

GROUP E: VINES & CLIMBERS

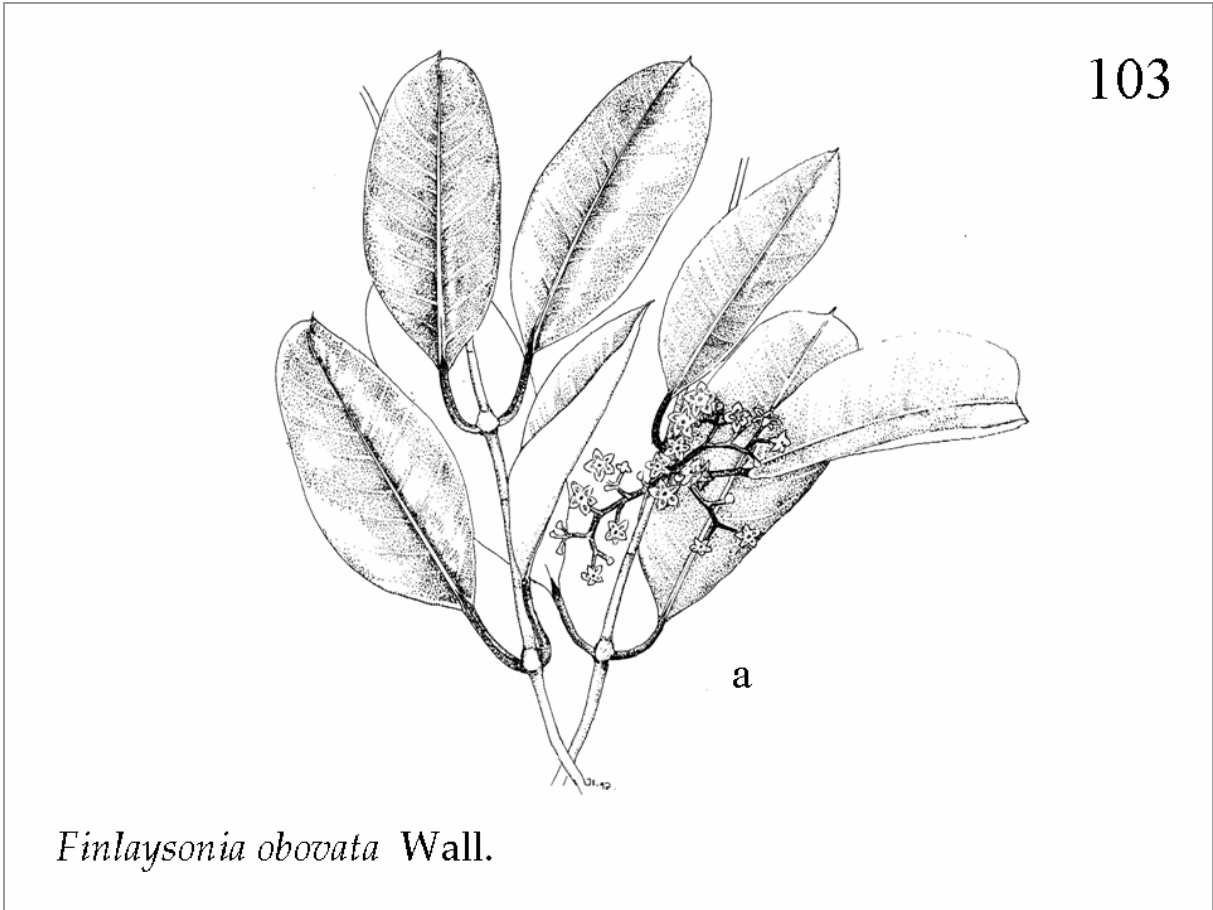


Fig. 103. *Finlaysonia obovata* Wall. (a) Flowering branchlet.

ASCLEPIADACEAE

103

***Finlaysonia obovata* Wall.**

Synonyms : *Finlaysonia maritima* Backer, *Olus crepitans* Rumph., *Secamone maritima* Bl.

Vernacular name(s) : Daun Korpo Laki-laki (Mal.), Kalak Kambing, Oyod Kambing (Jav.), Dâu Mû (Viet.)

Description : Slender, twining, woody climber, up to 5 m, exuding white latex from broken surfaces, and with a warty, light brown papery bark. The fleshy, shiny-green and smooth leaves are opposite, narrowly lanceolate on young shoots, on older branches egg-shaped, 7-15 by 3.5-8 cm. On drooping branches they are often recurved. The leaf stalk is thick and often red. The noxious-smelling flowers are located between the stalks of a leaf pair, in solitary, stemmed, rather dense clusters located in the leaf axils. The stalks of the flowers are thick, violet, covered with short hairs and elongate during the development of the fruit. The calyx is finely hairy. The corolla is almost 1 cm across, (greenish-) yellow, inside purple or brownish-yellow, with long hairs. The corona scales – located between the corolla and stamens – are white. The ribbed fruits spread widely and have a hooked, pointed top, ovoid in shape and with a narrow base, 7.5-9 by 5 cm. Fruits green and fleshy, in appearance much like two fleshy horns of a buffalo, smooth, and with a short, curled back tuft of hair.

Ecology : In mangroves and on borders of tidal creeks and fishponds. In Java it flowers comparatively rarely. Mangrove associate species.

Distribution : From the Bay of Bengal to the Moluccas. In Southeast Asia recorded in Myanmar, Cambodia, Thailand, Vietnam, Malaysia, Singapore, Brunei and Indonesia (Moluccas, Java, Bali, South Sulawesi).

Abundance : Uncommon, but locally common.

Use(s) : Young leaves eaten as a vegetable and salad (e.g. in the Moluccas).

Source of illustration : Adapted from photograph by Polunin (1988)

Reference(s) : Heyne (1950), Backer & Bakhuizen van den Brink (1963-8), http://www.rspg.thaigov.net/scbotdat/plantdat/asclepi/fobova_1.htm
<http://mangrove.nus.edu.sg/guidebooks/text/1061.htm>;
http://www.arcbc.org.ph/arcbcweb/wetlands/singapore/sgp_man.htm
[http://www.mekonginfo.org/mrc_en/contact.nsf/0/8902A71A698A3DE1802566860066E546/\\$FILE/Muclucl.htm](http://www.mekonginfo.org/mrc_en/contact.nsf/0/8902A71A698A3DE1802566860066E546/$FILE/Muclucl.htm)
<http://www.rbgekew.org.uk/herbarium/brunei/bclhome.htm>.

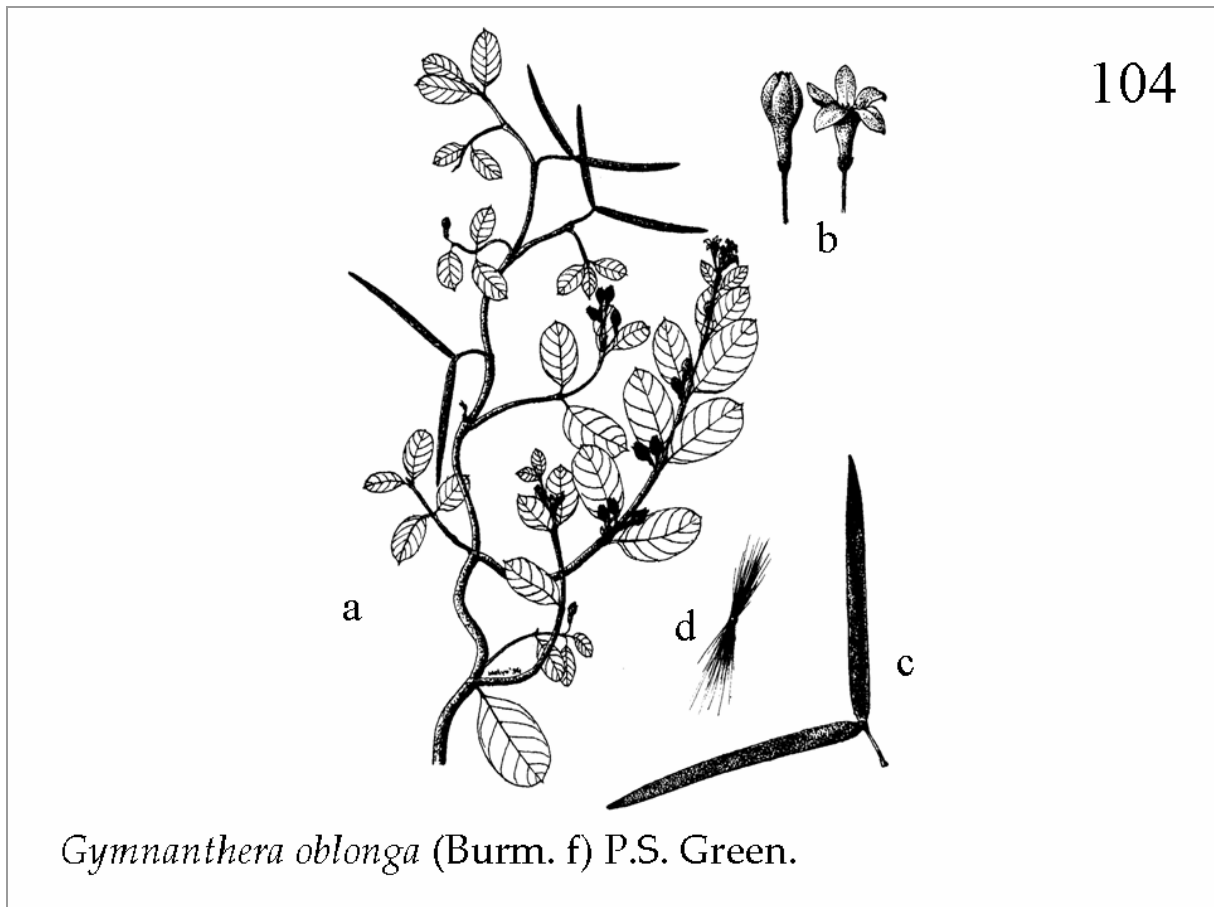


Fig. 104. *Gymnanthera oblonga* (Burm. f) P.S. Green. (a) Flowering and fruiting stem, (b) bud and open flower, (c) fruit, and (d) seed.

ASCLEPIADACEAE

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***Gymnanthera oblonga* (Burm. f) P.S. Green**

Synonyms : *Dicerolepis paludosa* Blume, *Gymnanthera nitida* R. Br., *Gymnanthera paludosa* (Bl.) K.Schum., *Jasminum oblongum* Burm., *Parechites bowringii* Hance., *Trachelospermum bowringii* (Hance) Hemsl.

Vernacular name(s) : Dây mú (Viet.)

Description : Twining, shrubby climber, 2-4 m, with a stem covered with warts. Most of the plant is hairless, but it usually has short, smooth hairs at the top. The thinly fleshy to papery smooth leaves are elliptic-oblong, 3-5.5 by 1.5-2.5 cm, with a 5-10 mm long leaf stalk. Flowers are located between the stalks of a leaf pair in few-flowered clusters that are less than 2 cm long. Sepals are ovate and measure 1 by 2 mm. The smooth, yellowish-green corolla has a 6-9 mm tube, expanding to 16-18 mm in diameter. Fruits are thin, with a hooked top, 8-12 cm by 5-6 mm. The keeled seeds, 2 by 7 mm, are smooth but have a 2-2.5 cm-long tuft of hairs.

Ecology : The principle habitat for this species is mangrove, but it may also occur in adjacent habitats. Flowering occurs from June-September, fruiting from September to January. Mangrove associate species.

Distribution : Occurs from southern China (Hainan, Guangdong) through Southeast Asia to northern Australia. In Southeast Asia it has been recorded in Cambodia, Malaysia, the Philippines, Thailand, Vietnam, Indonesia (Java and Madura, but probably occurs throughout) and Papua New Guinea.

Abundance : Locally common.

Use(s) : Unknown.

Source of illustration : Drawn from herbarium specimen, Bogor Herbarium.

Reference(s) : Backer & Bakhuizen van den Brink (1963-8), Flora of China, Asclepiadaceae (Li Ping-tao *et al.*).

