2 series; stigma apex entire. Monocarp stipes ca. 3 cm, robust; monocarps globose, ca. 1.6 cm in diam., densely yellowish pubescent. Fl. Mar–Nov, fr. Jul–Dec.

• Forested valley slopes; 300–600 m. SW Guangdong, SE Guangxi, Hainan, Yunnan.

12. *Fissistigma polyanthoides* (Aug. Candolle) Merrill, Philipp. J. Sci. 15: 135. 1919.

小萼瓜馥木 xiao e gua fu mu

Melodorum polyanthoides Aug. Candolle, Bull. Herb. Boissier, sér. 2, 4: 1070. 1904; *Fissistigma minuticalyx* (R. W. MacGregor & W. W. Smith) Chatterjee; *M. minuticalyx* R. W. MacGregor & W. W. Smith.

Climbers to 10 m tall. Branches fulvous pubescent when young, glabrous and lenticellate with age. Petiole 1–1.3 cm, fulvous tomentose; leaf blade oblong, oblong-lanceolate, or sometimes obovate-oblong, 10–23 × 4–10 cm, leathery, abaxially fulvous tomentose, adaxially pubescent or glabrous, secondary veins 14–20 on each side of midvein, obliquely ascending to margin, and adaxially flat, base rounded, apex acute to shortly acuminate. Inflorescences leaf-opposed, subopposed, or sometimes terminal, pseudo-cymose, densely red fulvous tomentulose; peduncle ca. 3 mm; bracts ovate, ca. 1.5 mm, abaxially reddish fulvous tomentulose. Pedicel 1–1.5 cm, 1- or 2-bracteolate above middle. Flower buds conic. Sepals broadly triangular, ca. 3 × 3.5 mm, basally connate, outside tomentose, inside pubescent. Outer petals ovate-triangular, ca. 1.2 × 0.9 cm, outside red fulvous tomentose, inside apically puberulent; inner petals ovate-lanceolate, ca. 10 × 6 mm, outside pubescent, inside glabrous. Stamens oblong-cuneate, ca. 1.5 mm; connectives broadly 3-angular. Carpels ca. 10, sericeous pubescent; stigma apex 2-cleft. Fruiting pedicel ca. 2 cm; monocarp stipes to 4 cm; monocarps globose, ca. 2 cm in diam., densely red fulvous tomentose. Seeds reddish brown, oblong, ca. 1.5 × 0.6 cm. Fl. May–Nov, fr. Aug–Mar.

Densely forested slopes; 500–1600 m. Guizhou, C and S Yunnan [Laos, Myanmar, N Thailand, Vietnam].

13. *Fissistigma poilanei* (Jovet-Ast) Tsiang & P. T. Li, Acta Phytotax. Sin. 10: 316. 1965.

火绳藤 huo sheng teng

Melodorum poilanei Jovet-Ast, Notul. Syst. (Paris) 9: 82. 1940.

Climbers to 7 m tall. Branches sparsely puberulent when young, glabrous and lenticellate with age. Petiole 1–1.5 cm, pubescent; leaf blade oblong-lanceolate, 6.5–16 × 2–4.5 cm, leathery to thickly papery, abaxially densely grayish brown pubescent, adaxially glabrous except for sparsely puberulent midvein, secondary veins 14–20 on each side of midvein, obliquely ascending, and adaxially flat, base cuneate to broadly cuneate, apex acuminate. Inflorescences leaf-opposed or subopposed, cymose, 2–8 flowered; peduncle 1–3 mm. Pedicel 7–8 mm, ochraceous pubescent, 1- or 2-bracteolate at base to middle. Flower buds broadly ovoid, 4–5 × 4–5 mm. Sepals ovate-triangular, ca. 2 × 2 mm, outside puberulent, inside glabrous. Outer petals ovate-triangular, ca. 9 × 6 mm, outside ochraceous pubescent, inside apically puberulent; inner petals ovate-oblong, ca. 7 × 4 mm, outside pubescent, inside glabrous. Stamens oblong, ca. 1.5 mm; connectives obliquely 3-angular. Carpels oblong, ca. 3 mm, densely hispid; ovules ca. 8 per carpel, in 2 series; stigma apex 2-cleft. Fruiting monocarps globose, ca. 2 cm in diam. Fl. Mar–Dec, fr. Jun–Apr.

Sparsely forested slopes, usually in valleys; 700–1000 m. S and SE Yunnan [Vietnam].

The basionym, *Melodorum poilanei*, was first published in 1938 (Fl. Indo-Chine Suppl. 1: 109) but not validly so.

