

ERYTHROXYLACEAE

古柯科 gu ke ke

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Shrubs or trees. Stipules intrapetiolar. Leaves alternate or rarely opposite, simple; leaf blade margin entire. Flowers usually bisexual, in axillary fascicles or cymes, regular, 5-merous, often heterostylous. Sepals 5, basally connate, with imbricate or valvate lobes, persistent. Petals 5, distinct, imbricate, usually with a scale on inner face at base. Stamens 5, 10, or 20, 1- or 2-verticillate; filament bases usually connate into a tube; anthers elliptic, 2-celled, with longitudinal slits. Ovary superior, connected with 3–5 carpels, 3–5-locular, with 1 (or 2) axile; ovules pendulous, anatropous to hemitropous, placentation axile; styles 1–3 or 5, distinct or somewhat connate; stigmas oblique. Fruit a capsule or a 1-seeded drupe. Seeds with straight embryo and copious (rarely absent) endosperm.

Ten genera and ca. 300 species: widely distributed in the tropical and subtropical zone, especially South America; two genera and three species (one introduced) in China.

Huang Chengchui, Huang Baoxian & Xu Langran. 1998. Erythroxylaceae. In: Xu Langran & Huang Chengchui, eds., Fl. Reipubl. Popularis Sin. 43(1): 109–115.

- 1a. Flowers often heterostylous; ovary 3-locular but only 1 locule fertile; styles 3, distinct or somewhat connate; fruit a drupe 1. *Erythroxylum*
1b. Flowers not heterostylous; ovary 5-locular; styles simple; fruit a capsule 2. *Ixonanthes*

1. ERYTHROXYLUM P. Browne, Civ. Nat. Hist. Jamaica, 278. 1756.

古柯属 gu ke shu

Shrubs or small trees, usually glabrous. Stipules intrapetiolar, often imbricating on short branches. Leaves alternate, often subdistichous, simple. Flowers axillary, solitary or fascicled, small, often heterostylous. Sepals 5 (or 6), usually basally connate. Petals 5, white or pink, clawed, usually with a ligule on inner face at base, imbricate. Stamens 10; filament usually basally connate into a glandular or nonglandular tube. Ovary 3 (or 4)-locular, with 1 (or 2) ovules in single fertile locule; styles distinct or connate; stigmas oblique. Drupe 1-seeded. Seed with a thin testa; endosperm variable in quantity or absent; embryo straight.

About 230 species: widely distributed in the tropics and subtropics, especially South America; two species (one introduced) in China.

- 1a. Leaf blade secondary veins obviously anastomosing into an intramarginal vein in each side of midvein; stipules narrowly triangular, margin often entire; filaments without papillary trichomes; drupe with 5 longitudinal ribs 1. *E. novogranatense*
1b. Leaf blade secondary veins not anastomosing into an intramarginal vein in each side of midvein; stipules broadly triangular to lanceolate, margin fimbriate or dissected; filaments with papillary trichomes; drupe with 3 longitudinal ribs 2. *E. sinense*

1. *Erythroxylum novogranatense* (D. Morris) Hieronymus, Bot. Jahrb. Syst. 20(Beibl. 49): 35. 1895.

古柯 gu ke

Erythroxylum coca Lamarck var. *novogranatense* D. Morris, Bull. Misc. Inform. Kew 1889: 5. 1889.

Shrubs or small trees. Stipules triangular, 1.5–3 mm, margin often entire. Leaves alternate, simple; petiole 4–7 mm; leaf blade obovate to narrowly elliptic, 1.2–4.7 × 1–1.8 cm, midvein adaxially impressed, secondary veins anastomosing into an obvious intramarginal vein in each side of midvein, base attenuate, margin entire, apex obtuse to retuse and with a mucro. Flowers solitary or fascicled, small. Pedicel to 4 mm at anthesis. Sepals 5, ca. 1.5 mm, basally connate. Petals 5, whitish yellow, ovate-oblong, 3–3.5 mm, with 2 ligules on inner face at base. Stamens 10; filament basally connate into a tube, 2–4 mm. Ovary globose to oblong, 1–3.5 mm, 3-locular, with 1 ovule in only fertile

locule; styles distinct, 1–3 mm, persistent. Mature drupe red, oblong, 7–8 × ca. 3 mm, with 5 longitudinal ribs, 1-seeded. Fl. most of year but mostly Feb–Mar, fr. May–Dec.