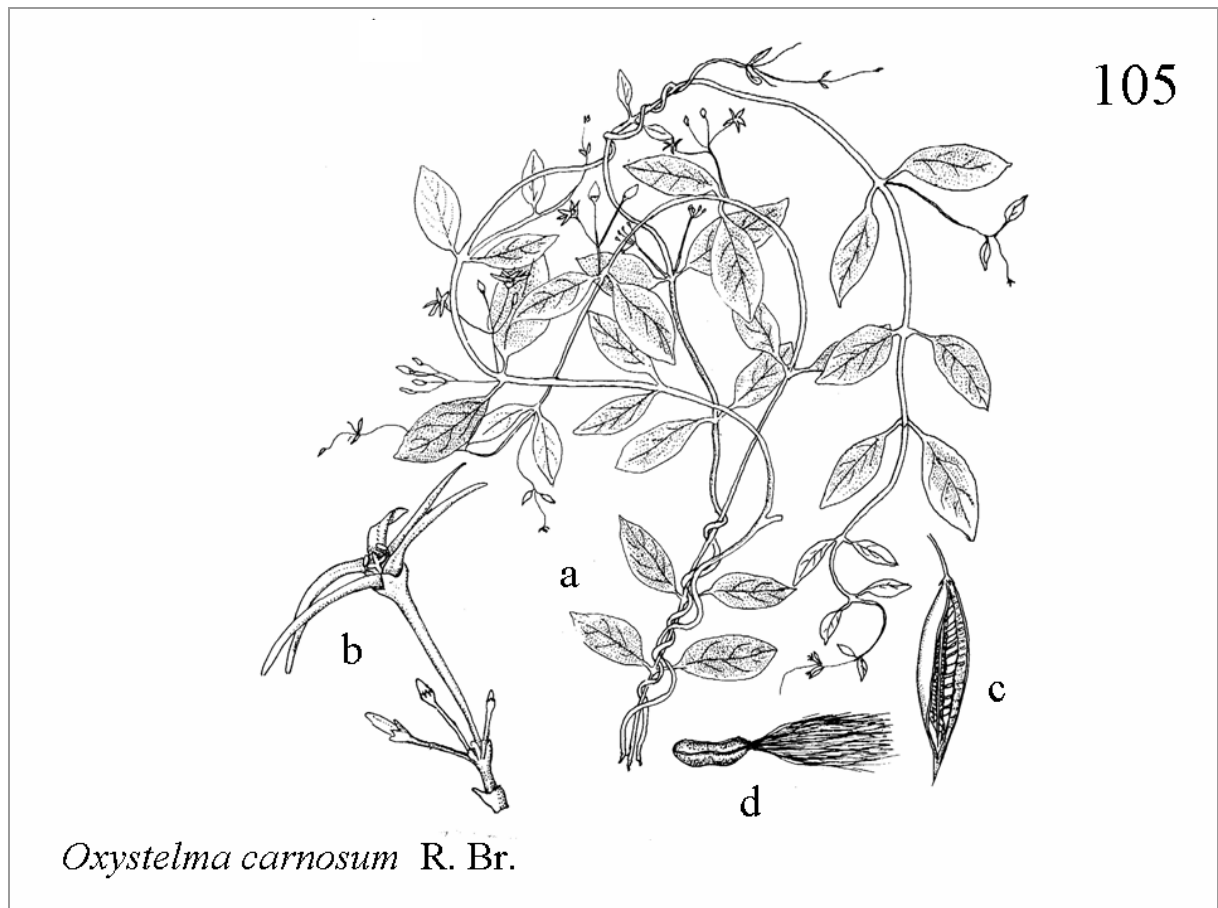


Fig. 105. *Oxystelma carnosum* R. Br. (a) Flowering vine, (b) flower and buds, (c) open fruit, and (d) seed.

ASCLEPIADACEAE

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***Oxystelma carnosum* R. Br.**

Synonyms : *Cynanchum carnosum* (R.Br.) Schltr., *Cynanchum carnosum* Domin., *Cynanchum carnosum* Merr. & Rolfe., *Ischnostemma carnosum* (Schltr.) Merr. & Rolfe, *Vincetoxium carnosum* (R. Br.) Benth.

Vernacular name(s) : Unknown.

Description : Climber, 1-3 m, with a smooth, green bark, a pale, many-dotted stem with a diameter of 3 cm and clear, abundant latex. The opposite leaves, 2.5-7.5 by 0.5-3 cm, are fleshy to leathery, narrowly to broadly elliptic, occasionally linear-lanceolate and have a sharply pointed tip and a narrowing base. Occasionally the hairy leaf stalk (4-10 cm) and the under surface are tinged dark red. The flower heads occur in the leaf axils. The green, occasionally purple-tinged flowers are bisexual and 5-partite. The scales that form the frill at the mouth of the flower are pointed, smooth and yellowish-white. The many seeds, 3 by 5 mm, are brown, ovate, thin and have sticky, white 15 mm-long hairs on one side.

Ecology : Inhabits landward margins of mangroves, borders of salt lakes and saline localities. May also be found in monsoon vine-forests near the coast. Substrates of mud and sand are preferred. Flowers are produced all year round, though in Australia in lesser quantity, from November to March. In Java the plant flowers from February to April. Fruits are rarely observed. The small green flowers appear suited to both insect or self-pollination. The seeds are suited to dispersal by wind and water. Mangrove associate species.

Distribution : Found from Southeast Asia to northern Australia. In Southeast Asia recorded from Malaysia, the Philippines, throughout Indonesia and Papua New Guinea.

Abundance : Common.

Use(s) : Unknown.

Source of illustration : Wightman (1989)

Reference(s) : Backer & Bakhuizen van den Brink (1963-8), Wightman (1989).

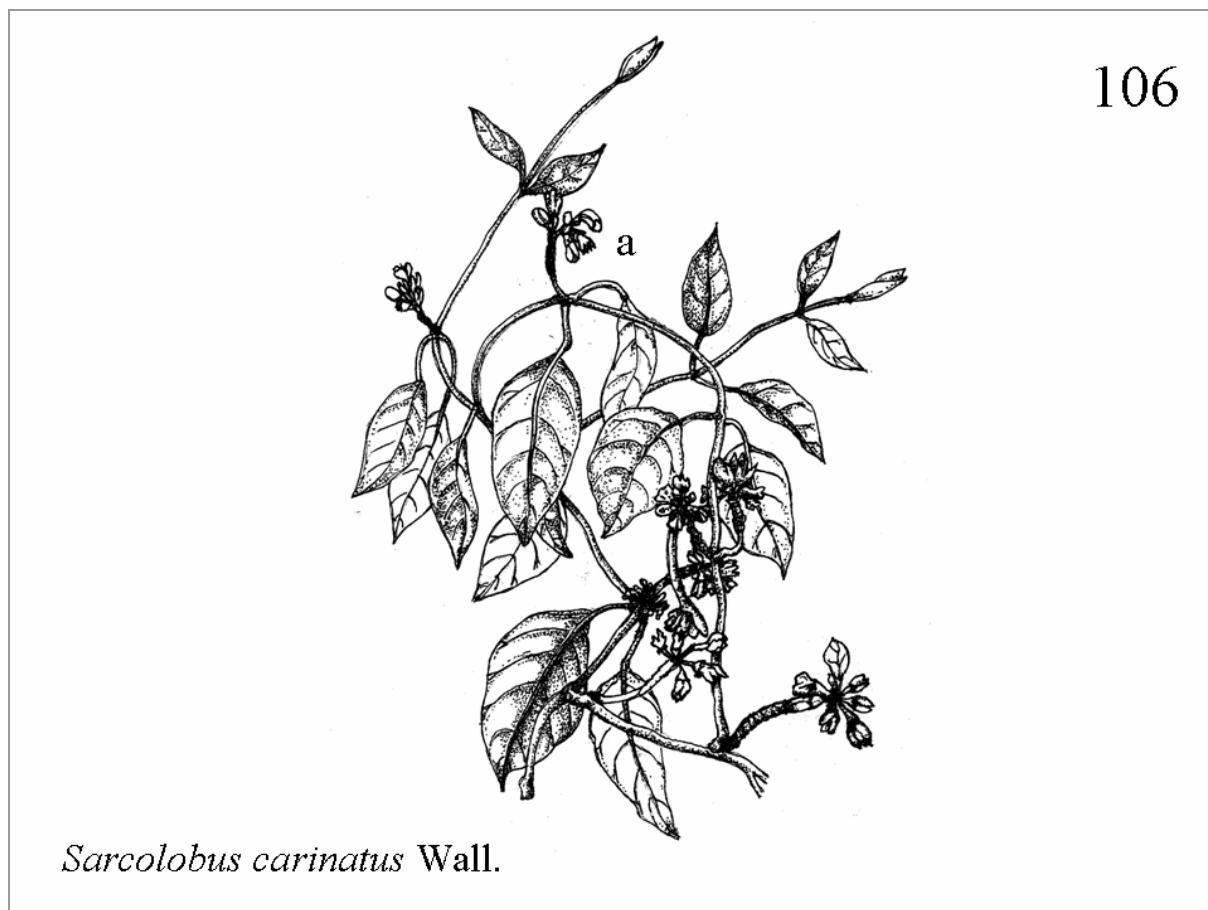


Fig. 106. *Sarcolobus carinatus* Wall. (a) Flowering vine.

ASCLEPIADACEAE

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***Sarcolobus carinatus* Wall.**

Synonyms : *Sarcolobus banksii* Roem. & Schult.

Vernacular name(s) : Unknown.

Description : A twining shrub or liana, with smooth stems and branches. Leaf stalks are 0.4-1 cm long, grooved on the upper surface and lined with hairs. Leaves are elliptic, obovate or linear-oblong, with a triangular base and a (fairly) pointed tip; opposite; leaf blade is 3-6(-8) by 1-1.8 cm, smooth on both sides, but with thinly dispersed, sparse hairs along the edges when young; edges not notched or toothed. Flowers occur in clusters of 3 or 4, on 3-7 mm long stalks, and are smooth. Calyx lobes are ovate-lanceolate, 2 by 1 mm, with blunt tips, thinly covered with hairs. The corolla is shallowly bell-shaped, pale yellow, smooth, with a tube this is as long as the lobes; lobes measure 3-4 by 2 mm. Fruit (a 'follicle') is egg-shaped, 3.5-4 by 2 cm, curved and smooth, with a pointed tip.

Ecology : Found in coastal swamps and mangroves, and is reportedly common on *Excoecaria agallocha*, a common mangrove tree. Mangrove associate species.

Distribution : Extends from the east coast of India and Bangladesh, to Peninsular Malaysia, Myanmar and Thailand.

Abundance : Locally common.

Use(s) : In Peninsular Malaysia and Singapore, the fruit (follicle) peel is used for making preserves, after being steeped in salt water for three days and subsequently boiled in syrup. Also used in making *sambal* (Indonesian red pepper paste). Seeds are reportedly poisonous.

Source of illustration : Rahman & Wilcock (1995)

Reference(s) : Heyne (1950), Rahman & Wilcock (1995).

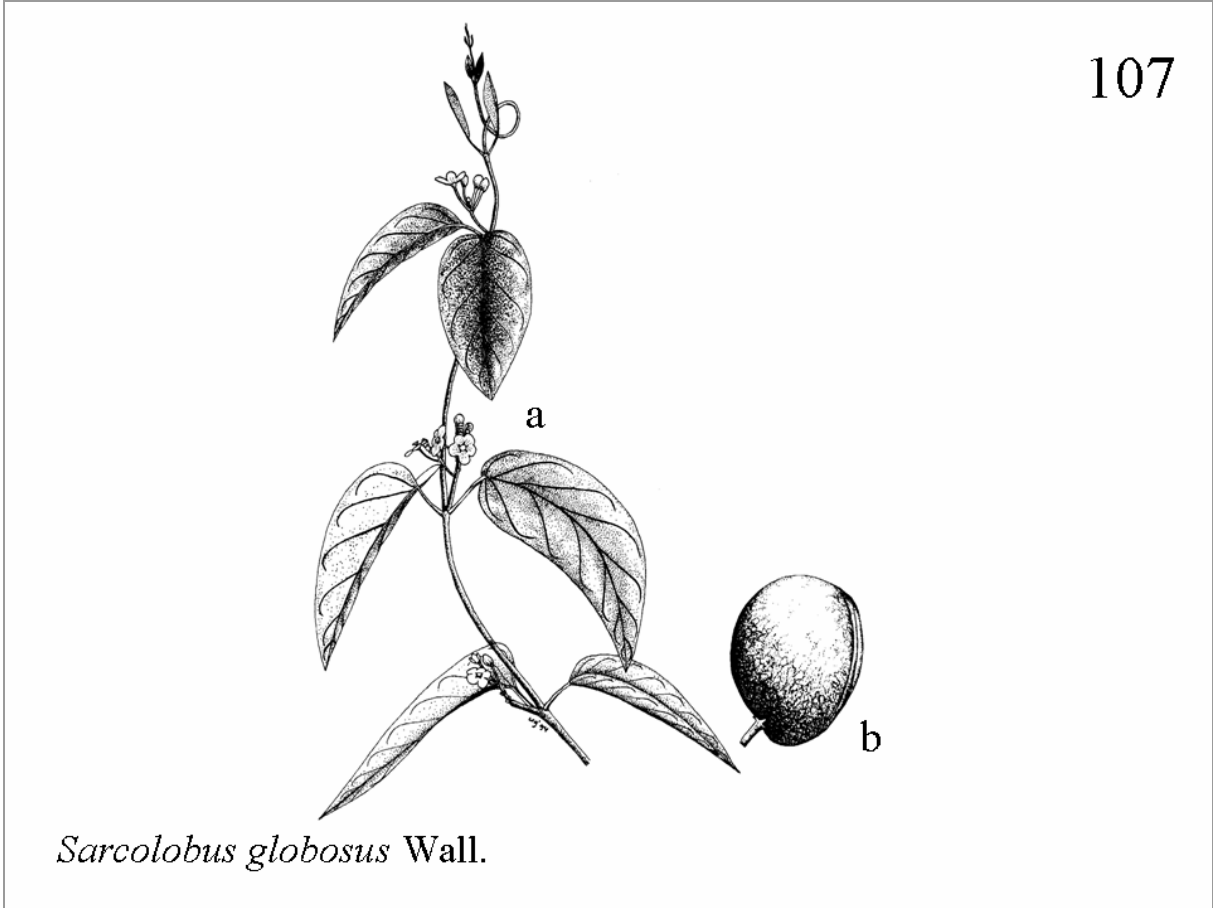


Fig. 107. *Sarcolobus globosus* Wall. (a) Flowering vine, and (b) fruit.