14. *Fissistigma acuminatissimum* Merrill, J. Arnold Arbor. 19: 29. 1938.

尖叶瓜馥木 jian ye gua fu mu

Climbers to 8 m tall. Branchlets pubescent when young, glabrescent. Petiole 5–12 mm, densely appressed ferruginous pubescent; leaf blade lanceolate to oblong-lanceolate, 7–17 × 2–4 cm, papery to thinly leathery, abaxially ferruginous pubescent but denser on veins, adaxially glabrous except for pubescent midvein and secondary veins, secondary veins 14–21 on each side of midvein, obliquely ascending to margin, and adaxially impressed, base cuneate to broadly cuneate, apex acuminate. Inflorescences terminal or leaf-opposed, cymose, 1–4 flowered; peduncle 3–4 mm, pubescent; bracts ovate-lanceolate. Pedicel 1–1.5 cm, ferruginous pubescent, bracteolate between base and middle. Sepals ovate-triangular, 6–8 × 3–3.5 mm, outside ferruginous pubescent, inside glabrous. Petals greenish white; outer petals oblong-lanceolate, ca. 20 × 8 mm, outside ferruginous pubescent, inside puberulent; inner petals orbicular, to 16 mm, outside pubescent, inside glabrous, apex rounded. Stamens oblong, ca. 2 mm; connectives 3-angular, apex obtuse. Carpels oblong, pubescent; ovules 6 per carpel, in 2 series; styles oblong, pubescent; stigma apex entire. Monocarp stipes ca. 1 cm; monocarps globose, ca. 1.2 cm in diam., densely golden tomentose. Fl. Mar–Nov, fr. Jun–Dec.

Forested slopes; 900–2000 m. Guangxi, SW Guizhou, S Yunnan [Vietnam].

A fine strong bast fiber obtained from the inner bark of *Fissistigma acuminatissimum* is used to make rope in Yunnan.

15. *Fissistigma cavaleriei* (H. Léveillé) Rehder, J. Arnold Arbor. 10: 192. 1929.

独山瓜馥木 du shan gua fu mu

Uvaria cavaleriei H. Léveillé, Fl. Kouy-Tchéou, 29. 1914–1915.

Climbers to 8 m tall, most parts reddish pubescent. Petiole 6–8 mm; leaf blade oblong-lanceolate to oblong-elliptic, 6.5–16 × 1.8–3.8 cm, thinly leathery to thickly papery, abaxially glabrous, adaxially sparsely pubescent, secondary veins 14–21 on each side of midvein and adaxially impressed, base shallowly cordate, apex acute. Inflorescences leaf-opposed or alternate, cymose, 1–5-flowered. Pedicel 1.5–2 cm, 2-bracteolate at base. Sepals ovate-oblong, ca. 6 mm, reddish tomentose. Petals yellowish; outer petals ovate-oblong, ca. 18 × 7 mm, outside densely reddish tomentose, inside glabrous; inner petals ovate-lanceolate, ca. 13 × 4 mm, glabrous, inside basally concave. Stamens oblong; connectives broadly 3-angular. Carpels densely villous; ovules ca. 7 per carpel, in 2 series; styles oblong, pubescent; stigma apex entire. Fruiting pedicel ca. 1.2 cm, reddish pubescent; monocarp stipes ca. 2.7 cm; monocarps globose, 2–2.5 cm in diam., densely villous. Fl. Mar–Nov, fr. Jun–Dec.

• Densely forested slopes; 500–1500 m. W Guangxi, S Guizhou, SE Yunnan.

16. *Fissistigma balansae* (Aug. Candolle) Merrill, Philipp. J. Sci. 15: 130. 1919.

多脉瓜馥木 duo mai gua fu mu

Melodorum balansae Aug. Candolle, Bull. Herb. Boissier, sér. 2, 4: 1070. 1904; *Fissistigma guinanense* Y. Wan.

Climbers to 6 m tall. Branchlets densely fulvous pubescent when young, glabrescent. Petiole 0.8–2 cm, robust, abaxially grooved, densely brown pubescent; leaf blade oblong, oblong-elliptic, or obovate-oblong, 14–23 × 5–10 cm, thinly leathery, abaxially brown pubescent, adaxially sparsely appressed puberulent or puberulent only on midvein and secondary veins, secondary veins 25–35 on each side of midvein and adaxially flat to impressed when dry, reticulate veins prominent and at ca. 90° to secondary veins, base rounded to broadly cuneate, margin revolute, apex acute, obtuse, or retuse. Inflorescences leaf-opposed, terminal, or extra-axillary, in glomerules, many flowered, fulvous tomentulose; peduncle to 1 cm; bracts ovate, 3.5–5 × 2–3 mm, adaxially tomentulose. Flowers fragrant. Stigma apex entire. Fruiting pedicel ca. 2.5 cm, pubescent; monocarp stipes 1.5–2 cm, densely fulvous tomentulose; monocarps subglobose, ca. 4.4 × 4 cm, sparsely fulvous hispid and with slightly raised tubercles. Seeds brown, oblong, ca. 2.4 × 1.7 cm, with a winged margin. Fl. Mar–May, fr. May–Sep.