Cultivated. Guangdong, Hainan, Taiwan, Yunnan [native to South America].

This species is used medicinally and as a narcotic.

2. *Erythroxylum sinense* Y. C. Wu, Bot. Jahrb. Syst. 71: 189. 1940.

东方古柯 dong fang gu ke

Erythroxylum kunthianum Kurz (1872), not A. St.-Hilaire (1829).

Shrubs or small trees, 1–6 m tall. Branches glabrous. Stipules triangular to lanceolate, 1–3 mm or longer, margin entire, fimbriate, or dissected. Leaves alternate, simple; petioles 3–8 mm; leaf blade narrowly elliptic, oblanceolate, or obovate,

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2–14 × 1–4 cm, papery, costa slender, base narrowly cuneate, margin entire, apex caudate, shortly acuminate, acute, or obtuse. Flowers axillary, solitary or 2–7-fascicled on a very short peduncle. Pedicel 4–6 mm, to 9 mm in fruit. Sepals 5, basally connate, lobes 1–1.5 mm. Petals pink, ovate-oblong, 3–6 mm, with 2 ligules on inner face at base. Stamens 10; filament with papillary trichomes, bases connate into a tube. Ovary oblong, 3-locular, with 1 fertile locule; styles distinct. Drupe oblong,

6–17 × 3–6 mm, slightly curved, with 3 longitudinal ribs. Fl. Aug–May, fr. May–Oct.

Mountainous areas, trailsides, valley forests; 200–2200 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Yunnan, Zhejiang [NE India, N Myanmar, Vietnam].

This species is used medicinally and as a narcotic.

2. IXONANTHES Jack, Malayan Misc. 2(7): 51. 1822.

粘木属 nian mu shu

Trees. Stipules small, scalelike. Leaves alternate, simple; leaf blade pinnately veined, margin entire or glandular serrate. Inflorescences axillary near branch apex, dichasially corymbose. Flowers bisexual. Sepals 5, basally connate, persistent, expanded and fleshy to leathery in fruit. Petals 5, persistent. Stamens 10 or 20; filaments inserted outside and against disk, irregularly coiled in bud, elongating at anthesis; anthers verticillate, 2-celled, dehiscent by longitudinal slits. Disk bowl-shaped, entire or slightly lobed, free from ovary. Ovary superior, 5-locular, placentation axile, with 2 pendulous ovules per locule; style 1; stigma capitate or mushroom-shaped, margin slightly lobed. Capsule oblong or conical, leathery or woody, septicidal, sometimes with a false septum at middle of each carpel. Seeds winged or crowned with a mitriform aril; endosperm fleshy; embryo straight.

Three species: tropical Asia; one species in China.

Ixonanthes is sometimes included in the Ixonanthaceae or Linaceae.

1. *Ixonanthes reticulata* Jack, Malayan Misc. 2(7): 51. 1822.

粘木 nian mu

Emmenanthus chinensis Hooker & Arnott; *Ixonanthes chinensis* (Hooker & Arnott) Champion; *I. cochinchinensis* Pierre.

Trees to 30 m tall, buttressed at base. Stipules to 1 mm. Petiole 1–3 cm; leaf blade elliptic, elliptic-oblong, or slightly obovate, 4–16 × 2–10 cm, papery to leathery, secondary veins 5–17 on each side of midvein, base narrowly cuneate, margin entire, apex slightly obtuse. Inflorescences lax; peduncle

(3.5–)5–8(–16) cm; bracts ca. 1 mm. Flowers 2–7 mm in diam. Pedicel 5–8 mm. Sepals ovate to ovate-oblong, 4–5 × 3–4 mm. Petals white, ovate-elliptic to broadly ovate, 4–5.5 × 3–4 mm. Stamens 10; filament ultimately up to 2 cm. Disk ca. 1 cm in diam. Ovary globose, ca. 3 × 2 mm, glabrous; styles to 2 cm. Capsule long ellipsoid, 2–3.5 × 1–1.7 cm, with persistent enlarged sepals and petals. Seeds oblong, 1.8–2 × 0.4–0.9 cm; wing 1–1.5 cm, membranous. Fl. Aug–Jun, fr. Jun–Oct.

Dense or sparse forests, mountain valleys, hills, riversides, trailsides, sandy areas; near sea level to 1000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Yunnan [NE India, Indonesia, Malaysia, Myanmar, New Guinea, Philippines, Thailand, Vietnam].