ASCLEPIADACEAE

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***Sarcolobus globosus* Wall.**

Synonyms : *Sarcolobus banksii*, *Sarcolobus globosa* R. & S., *Sarcolobus globosus* subsp. *globosus*, *Sarcolobus globosus* subsp. *peregrinus* (Blanco) R.E. Rintz.

Vernacular names : Kambing-kambing, Peler kambing (Mal., Ind.) Peler kambing sejuk (Ind.), Dây cám (Viet.)

Description : Twining, shrubby climber, up to 4 m, with a smooth stem. Sparsely covered with hairs on the upper surface of the leaves, especially on the veins. The slightly fleshy leaves are oblong and 4-9 by 3-5.5 cm, while the leaf stalk is 2-30 mm. Five to ten flowers occur in dense clusters on 0.5-2 cm long stalks, located between the stalks of a leaf pair. The 5-partite calyx bears small basal glands on the inside. The fleshy corolla is 5-partite, its tube is 2.5 mm long. Above the tube the corolla spreads to a diameter of 12-14 mm. The flower segments are yellow with longitudinal purple streaks. They are moderately to rather densely covered with short hairs on the inside. Anthers are brown with a blunt, white membrane on the end. The mostly solitary, brown, warty fruits are broadly elliptic with a very unequal base, measuring 8-9 by 7-8 cm. They are strongly keeled along the dorsal midrib and have thick stalks. The thick, fleshy part of the fruit is very rich in milky latex. The very numerous, flat, obovate seeds are surrounded by a thick, wing-like margin and measure 20-25 by 16-18 mm, not including the margin which measures 13-15 by 8-9 mm.

Ecology : Common in muddy mangroves. Flowering occurs throughout the year. Seeds that retain their wing-like margin float on water. After removal of the wing they sink. Mangrove associate species.

Distribution : Found from India and Bangladesh through Southeast Asia, where it has been recorded from Myanmar, Thailand, Vietnam, Malaysia and Indonesia (Java).

Abundance : Unknown.

Use(s) : In Peninsular Malaysia and Singapore, the fruit (follicle) peel is used for making preserves, after being steeped in salt water for three days and subsequently boiled in syrup. Also used in making *sambal* (Indonesian red pepper paste). Seeds are reportedly poisonous.

Source of illustration : Drawn from herbarium specimen, Bogor Herbarium.

Reference(s) : Heyne (1950), Backer & Bakhuizen van den Brink (1963-8), Rahman & Wilcock (1995), Missouri Botanical Garden TROPICOS database (<http://mobot.mobot.org/>).

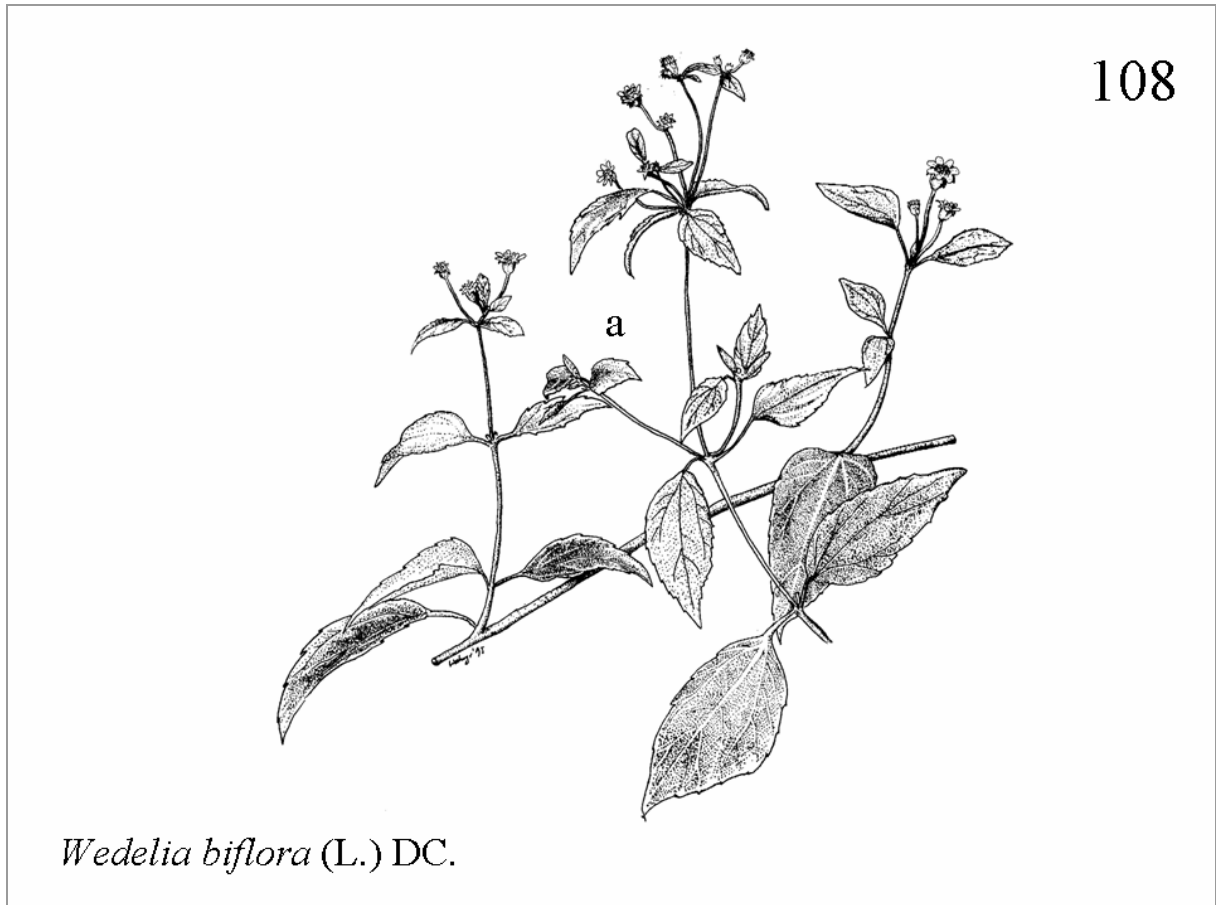


Fig. 108. *Wedelia biflora* (L.) DC. (a) Flowering vine.

ASTERACEAE

108

***Wedelia biflora* (L.) DC.**

Synonyms : *Acmella biflora* L., *Spilanthus acmella* Blanco, *Spilanthus peregrina* Blanco, *Stemmodontia biflora* W.F. Wight, *Verbesina biflora* Linné, *Wedelia glabrata*, *Wollastonia biflora* DC.

Vernacular : Beach sunflower, Wedelia (E), Daun Songa (Mal.), Lalang-kapan, Sernai, Pokok Serunai, Serunai Laut, Seremai, Seruni, Bunga Batang – *Saruni* (Ind.), Agonoi, Agunoi, Anoi, Hagonoi, Lagoron, Lahunai, Palunag, Palunai, Salonai (Phil.), Rau mui (Viet.)

Description : Straggling to climbing perennial herb, 1.5-5 m long, and with an angular stem. A few hairs occur on both surfaces of leaves and on the stem. Leaves are ovate, opposite and with a toothed edge, 3-17 cm by 1-12 cm, with a leaf stalk measuring 0.5-4 cm. Flower heads are usually solitary, terminal in the upper leaf-axils or sometimes in pairs, 1.5-2.5 cm diameter; flower stalk 1-7 cm, sparsely covered with hairs. Typical 'composite' flower with about eight marginal 'petals' (these are actually separate flag-like flowers) and (female) disk-flowers, numbering 20-30. Flowers are bright yellow.

Ecology : Occurs mainly along or near the coast, on sandy beaches and mangrove edges. It may also occur in coconut plantations, dry rice fields, river banks and in secondary forests. Mangrove associate species.

Distribution : Found from East Africa to the Pacific islands, including in India, Southeast Asia and China. In Southeast Asia it has been recorded in the Philippines, Thailand, Vietnam, Malaysia, Singapore, throughout Indonesia and Papua New Guinea.

Abundance : Common in mangroves.

Use(s) : The leaves have medicinal properties, particularly for external application. Used for treating cuts, insect bites, ulcers, sores, scabies and swellings. The juice of the leaves can be taken internally to treat constipation, stomach pain and to improve healing of the abdomen after childbirth. Roots are used to treat gonorrhoea. The flowers are a violent purgative, and decoction of the roots is slightly purgative. The plant is sometimes cultivated, and is also used as a 'ground-cover' species in plantations to prevent erosion and loss of water. In the Philippines a decoction of the fresh roots is administered as a diuretic. Filipinos used the roots to treat stomach aches, and the leaves as a diuretic, and the plant is used as a substitute for tea. Together with the herb *Blumea balsamifera*, the plant is used for baths. *Wedelia biflora* is also said to be useful in fevers.

Source of illustration : Drawn from live material.

References : Burkill (1935), van Steenis *et al.* (1951), Backer & Bakhuizen van den Brink (1963-8), Parray & Metzger (1980), Afriastini (1988), <http://bpi.da.gov.ph/websitemedicinal/all/h/hagonoi.htm>.

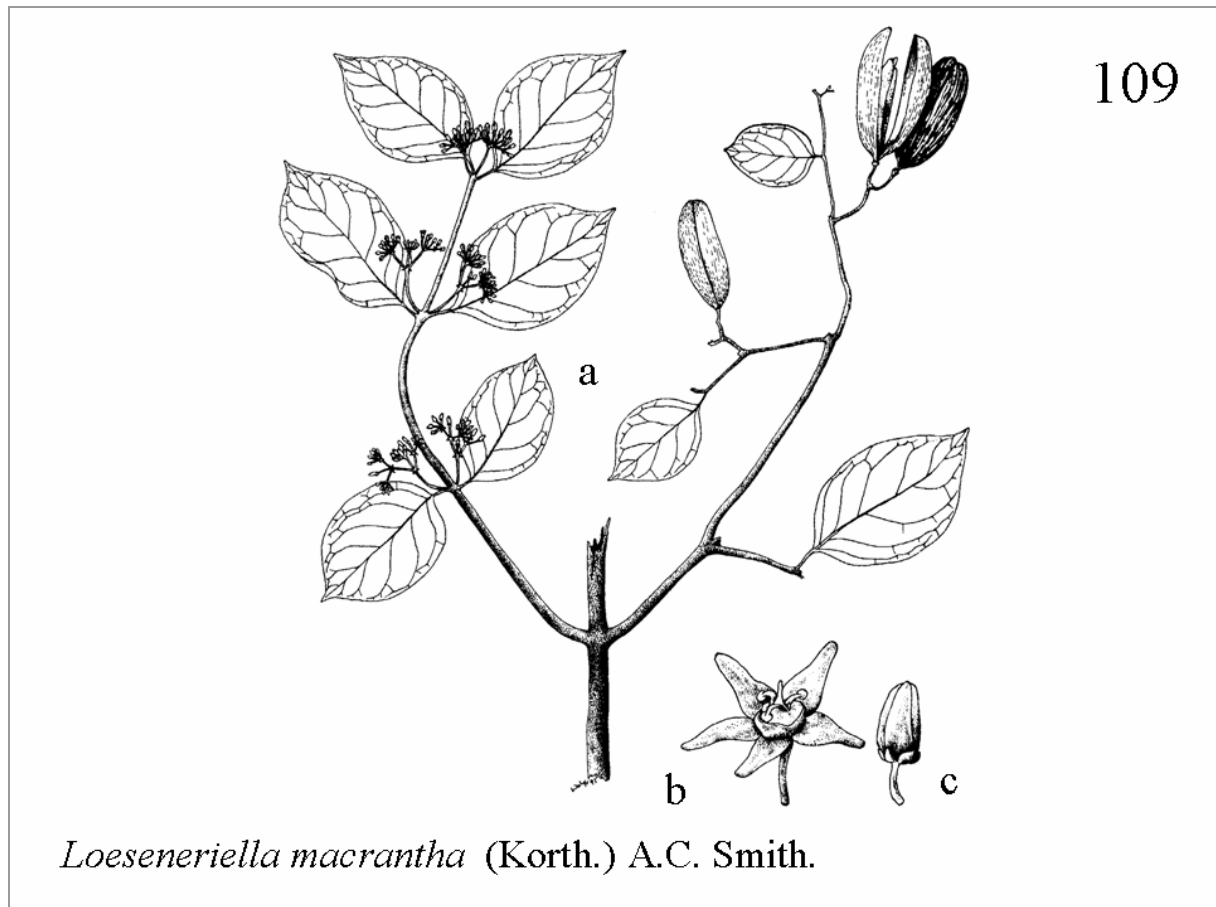


Fig. 109. *Loeseneriella macrantha* (Korth.) A.C. Smith. (a) Branchlet with flowers and fruit, (b) flower, and (c) bud.