Forested slopes; 500–1200 m. SW Guangxi, SE Yunnan [Vietnam].

17. *Fissistigma xylopetalum* Tsiang & P. T. Li, Acta Phytotax. Sin. 10: 318. 1965.

木瓣瓜馥木 mu ban gua fu mu

Climbers to 8 m tall, most parts densely reddish brown to brown tomentose. Petiole ca. 1 cm; leaf blade ovate-oblong to ovate-elliptic, 7.5–17 × 3.5–6.5 cm, thickly papery, abaxially densely reddish brown to brown tomentose, adaxially glabrous except for pubescent midvein, secondary veins 14–18 on each side of midvein, ascending obliquely to margin, and adaxially flat, base rounded to broadly cuneate, apex acute to obtuse. Inflorescences axillary or leaf-opposed, in glomerules, 3–7-flowered; peduncle ca. 3 mm; bracts 1 or 2, lanceolate, 1.5–2 × ca. 0.3 cm, adaxially pubescent. Pedicel 2–2.5 cm. Sepals triangular, ca. 9 × 6 mm, inside glabrous. Petals yellow to grayish purple, thickened, woody when dry; outer petals ovate-lanceolate, ca. 19 × 7 mm, outside sparsely pubescent and prominently costate, inside glabrous. Stamens oblong, ca. 2 mm; connectives apically subrounded to truncate. Carpels oblong, ca. 4 mm, densely sericeous pubescent; ovules 6 per carpel, in 2 series; stigmas glabrous, apex 2-cleft. Fruiting pedicel ca. 2.5 cm; monocarp stipes ca. 3 mm; monocarps globose, 1.5–2 cm in diam. Seeds 6 per monocarp, in 2 series, reddish brown, ovoid to sometimes globose, flat, ca. 10 × 6–8 mm. Fl. Oct–Dec, fr. May–Jul.

Open woodlands, often on moist riverbanks; 300–500 m. S Guangxi, Hainan, S Yunnan [Vietnam].

18. *Fissistigma oldhamii* (Hemsley) Merrill, Philipp. J. Sci. 15: 134. 1919.

瓜馥木 gua fu mu

Melodorum oldhamii Hemsley, J. Linn. Soc., Bot. 23: 27. 1886; *Fissistigma oldhamii* var. *longistipitatum* Tsiang.

Climbers to 8 m tall. Branchlets fulvous pubescent. Petiole ca. 1 cm, pubescent; leaf blade obovate-elliptic to oblong, 6–13 × 2–5 cm, leathery, abaxially pubescent to glabrescent, adaxially glabrous, secondary veins 10–20 on each side of midvein and adaxially flat, base broadly cuneate to rounded, apex bluntly acute, rounded, or retuse. Inflorescences in glomerules, 1–8-flowered; peduncle ca. 2.5 cm. Flowers ca. 1.5 × 1–1.7 cm. Sepals broadly triangular, 3–5(–7) × 5–6 mm, brown tomentose, apex acute. Petals pale yellow to golden; outer petals ovate-elliptic, 21–24 × 11–12 mm, thicker, outside pubescent, inside glabrous; inner petals ovate-lanceolate, ca. 20 × 6 mm, outside puberulent, inside concave and puberulent, margin ciliate. Stamens oblong, ca. 2 cm; connectives slightly curved. Carpels 24–26, golden hairy; ovules 10 per carpel; styles white; stigma apex 2-cleft. Monocarp stipes 2.5–4 cm; monocarps globose, 1.5–1.8 cm in diam., densely fulvous tomentose. Seeds 4 per monocarp, orbicular. Fl. Apr–Sep, fr. Jul–Feb.

• On shrubs, often along ravines; 500–1500 m. Fujian, Guangdong, Guangxi, Hainan, Hunan, Jiangxi, Taiwan, SE Yunnan, S Zhejiang.

A fine strong bast fiber is obtained from the inner bark of *Fissistigma oldhamii* and is used to make rope, sacks, and paper; its flowers yield a perfumed oil; the seed oil is used in cosmetics and industry; and its roots are used as medicine for traumatic injury and arthritis.