CELASTRACEAE

109

***Loeseneriella macrantha* (Korth.) A.C. Smith**

Synonyms : *Hippocratea hasseltiana* Miq., *Hippocratea macrantha* Korth., *Hippocratea trilobulata* Ridl.

Vernacular name(s) : Akar bintang, Akar China, Akar mata pelanduk (Mal.), Gambir ayer, Resak, Akar beting (Ind.)

Description : A liana, up to 5 m long. Scars of leaflets occur at the base of the leaf stalk, and are united in a ring on the older branches. Leaves are papery to thinly leathery, sometimes shiny above, and varying from broadly elliptic to lanceolate, 10-20.5 by 5-8 cm. The flower stalk sometimes branches up to five times and is 1-6 cm long. Flowers occur on young, short shoots in axils that have reduced leaves at their base. Flowers are green or yellowish-green, or rarely yellow. The calyx is soft, covered with short hairs, and is 1 mm long. Petals are hairy inside and on the edges, and measure 4.5-6.5 by 2 mm. The 3-lobed fruit is ovate or elliptic oblong, 5-8 by 2-3.5 cm. The 3-8 seeds measure 3.5-6 by 0.5-1 cm, including the wings.

Ecology : Found in lowland forests up to an altitude of 400 m, but also found in floodplains, along rivers and in mangroves. Flowering in February and March. There are often insect galls on the leaves. Mangrove associate species.

Distribution : Found from Sri Lanka to the west Pacific, including Southeast Asia where it has been recorded in the Malay Peninsula, Singapore, Indonesia (Sumatra, Bangka, West and Central Java, Kalimantan, Sulawesi, the Moluccas and Papua) and Papua New Guinea.

Abundance : In Indonesia it is rare in Java, but elsewhere it is relatively uncommon.

Use(s) : Unknown.

Source of illustration : Drawn from herbarium specimen, Leiden Herbarium.

Reference(s) : Burkill (1935), Ding Hou (1962), Backer & Bakhuizen van den Brink (1963-8).

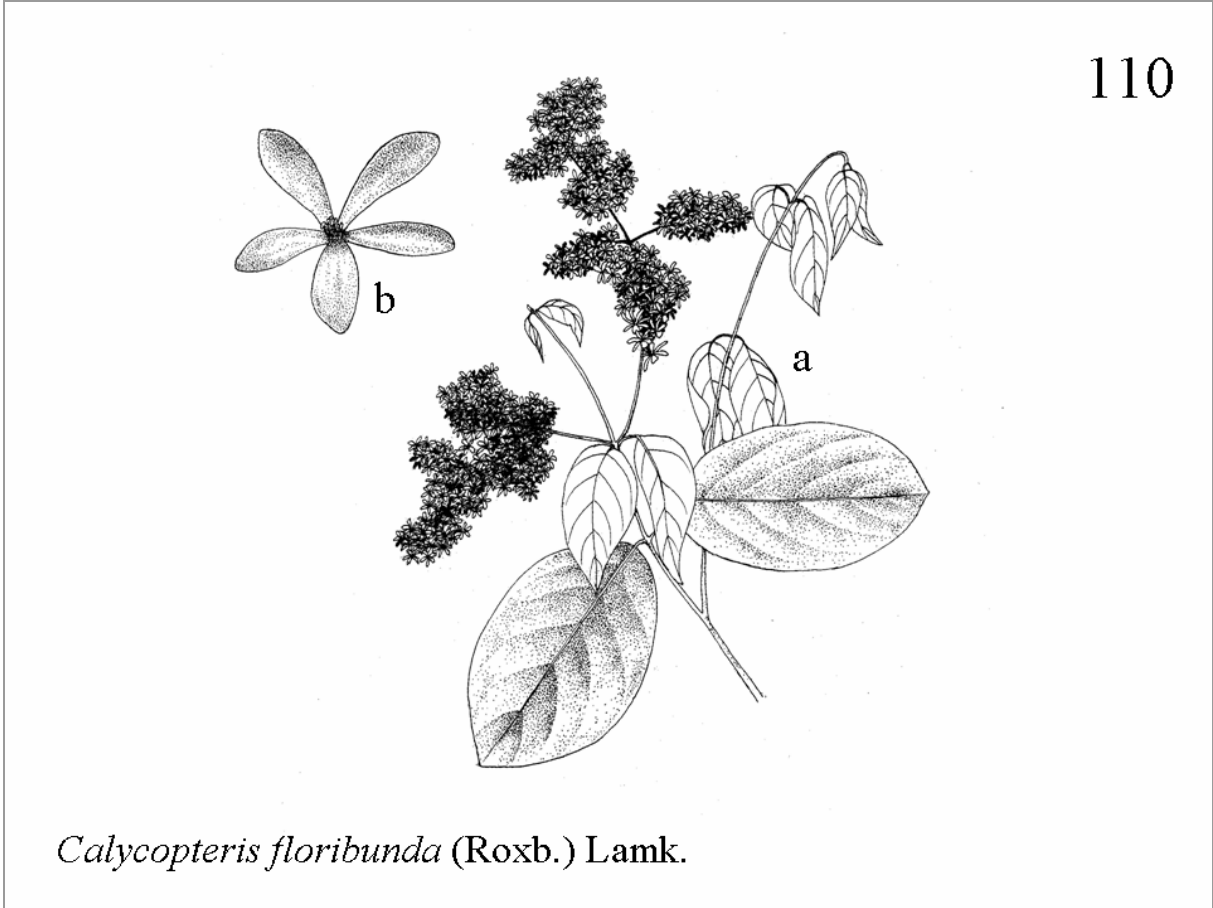


Fig. 110. *Calycopteris floribunda* (Roxb.) Lamk. (a) Flowering branchlet, and (b) flower.

COMBRETACEAE

110

***Calycopteris floribunda* (Roxb.) Lamk**

Synonyms : *Calycopteris nutans* Kurz., *Getonia floribunda* Roxb.

Vernacular name(s) : Pelawas (Mal.)

Description : Large scandent shrub or (more commonly) a woody climber, young branchlets densely covered with fine hairs. Leaves opposite or nearly opposite. Young leaves densely hairy on the upper side, older leaves smooth; underneath densely hairy, with fine net-like venation; ovate to narrowly elliptic, 6-17 by 2-7 cm, with pointed tip; leaf stalk 0.5-1 cm. Flowers 5-merous, grouped in panicles, yellowish-green, (almost) without a flower stalk; lower receptacle (= upper part of stalk upon which flower parts are borne) is covered with short hairs, 4.5 by 2 mm; upper receptacle 3 by 4.5 mm. Calyx lobes narrowly elliptic or lanceolate, 4 by 2 mm, in fruit reaching a length of 1-1.5 cm. Petals are absent; there are 10 stamens, and the style is 5 mm long. Fruit is ellipsoid, densely covered with short hairs, 7-8 by 2-3 mm.

Ecology : Climber in mixed forests, along rivers banks, and in landward edges of mangroves. Mangrove associate species.

Distribution : Endemic to Southeast Asia, and recorded in Myanmar, Cambodia, Thailand and Peninsular Malaysia.

Abundance : Uncommon, and with limited distribution.

Use(s) : Flowers are used in Penang as a poultice for headaches.

Source of illustration : <http://www.ku.ac.th/AgrInfo/plant/plant2/p033.html>

Reference(s) : Exell (1954).

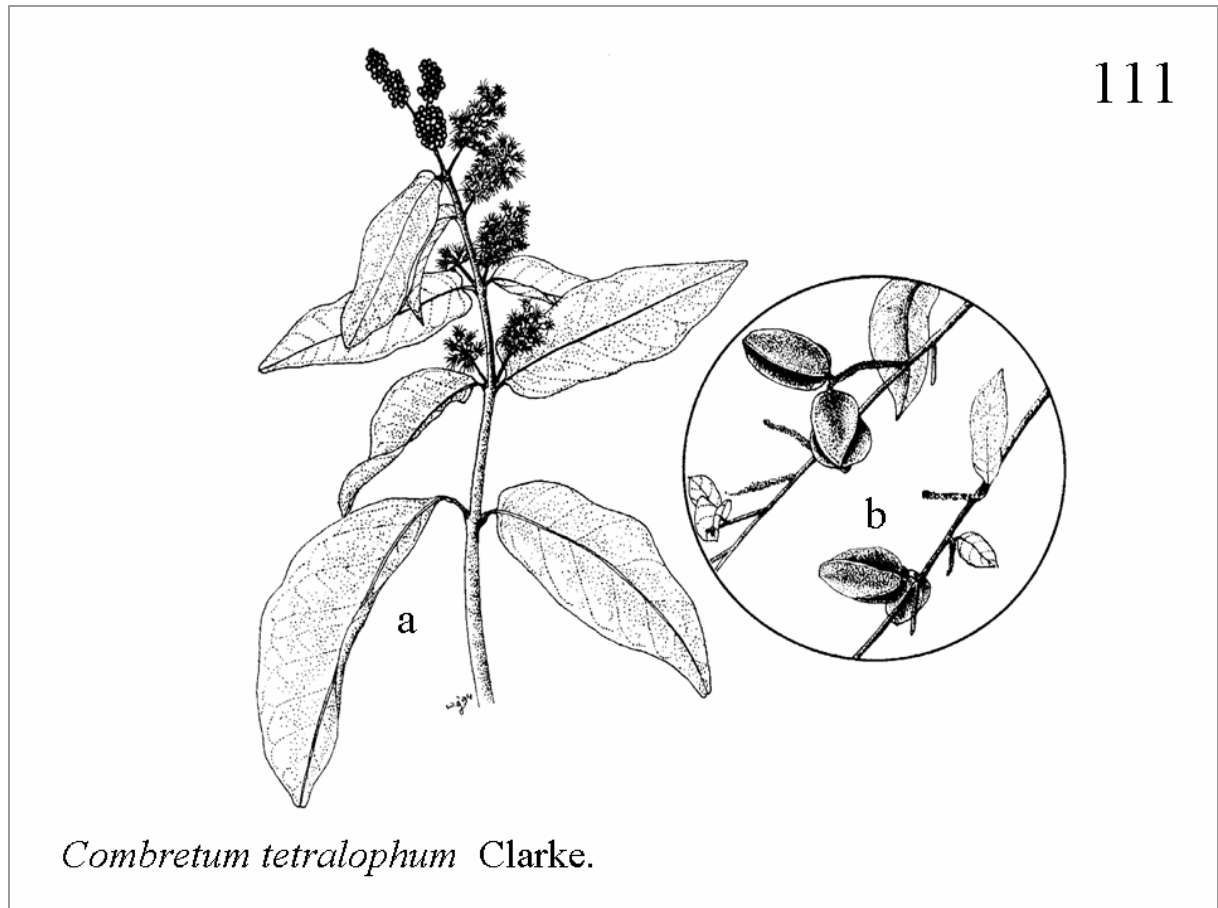


Fig. 111. *Combretum tetralophum* Clarke. (a) Flowering branchlet, and (b) detail of fruiting branchlet.

COMBRETACEAE

111

***Combretum tetralophum* Clarke**

Synonyms : *Combretum acuminatum* (non Roxb.) K. Schum. & Hollr., *Combretum neurophyllum* (non Miq.) Backer, *Combretum tetragonocarpum* (non Kurz.) Koord.

Vernacular name(s) : Akar Aru, Songsong Harus, Susong Harus; Tingting; Sungsung Arus, Susung Arus (Ind.)

Description : Woody liana, climbing to a considerable height, or a scandent shrub. Young branchlets have rust-coloured scales, but these soon become smooth as they mature. The papery to leathery leaves measure 6-20 by 3-11 cm, are elliptic and often shiny above. They are either densely scaly (individual scales not easily distinguished!), or nearly smooth except for some short hairs on the midrib at the base of the lower surface of the leaf. Flower clusters occur at the ends of branches and in axils; they are scaly and covered with short hairs, rarely more than 2-3 cm long, and often gathered in compact, head-like clusters. The flowers are 4-merous, stalk-less, yellow, greenish-yellow or greenish-white, sweet scented and 6-9 mm long. The disk of the flower is covered with very long hairs. The fruit is ovoid or ovoid-ellipsoid, densely scaly, 2.5-4 cm long, with four stiff, narrow, sharp-edged wings or ridges, along which it eventually splits.

Ecology : Occurs in mangroves, riparian forests in lowlands and as brushwood on cliffs. Flowering has been recorded in December, and fruit is probably dispersed by water. Leaf galls, caused by a mite, have been recorded. Mangrove associate species.

Distribution : Southeast Asian species, recorded in Cambodia, Vietnam, Thailand, Malaysia, Brunei, Singapore, East Timor, Indonesia (Sumatra, Java, Kalimantan, Sulawesi and Papua) and Papua New Guinea. Not (yet) recorded in Myanmar and the Philippines.

Abundance : Unknown.

Use(s) : Seeds used to treat internal worm infestations.

Source of illustration : Drawn from herbarium specimen, Herbarium Bogoriense

Reference(s) : Heyne (1950), Exell (1954), Backer & Bakhuizen van den Brink (1963-8).

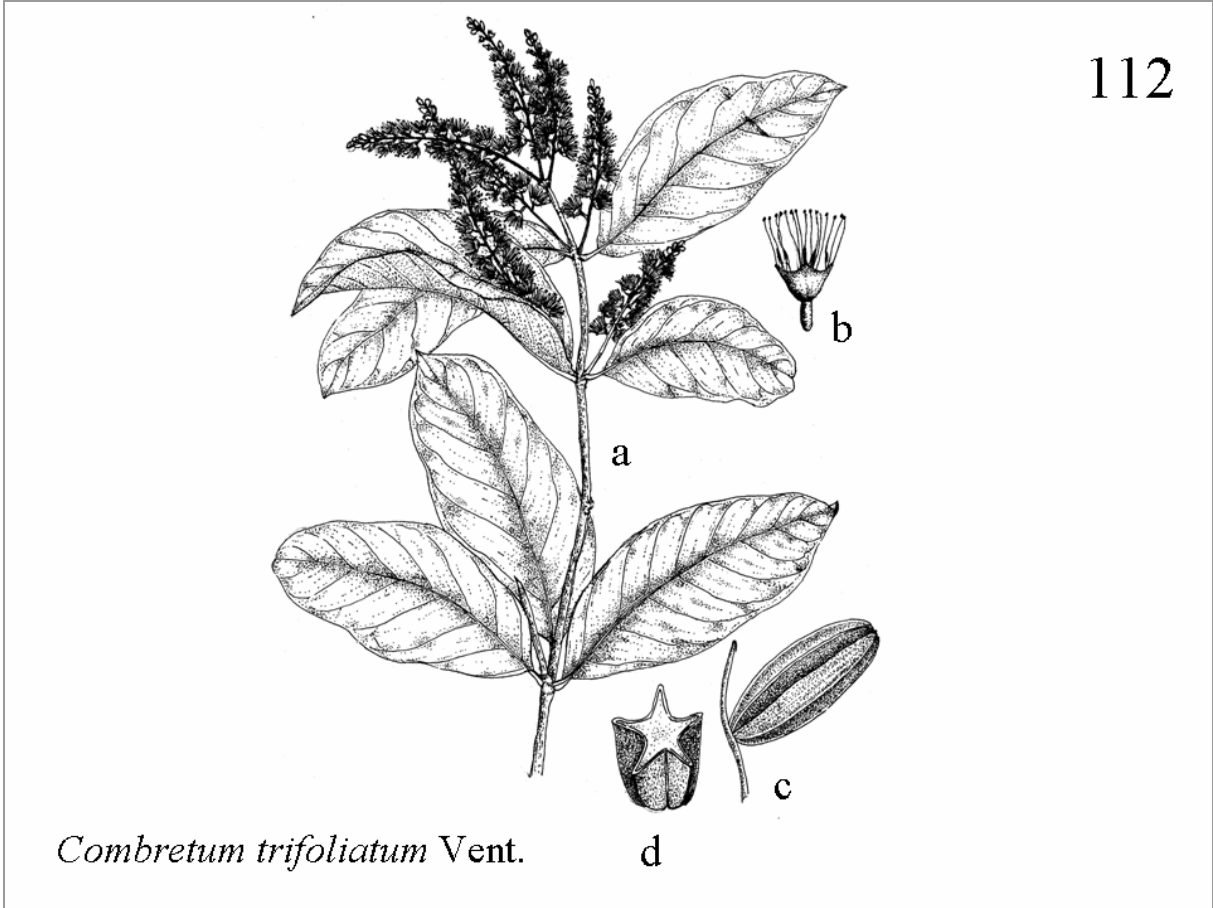


Fig. 112. *Combretum trifoliatum* Vent. (a) Flowering branchlet, (b) flower, (c) fruit, and (d) cross-section of fruit.

COMBRETACEAE

112

***Combretum trifoliatum* Vent.**

Synonyms : *Cacoucia lucida* Hassk., *Cacoucia trifoliata* DC., *Combretum lucidum* Blume, *Embryogonia lucida* Blume,

Vernacular name(s) : Kubaing, Sepang, Akar nangkei, Akar song song harus, Palawan (Ind.), Tew (PNG).

Description : Scrambling or climbing shrub, 2-5 m tall or long. Young branchlets flattened, covered with short, tawny-coloured hairs. Leaves arranged in 3-4(-5) whorls, (sub-) leathery, elliptic to lanceolate, usually smooth, except for a line of hairs along the midrib, 3-5.5 by 8-16 cm, usually with a pointed tip, nerves 6-8 pairs, and a 4-7 mm long leaf stalk. Flower clusters occur at the ends of branches or in axils, 8-20 cm long, with 2-5 cm long flower spikes. Flowers are 5-merous, white or yellowish-white, sweet-scented, mostly arranged in whorls of three. Calyx lobes 5, each 1 by 1.2 mm. Petals 5, narrowly elliptic, densely covered with hairs, 1-1.4 by 0.2-0.4 mm. Stamens 10, filaments 4-5 mm long, anthers 0.5 mm long. Fruit without a stalk, narrowly ellipsoid, smooth, shiny black-brown, 3-3.5 by 1-1.2 cm, with (4-)5(-6) rigid wings, 3-4 mm broad.

Ecology : Occurs in low-lying, frequently flooded areas, along banks of rivers and lakes, in bush or forest, along borders of teak forest, on limestone (Sulawesi) or alluvial river clay, both in humid or seasonal conditions. Fruit is dispersed by water. Also reported from mangroves and beach forests in Myanmar: "In the southern part (Tenasserim portion) of the eco-region, there are some *Heritiera*-dominated brackish and fresh-water habitats along the Tenasserim river. The former is characterized by *Bruguiera parviflora*, *Aquilaria agallocha*, *Sonneratia griffithii*, and *Cynometra mimosoides* and the latter by *Aglaia (Amoora) cucullata*, *Dysophyllum cochinchinensis*, *D. turbinatus*, *Intsia bijuga*, *Barringtonia acutangula*, and *Combretum trifoliatum*." Also occurs in the freshwater flooded forests of Cambodia around the Tonle Sap lake. Mangrove associate species.

Distribution : Southeast Asian species, recorded in Myanmar, Cambodia, Thailand, Vietnam, Malaysia, Indonesia (Sumatra, Borneo, Java, Sulawesi, Papua) and Papua New Guinea.

Abundance : Locally common.

Use(s) : Fruits are used to treat *Ascaris* worm infections, and they reportedly contain a saponin.

Source of illustration : Archive, Royal Botanic Garden, Kew

Reference(s) : Exell (1954),
http://www.worldwildlife.org/wildworld/profiles/terrestrial/im/im0132_full.html
[http://www.mekonginfo.org/mrc_en/doclib.nsf/0/361DBED9D9432D0B87256AE30013DD00/\\$FILE/FULLTEXT.pdf](http://www.mekonginfo.org/mrc_en/doclib.nsf/0/361DBED9D9432D0B87256AE30013DD00/$FILE/FULLTEXT.pdf).

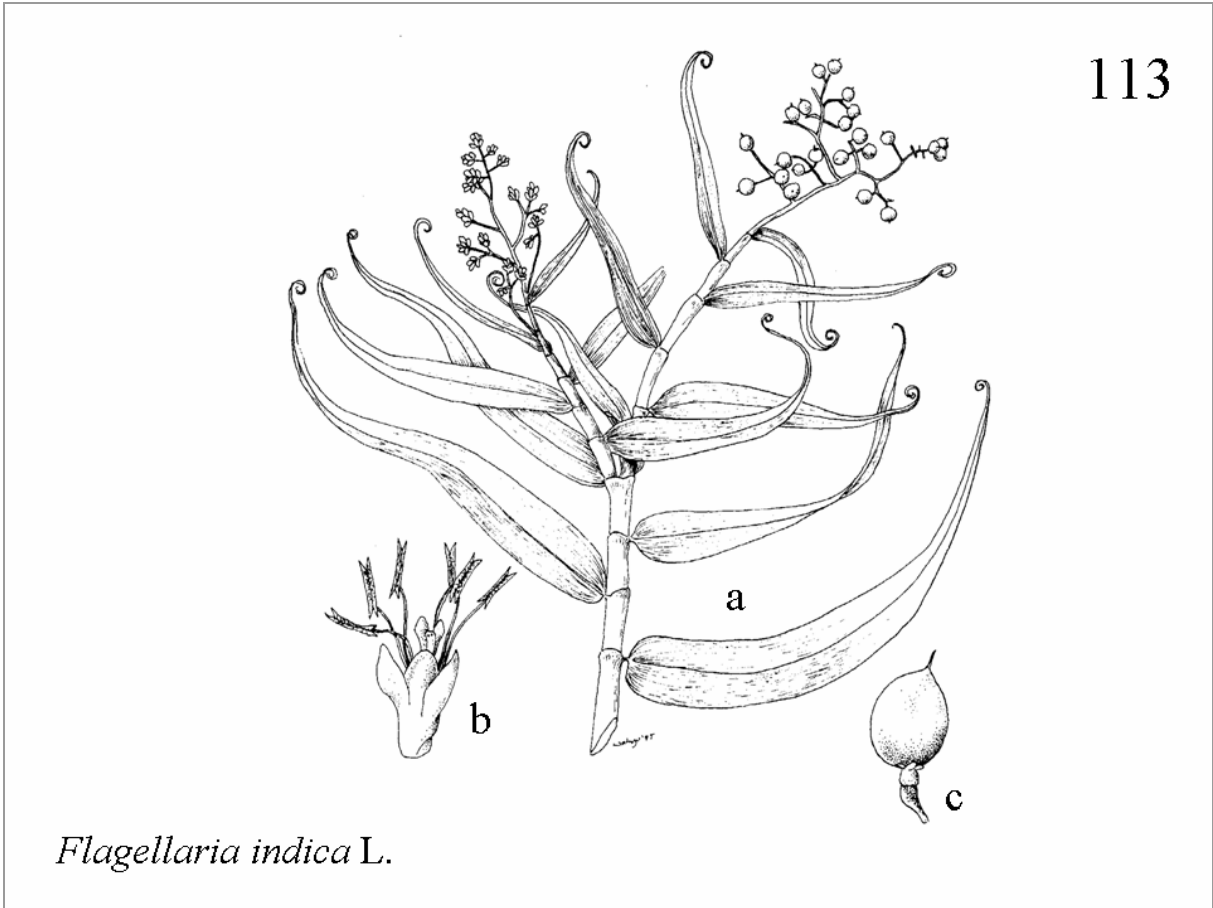


Fig. 113. *Flagellaria indica* L. (a) Flowering and fruiting vine, (b) flower, and (c) fruit.

FLAGELLARIACEAE**113*****Flagellaria indica* L.**

Synonym(s) : *Flagellaria minor* Bl., *Flagellaria philippinensis* Elmer, *Palmijuncus laevis* Rumph., *Flagellaria indica* var. *gracilis* Backer, *Flagellaria indica* var. *minor* (Bl.) Koord.

Vernacular name(s) : Rotan Tikus (Mal.), Lumpui, Owar, Kokrok, Wowo, Rotan Dapit, Rotan Dini, Rotan Kroh, Rotan Laki, Rotan Macik (Ind.), Anudd, Ingual, Audi, Audi-si-gayang, Venagalang (Phil.), Mây nu'ó'c (Viet.), Pdao ondawk, Vorre (Camb.)

Description : Perennial climber with a 2-15 m long stem that is 1-3 cm thick and woody at the base, but generally less than 1 cm thick, green and herbaceous along most of its length. Leaves are 3-50 by 0.5-6.5 cm and have a 3-10 mm-long petiole that is abruptly flattened. The leaf tip is curled into a tendril that winds around all available props. Flowers are generally grouped in terminal clusters. Individual flowers are solitary, white, with 2-2.75 mm lobes. Fruit is a conspicuous, round, smooth, shiny, pink to orange berry, about 6 mm in diameter, usually with only one fertile seed.

Ecology : Common climber in moist forests, swamp forests, peat swamp forests and riparian forests, from sea level to about 1,600 m altitude. Frequently seen along forest edges, and along stream and river banks. Also found along mangrove margins. In freshwater areas it creeps along the ground if woody vegetation is not present. Mangrove associate species.

Distribution : From Tropical Africa through South Asia (India, Sri Lanka) and Southeast Asia to western Polynesia and northern Australia. Found throughout Southeast Asia.

Abundance : Common, locally very common.