19. *Fissistigma polyanthum* (J. D. Hooker & Thomson) Merrill, Philipp. J. Sci. 15: 135. 1919.

多花瓜馥木 duo hua gua fu mu

Melodorum polyanthum J. D. Hooker & Thomson, Fl. Ind. 1: 121. 1855.

Climbers to 8 m tall. Roots black, very aromatic. Branches dark gray to brown pubescent, glabrescent. Petiole 0.8–1.5 cm, blackish and transversely wrinkled when dried, pubescent; leaf blade oblong, obovate-oblong, or sometimes elliptic, 6–17.5 × 2–7.5 cm, thinly leathery, abaxially puberulent, adaxially glabrous, secondary veins 13–18 on each side of midvein and adaxially flat, base rounded to broadly cuneate, apex acute, rounded, or sometimes retuse. Inflorescences axillary, leaf-opposed, or extra-axillary, glomerulate, usually 3–7-flowered, yellowish pubescent; peduncle to 4 mm. Flowers small; pedicel to 1.5 cm, bracteolate between base and below middle. Flowers buds broadly 3-angular, apex acute. Sepals broadly triangular, outside pubescent. Outer petals ovate-elliptic, ca. 12 mm, outside densely fulvous pubescent, inside glabrous; inner petals oblong, ca. 9 mm, apex acuminate. Stamens oblong; connectives 3-angular, apex obtuse. Carpels oblong, villous; ovules 4–6 per carpel, in 2 series; stigma apex entire. Monocarp stipes to 2.5 cm, slender; monocarps globose, ca. 1.5 cm in diam., yellowish pubescent. Seeds reddish brown, ellipsoid, flat. Fl. Jan–Oct, fr. Mar–Dec.

Forested slopes, often in ravines; 100–1200 m. Guangdong, Guangxi, S Guizhou, Hainan, SE Xizang, S Yunnan [Bhutan, India, Myanmar, Vietnam].

The roots of *Fissistigma polyanthum* are used as medicine for rheumatism, traumatic injury, and scabies; its leaves are used for treating asthma and scabies; and the bast fibers are used to make rope. The taxon was first mentioned, but not validly published, as "*Uvaria polyantha*" by Wallich (Numer. List, no. 6467. 1832).

20. *Fissistigma bracteolatum* Chatterjee, Kew Bull. [3]: 58. 1948.

多苞瓜馥木 duo bao gua fu mu

Climbers to 10 m tall. Bark grayish black. Branches brown tomentose when young, glabrous and lenticellate with age. Petiole 1–1.5 cm, densely hispid to tomentose; leaf blade ovate-oblong, elliptic-oblong, or obovate-oblong, 9–18 × 3.2–8 cm, leathery, abaxially brown hispid, adaxially glabrous except for hispid midvein, secondary veins 16–20 on each side of midvein, obliquely ascending to margin, and adaxially impressed, main tertiary veins prominent and parallel, reticulate veins inconspicuous, base rounded to broadly cuneate, apex acute and apiculate. Inflorescences mostly leaf-opposed, in subumbellate glomerules, often 10-flowered or more; peduncle 3–10 mm; bracts oblong-ovate, 5–6 × 3–4 mm, abaxially brown tomentose, adaxially glabrous. Pedicel 1–2 cm, fulvous tomentulose, 1- or 2-bracteolate below middle. Flower buds conic. Sepals ovate, 5–7 × 3–4 mm, outside tomentulose, inside glabrous. Outer petals ovate-triangular to ovate-lanceolate, 13–17 × 7–8 cm, outside fulvous tomentulose, inside glabrous; inner petals ovate-lanceolate, 10–11 × 4–5 mm, outside pubescent, inside glabrous. Stamens oblong; connectives ovoid-triangular. Carpels 4–6, ovate-oblong, ca. 3 mm, densely hispid; ovules 8–10 per carpel, in 2 series; styles elongate, inclining; stigma apex 2-cleft. Monocarp stipes ca. 3 cm; monocarps globose, ca. 1.5 cm in diam., tomentulose. Fl. Mar–Jun, fr. Aug–Nov.

Forested valley slopes, moist scrub; 800–1800 m. SE Yunnan

[Myanmar].

21. *Fissistigma kwangsiense* Tsiang & P. T. Li, Acta Phytotax. Sin. 10: 323. 1965.