Use(s) : Sometimes used for basket work, but is of inferior quality compared to rattan. Young stems and leaves are used as shampoo to combat baldness, and various medicinal applications have been reported, such as using leaves as a plaster on wounds (Heyne, 1950).

Source of illustration : Backer (1951), Keng (1987).

Reference(s) : Heyne (1950), Backer (1951), Keng (1987), Heywood (1993), Marschke (2000).

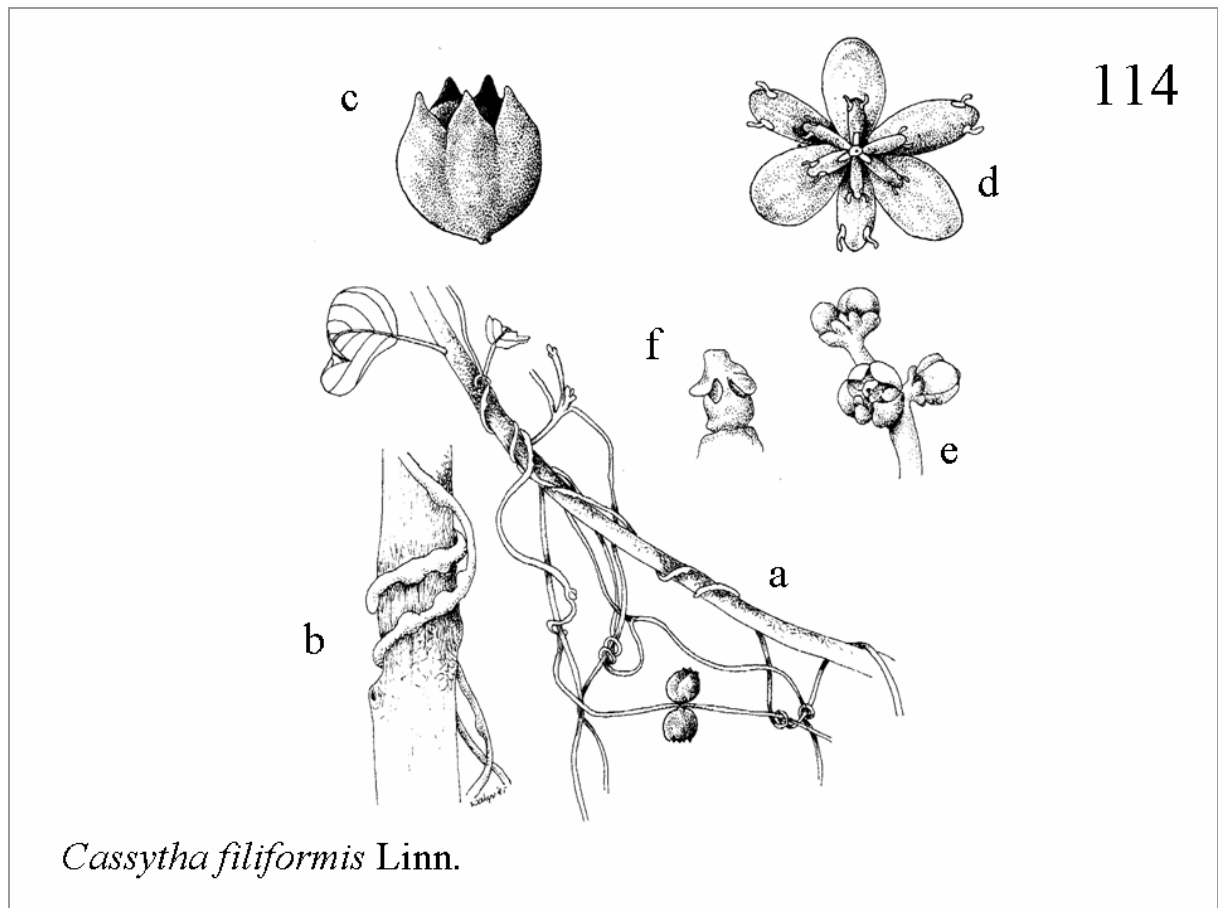


Fig. 114. *Cassytha filiformis* Linn. (a) Habit of fruiting vine, (b) parasitic attachment (sucker) to the host plant, (c) fruit, (d) flower, (e) cluster of flowers, and (f) detail of flower.

LAURACEAE

114

***Cassytha filiformis* Linn.**

Synonym(s) : *Calodium cocinchinensis* Lour., *Cassytha americana* Nees., *Cassytha aphylla* (Forssk.) Raenschel., *Cassytha archboldiana* C.K. Allen, *Cassytha brasiliensis* Mart. ex Nees., *Cassytha dissitiflora* Meisn., *Cassytha filiformis* L. var. *pseudopubescens* Domin., *Cassytha filiformis* L. var. *subpubescens* Meisn., *Cassytha guieenensis* Schumach. & Thonn., *Cassytha novoguieenensis* Kaeh. & Harusima, *Cassytha timorensis* Gand., *Cassytha zeylanica* Gaertn., *Rumputris fasciculata* Raf., *Spironema aphyllum* (Forssk.) Raf., *Volutella aphylla* Forssk.

Vernacular name(s) : Dodder-laurel, Devil's Gut, Love Vine (E), Cemar, Akar Pengalasan (Mal.), Rambut Putri, Tali Putri, Sangga Langit, Sangir Langit, Gumi Guraci, Mas Semasan – *Tali putri* (Ind.)

Description : Thread- or string-like, semi-parasitic plant that grows in a massive tangle on host plants and does not root. Stems measure 1.5-2 mm, are hollow, round and dark green to reddish-or yellowish-brown, smooth and 3-8 m long. The juice is slimy. There are no (visible) leaves. The vines produce suckers at short intervals along the stem, by which they are attached to the host. Flowers are tiny, measuring 1.5-2 mm across, 3-partite, yellowish-white, with (9-)12 stamens. They occur on 5 cm long auxiliary stalks. It produces small, round, juicy white berries – about 7 mm diameter – that are eaten and dispersed by birds. Sometimes recognised as a separate family, the Cassythaceae. The *Lauraceae* family are occasionally split into two sub-families: *Cassythoideae* and *Lauroideae*. The former includes only a few (semi-) parasitic climbers such as *Cassytha*. In general appearance it is much like the European Dodder *Cuscuta* (Convolvulaceae), which is also semi-parasitic.

Ecology : Sea-side semi-parasite, observed on many shrub and small tree species, including *Excoecaria agallocha* and *Scaevola taccada*. More rarely seen inland, for example in dwarf swamp forests of the Danau Sentarum NP in West Kalimantan (Giesen, 2000). It can sometimes smother the host so densely that the latter is scarcely visible. Mangrove associate species.

Distribution : Pantropical, and occurs throughout Southeast Asia.

Abundance : Common.

Use(s) : Juice used in tonic shampoo (Ambon, Indonesia), and to treat intestinal worm infestations. Sometimes cultivated for the latter (e.g. North Sulawesi, Indonesia).

Source of illustration : Holttum (1954)

Reference(s) : Heyne (1950), van Steenis, den Hoed & Eyma (1951), Holttum (1954), Afriastini (1988), Polunin (1988), Khan & Hosne-Ara (1989), Giesen (1995), <http://www.plantatlas.usf.edu/main.asp?plantID=2746>.

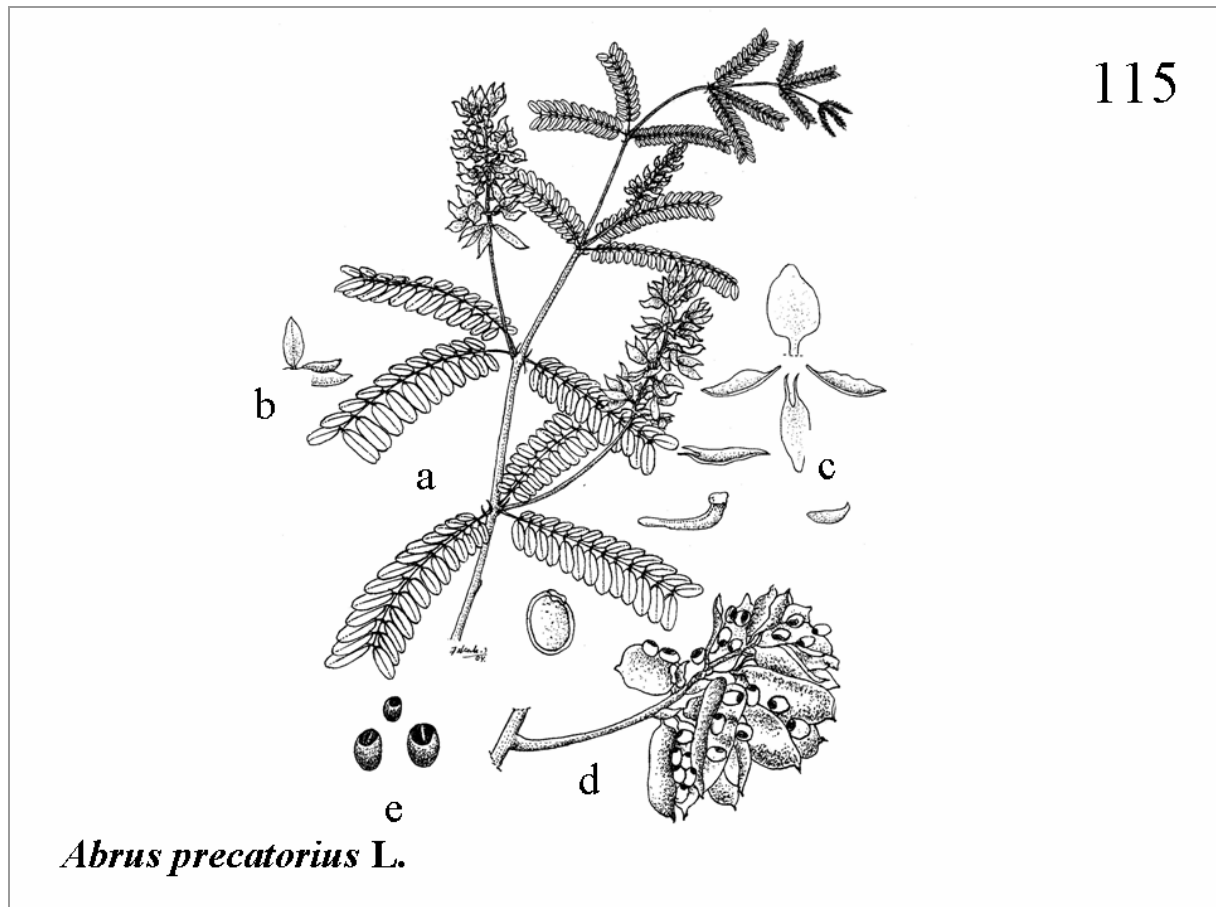


Fig. 115. *Abrus precatorius* L. (a) Flowering branchlet, (b) flower, seen from side, (c) flower parts, (d) cluster of opening seed pods, and (e) seeds.

LEGUMINOSAE

115

***Abrus precatorius* L.**

Synonyms : *Abrus abrus* W.Wight, *Abrus cyaneus* R.Vig., *Abrus frutex* Rumphius, *Abrus maculatus* Noronha, *Abrus minor* Desv., *Abrus pauciflorus* Desv., *Abrus precatorius* var. *novo-guineensis* Zipp. ex Miq., *Abrus squamulosus* E. Mey., *Abrus tunguensis* P. Lima, *Abrus wittei* Baker f. *Glycine abrus* L.

Vernacular name(s) : Wild liquorice, Crab's eye creeper, Indian Liquorice, Prayer Beads, Jequirity seeds, Rosary bead, Precatory bead (E), Abrus chapelet (F), Koraalerwt, Paternosterboontjes, Weesboontjes (NL), Daun saga, Saga buncik, Taning bajang, Piling-piling, Pikal, Saghakan – *Saga* (Ind.), *Saga* (Mal.).

Description : Twining shrub to (more commonly a) woody climber, (1)2-4(5) m tall, stems often attaining over 1.5 cm diameter, greenish, smooth or with flattened fine hairs. Leaves 16-34 foliate (8-17 pairs), leaf stalk 0.5-1.8 cm long. Leaflets deciduous, oblong, obovate-oblong or ovate, 3-10 mm by 6-27 mm, smooth on top, finely hairy underneath. Flower clusters curved, thick and robust, 2-7 cm long, flower stalks 1.5-6 cm long. Calyx sparsely covered with hairs, 3 mm long, 5-toothed. Corolla usually pale purple to pink, but variable in colour, from yellow, to white, pink or mauve, 9-15 mm long. Pods are oblong, swollen, 2-4(5) cm long, 1-1.5 cm wide, with a hooked beak and covered with dense, short hairs. (Warty-)pods contain (1)3-6(7) seeds, (3-)5-7 mm by 4-5 mm, rounded to bead-shaped, shiny, scarlet to bright (orange-) red with small black spot at base; seeds occasionally entirely black or yellowish.

Ecology : Both planted and in natural habitats: grasslands, thickets, secondary growth, often rocky places, coastal and lowland areas including beach scrub and landward edges of mangroves, up to about 250m asl (Indonesia) or even 1,350 m (East Africa). Mangrove associate species.

Distribution : Tropical Africa (east and west), tropical Asia, Australia and the Pacific; found throughout Southeast Asia.

Abundance : Locally common.

Use(s) : The raw seeds contain *abrin*, a ribosome inactivating protein that is one of the most poisonous plant toxins known; despite their toxicity, the boiled seeds are ingested as a contraceptive and an aphrodisiac (as are the chewed roots); they are also made into a decoction for use as a diuretic, for sore throat, and for rheumatism; the powdered seeds are taken as a snuff for headache; a poultice of the leaves is said to remove freckles; a decoction of the leaves and roots is used for cough, colds, and colic. Roots and leaves used as alternative for liquorice (*Glycyrrhiza glabra* L.). The seeds, weighing about 1 carat each, have been used in India from very ancient times for the purpose of weighing gold, under the name of Rati.

Source of illustration : Missouri Botanical Garden TROPICOS database (www.mobot.mobot.org)

Reference(s) : Kamerling (1915), Heyne (1950), van Steenis *et al.* (1951), Steentoft-Nielsen (1965), Gillett *et al.* (1971), Afriastini (1988), <http://www.luckymojo.com/redbeans.html>, <http://www.botanical.com/botanical/mgmh/1/liqind33-1.jpg>.

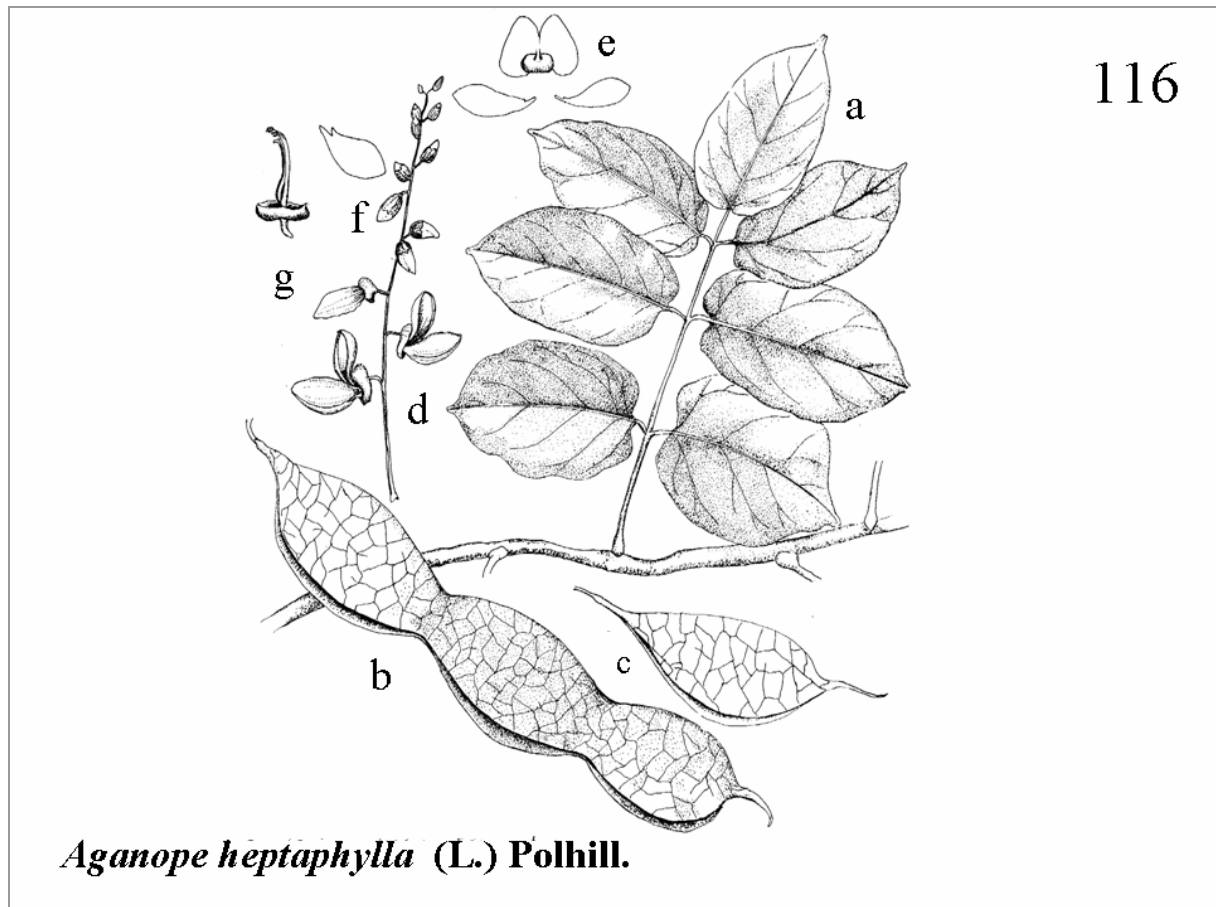


Fig. 116. *Aganope heptaphylla* (L.) Polhill. (a) Section of vine with one leaf (with 7 leaflets), (b) large pod, (c) small pod, (d) flower raceme, and (e, f, g) segments of flower.

LEGUMINOSAE

116

***Aganope heptaphylla* (L.) Polhill**

Synonyms : *Derris heptaphylla* (L.) Merr., *Derris macroloba*, *Derris sinuata* Thwaites, *Funis convolutus* Rumph., *Sophora heptaphylla* L.

Vernacular name(s) : Tali Berkumpul (Mal.); Wali Ahuhun (Ind.).

Description : Erect or climbing shrub, 3-5 (-15) m, with smooth (occasionally hairy) branchlets and hairy young shoots. Leaves are alternate, with a mid-rib that is 12.5-30 cm long and bears 5-7 leaflets. The latter are smooth, leathery, broadly ovate-oval-elliptic and measure 5-20 by 2.5-13 cm. The flower clusters are flattened, covered with brown hairs, and are 20-40 cm long. Flower clusters occur on short, lateral branchlets. The calyx has brown hairs on the top and on the outside. The main part of the standard (see glossary) of the flower is green and smooth, measuring 1.5-2.5 cm in diameter. The other petals are white. The one upper stamen is free, the others are united. The pod is long and flat, with a 2-2.5 mm-wide wing along the ventral midrib, undulating between the seeds. Pods are corky, measuring 6-27 by 2.5-3.5 cm, and are constricted between the 1-6 seeds. It is recorded that it sometimes grows intertwined with *Derris trifoliata*, with which it has been confused. It can be distinguished by the absence of dark red, strongly-ridged younger stems with prominent lenticels. Furthermore, its flowers and fruits are larger and it has smoother leaflets.

Ecology : Occurs in mangrove swamps and associated communities such as littoral creeks and estuaries. It has also been recorded in degraded peat swamp forests and along rivers (both in Brunei). *Aganope heptaphylla* may grow inland, but has a decidedly coastal distribution. Flowering occurs from October to February. Mangrove associate species.

Distribution : Found from Sri Lanka and South Asia (Bangladesh, East India) to South China and through Southeast Asia, where it has been recorded in the Philippines, Malaysia, Singapore, Indonesia and Papua New Guinea.

Abundance : Locally common, but often confused with *Derris trifoliata* and hence seldom recorded.

Use(s) : Young leaves eaten as vegetable. Used as fodder for cattle.

Source of illustration: Icones Rijksherbarium Leiden.

Reference(s) : Heyne (1950), Backer & Bakhuizen van den Brink (1963-8), Tomlinson (1986), <http://www.rbgekew.org.uk/herbarium/brunei/bclhome.htm>.

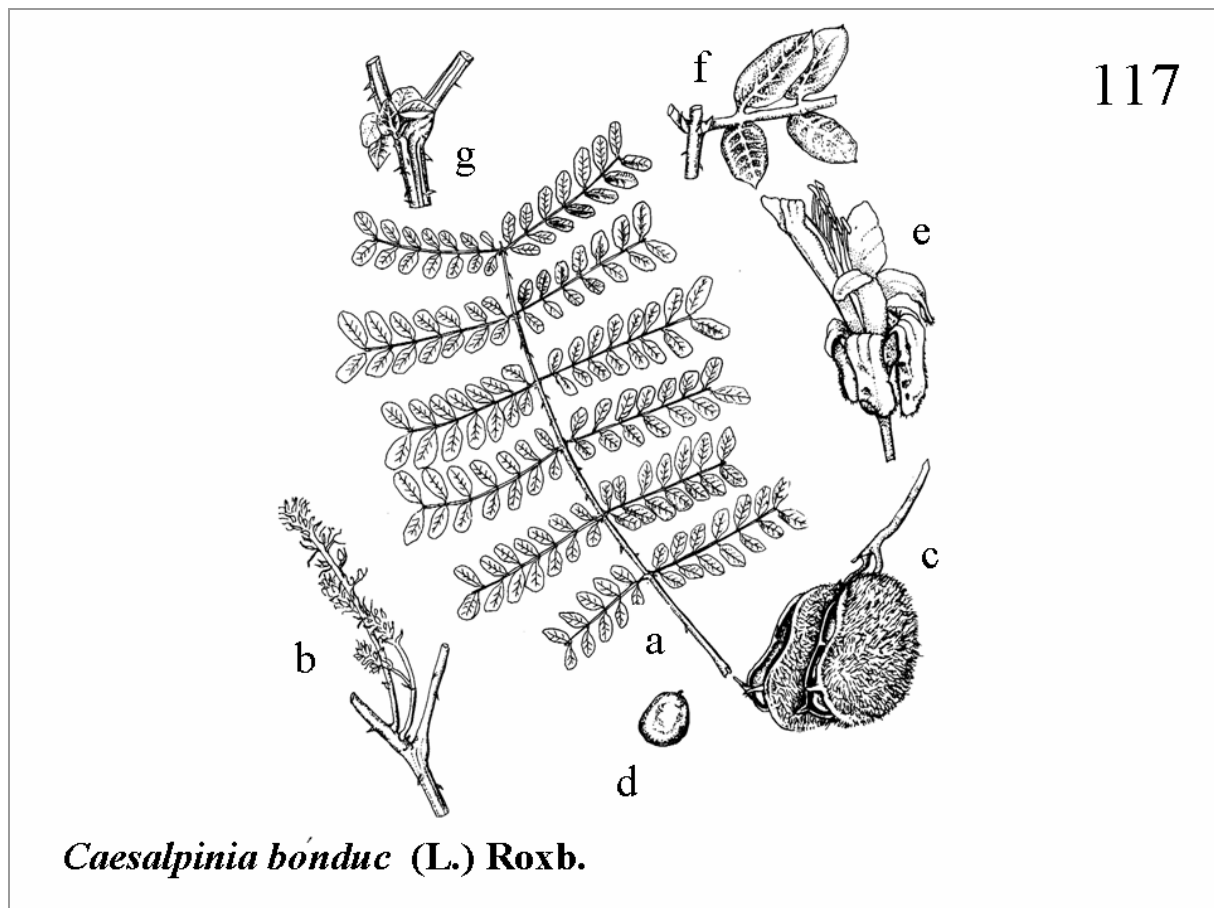


Fig. 117. *Caesalpinia bonduc* (L.) Roxb. (a) Leaf, with primary and secondary leaflets, (b) flower raceme, (c) pod, (d) seed, (e) single flower, and (f-g) leaf insertion and thorns.

LEGUMINOSAE

117

***Caesalpinia bonduc* (L.) Roxb.**

Synonyms : *Caesalpinia jayabo* Maza., *Caesalpinia sogerensis* Baker, *Guilandina bonduc* L.

Vernacular name(s) : Nicker tree (E), Bonduc, Akar Kelinci (Mal.) Kaniker, Sompini, Areuj, Mata Kijang, Kemrounggi, Klengkeng, Kutuk, Aruk, Tuwung, Bagoré, Buwa Goro, Katé-katé (Ind.)

Description : A coarse, climbing vine, 5-15 m long, with leaves up to 1 m long, twice divided into leaflets, and with small leaflets located at the base of the leaf-stalk. Stem, branchlets and leaflet mid-rib are often prickly. The 6-11 pairs of leaflets are 8-20 cm long; the main axis of the leaf may be up to 80 cm. The 12-24 opposite or nearly opposite secondary leaflets, 2-4 cm long, are asymmetric, ovate-oval, densely covered with yellow hairs when young, but gradually become smooth as they mature. The topmost leaflets are largest. The scented flowers occur in simple or branched clusters that are up to 50 cm long and occur in the leaf axils. Flowers are of one sex only, yellow, often with reddish streaks. Flowers have 10 stamens. The ellipsoid pods are 5-7(-9) cm by 3-5 cm long and have rigid thorns, 8-10 mm long, which are easily detached from the ripe pod. The one or two seeds are pearly-grey or olive-green and 2-2.5 cm long.