广西瓜馥木 guang xi gua fu mu

Climbers to 6 m tall. Branches densely ferruginous pubescent when young, glabrous and lenticellate with age. Petiole ca. 5 mm, ferruginous tomentose; leaf blade oblong-lanceolate to narrowly oblong, 7–18 × 1.7–3.8 cm, papery, abaxially ferruginous tomentose, adaxially sparsely pubescent but denser along midvein, secondary veins 13–19 on each side of midvein, obliquely ascending, and adaxially impressed, base rounded, apex slightly acute. Inflorescences usually leaf-opposed, sometimes pseudoterminal, in glomerules, several flowered, densely ferruginous tomentose; peduncle very short to almost absent. Pedicel 2-bracteolate. Flower buds ovoid, ca. 1 cm. Sepals ovate-oblong, ca. 6 mm. Outer petals ovate-elliptic, ca. 8 × 4 mm; inner petals oblong-elliptic, smaller than outer petals, margins connivent. Stamen connectives apically long acuminate. Carpels ovate-oblong, villous; ovules ca. 10 per carpel, in 2 series; styles filamentous; stigma apex entire. Fruit not seen. Fl. Feb–Sep, fr. Jun–Nov.

• Densely forested slopes, usually in valleys; 200–500 m. SW Guangxi, SE Yunnan.

22. *Fissistigma retusum* (H. Léveillé) Rehder, J. Arnold Arbor. 10: 191. 1929.

凹叶瓜馥木 ao ye gua fu mu

Melodorum retusum H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 458. 1911; *Fissistigma capitatum* Merrill ex H. L. Li.

Climbers to 10 m tall. Branches brown tomentose. Petiole 0.8–1.5 cm, abaxially grooved, densely tomentulose; leaf blade broadly ovate, obovate, or obovate-oblong, 9–26 × 4.5–13 cm, leathery to thinly leathery, abaxially brown tomentose, adaxially tomentulose only on midvein and secondary veins, secondary veins 15–22 on each side of midvein and adaxially ± impressed, tertiary veins prominently parallel, reticulate veins very dense, base rounded, truncate, or sometimes shallowly cordate, apex rounded to retuse and minutely apiculate. Inflorescences ± leaf-opposed, in umbel-like glomerules, 4–8-flowered or more; peduncle 5–10 mm; bracts caducous. Pedicel to 2 cm, bracteolate at middle. Sepals ovate-lanceolate, ca. 1 cm, as long as petals in bud, outside tomentulose, inside glabrous. Outer petals ovate-elliptic, ca. 15 mm, outside tomentulose, inside glabrous; inner petals ovate-lanceolate, shorter than outer petals, glabrous, slightly incurved at base. Stamens oblong; connectives broadly 3-angular. Carpels ca. 1.5 mm, densely sericeous pubescent; ovules ca. 4 per carpel, in 2 series; styles oblong, incurved, pubescent; stigma apex entire. Fruiting pedicel 1.5–2.2 cm, golden tomentulose; monocarp stipes very short; monocarps globose, ca. 3 cm in diam., golden tomentulose. Fl. May–Nov, fr. Jun–Dec.

• Densely forested slopes; 700–2000 m. S Guangdong, Guangxi, Guizhou, Hainan, SE Xizang, Yunnan.

23. *Fissistigma shangtzeense* Tsiang & P. T. Li, Acta Phytotax. Sin. 10: 324. 1965.

上思瓜馥木 shang si gua fu mu

Climbers to 8 m tall, most parts fulvous pubescent. Branches lenticellate and glabrous with age. Petiole ca. 1.5 cm; leaf blade obovate, obovate-oblong, or sometimes elliptic, 3–13(–25) × 2–5.5(–8) cm, papery, abaxially fulvous pubescent, adaxially glabrous except for fulvous pubescence on midvein, secondary veins 13–20 on each side of midvein and adaxially impressed, base broadly cuneate to sometimes rounded, apex rounded to retuse. Inflorescences extra-axillary, in glomerules, 2–5-flowered; peduncle to 6 mm; bracts ovate, ca. 1 × 1 mm. Pedicel bracteolate between base and middle. Sepals broadly triangular, ca. 5 × 3 mm. Outer petals ovate, ca. 10 × 6 mm, outside puberulent; inner petals oblong, ca. 6 × 2 mm, outside puberulent, inside glabrous. Stamens oblong; connectives obliquely 3-angular. Carpels oblong-lanceolate, densely sericeous-villous; ovules ca. 10 per carpel, in 2 series; stigmas apically entire. Fruiting pedicel ca. 2 cm; monocarps oblong, ca. 4 × 2 cm, densely brown tomentose. Seeds shiny black, oblong, ca. 5 mm in diam. Fl. Jul–Oct, fr. Oct–May.

- Forested slopes; 600–800 m. S Guangxi.