Ecology : *Caesalpinia bonduc* mainly occurs in dry localities on and close to the beach and on landward margins of mangroves, especially in disturbed sites. It also occurs inland in secondary forests up to an altitude of about 850 m, often forming dense, impenetrable thickets. Seeds can float and retain their viability in water for extended times. Flowers and fruit often occurs together without any apparent periodicity. Mangrove associate species.

Distribution : Pan-tropical. Recorded throughout Southeast Asia, but scarce in Sumatra, Borneo, the Philippines and western New Guinea.

Abundance : Locally common, but listed as rare in Indonesia (Mogea *et al.*, 2001).

Use(s) : Sometimes cultivated as a hedge-plant. Used as an ornamental in local celebrations. Root used to treat stomach pain and to stimulate the appetite.

Source of illustration : Tomlinson (1986).

Reference(s) : Heyne (1950), Backer & Bakhuizen van den Brink (1963-8), Tomlinson (1986), Hou *et al.* (1996).

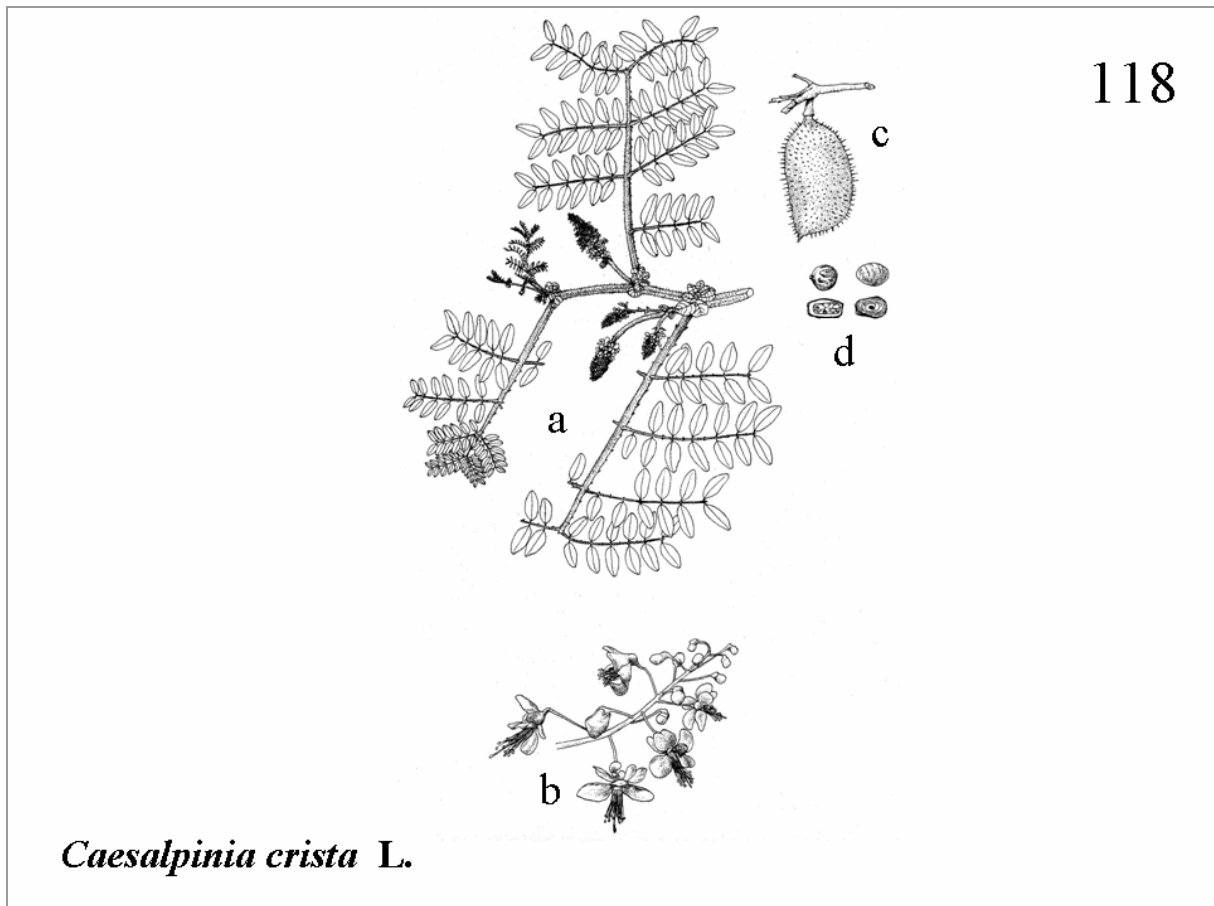


Fig. 118. *Caesalpinia crista* L. (a) Flowering section of vine, (b) detail of flower cluster, (c) pod, and (d) seeds and seed cross-section.

LEGUMINOSAE

118

***Caesalpinia crista* L.**

Synonyms : *Caesalpinia bonducella* Flem., *Caesalpinia laevigata* Perr., *Caesalpinia nuga* L., *Guilandina bonducella* L., *Guilandina nuga* L., *Nugae silvarum* Rumph.

Vernacular name(s) : Bonduc, Akar Kelinci, Kaniker, Sompini, Areuj, Mata Kijang, Kemrounggi, Klengkeng, Kutuk, Aruk, Tuwung, Bagoré, Buwa Goro, Katé-katé.

Description : Liana, 5-20 m long, with leaves up to 30 cm long, that are twice-divided into leaflets, often with obscure, minute leaflets at the base of the leaf stalk. Branches are prickly, at least partially. The main leaf mid-rib is thorny, while the 2-6 pairs of primary leaflets have an unarmed or sparingly prickly mid-rib, 2.5-12 cm long. The opposite, leathery secondary leaflets are ovate-oval-oblong and symmetric, smooth and pale shiny beneath, 2-12.5 by 1-5.5 cm. The scented, bisexual flowers occur in 20-40 cm-long clusters. The petals are bright yellow in full flower, the topmost one veined with red, 9-13 mm. Flowers have 10 stamens that have woolly stalks. The prickly pods are elliptic, unequal at the base, beaked and flat, 2.5-3.5 by 4-7 cm. Pods have one (rarely two) seed(s), black and flat, orbicular or ovoid, 2-2.5 by 1.5-2 cm, 0.5-1 cm thick.

Ecology : Occurs on landward margins of mangroves, river banks, chalk rocks, limestone, rarely on littoral rocks or on sandy beaches. Flowering occurs all year round. Mangrove associate species.

Distribution : Found from India and Sri Lanka through most of Southeast Asia to Australia and New Caledonia. In Southeast Asia recorded in all coastal areas, except from East Sumatra and East Borneo.

Abundance : Locally common, but listed as rare in Indonesia (Mogea *et al.*, 2001).

Use(s) : Seeds are used as marbles by children, and are also used to treat malaria and parasitic worms. Leaves are used to treat Hepatitis A.

Source of illustration : Icones Rijksherbarium Leiden.

Reference(s) : Backer & Bakhuizen van den Brink (1963-8), Tomlinson (1986), Hou *et al.* (1996).

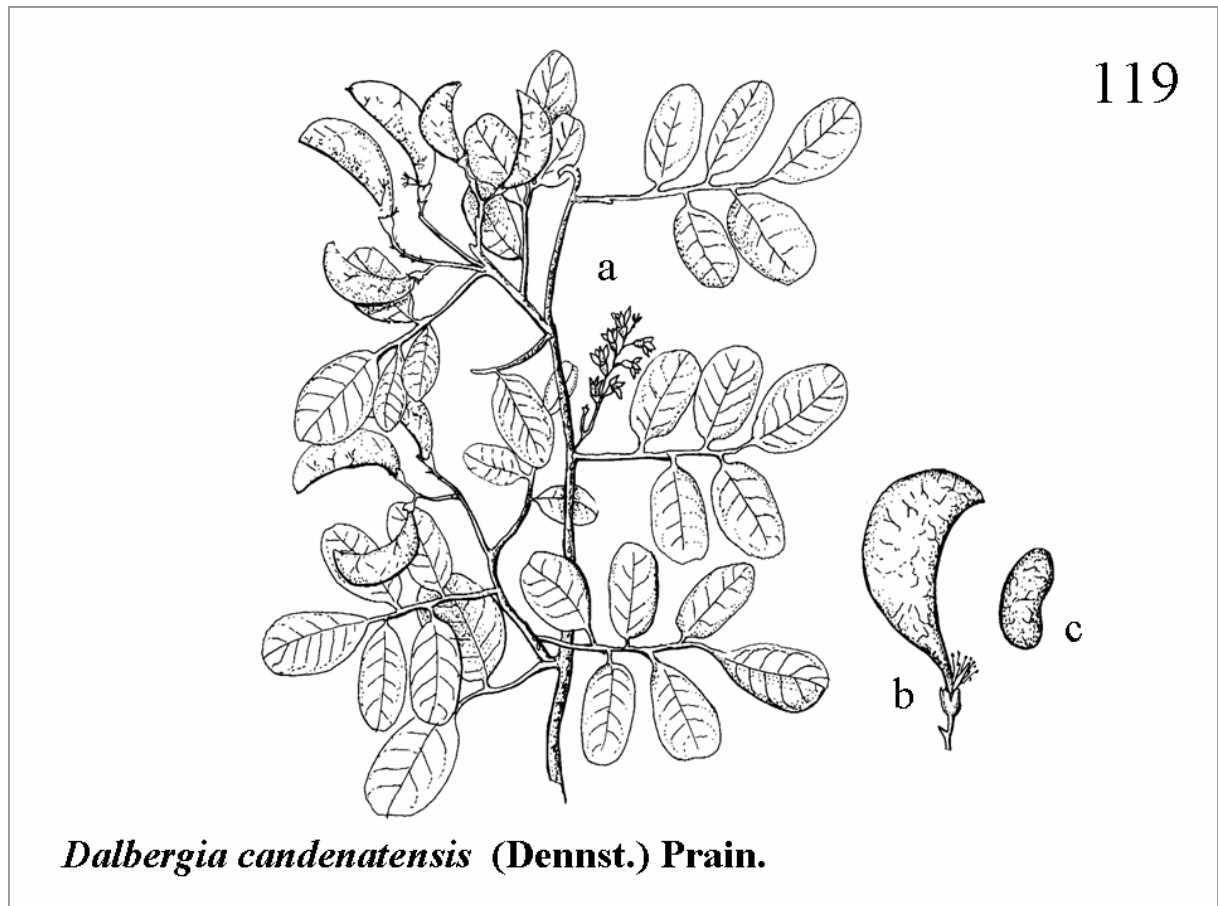


Fig. 119. *Dalbergia candenatensis* (Dennst.) Prain. (a) Flowering and fruiting vine, (b) pod, and (c) seed.

LEGUMINOSAE

119

***Dalbergia candenatensis* (Dennst.) Prain**

Synonyms : *Cassia candenatensis* Dennst., *Dalbergia monosperma* Dalzell, *Dalbergia torta* Graham

Vernacular name(s) : Unknown.

Description : Woody climber, up to 8 m long, with twining stems that often bear many short, lateral branchlets; tip of stem often twisting into a spiralling hook. Bark is dark grey to almost black, smooth, with large, pale lenticels. The alternate leaves are 4-13 cm long, and have 3-7 leaflets with obovate or elliptic blades, occasionally notched at the end, 1.5-3 by 2-4 cm, with short 1.5 mm long stalks. The upper surface of the leaflets is dark green, while the lower surface is shiny and has a distinct, net-like venation. The branched flower-clusters are located in axils, 5-50 mm long and have a stem that is covered with soft hairs. Flowers are bisexual, with white petals and 9-10 stamens. Pods are sickle- or half-moon shaped, compressed, 2-3.5(-4) by 1-1.5 cm, firmly leathery, and have a persistent calyx on a stalk. Pods do not break open when ripe. The 1-2 seeds are kidney-shaped, compressed, about 20 mm long, smooth, and have a net-like venation.

Ecology : Coastal species, grows in silty and sandy substrates on the landward margin of mangroves, or on banks of tidal creeks. It appears intolerant of frequent salt water inundation, preferring areas with perennially high freshwater input. The stem of the liana encircles a support with one or two coils and then continues its growth during some time without further windings. Flowering occurs from October to February. The fruit is adapted to both water and wind dispersal. Mangrove associate species.

Distribution : Found from Sri Lanka and India eastwards to southern China, throughout Southeast Asia (Brunei, the Philippines, Indonesia, Singapore, Malaysia, Thailand, Vietnam) and northern Australia. Also reported from East Africa (see www.uog.edu, below), but this would seem erroneous as it is not recorded in the Flora of East Africa (Gillett *et al.*, 1971).

Abundance : Rather common.

Use(s) : Unknown.

Source of illustration : Wightman (1989)

Reference(s) : Backer & Bakhuizen van den Brink (1963-8), Wightman (1989), <http://www.uog.edu/cals/site/POG/dalber.html>, Missouri Botanical Garden TROPICOS database (www.mobot.mobot.org), <http://www.rbgekew.org.uk/herbarium/brunei/bclhome.htm> Flora of China: http://flora.huh.harvard.edu/china/mss/volume10/Fabaceae-MO-Dalbergia_edited.htm.

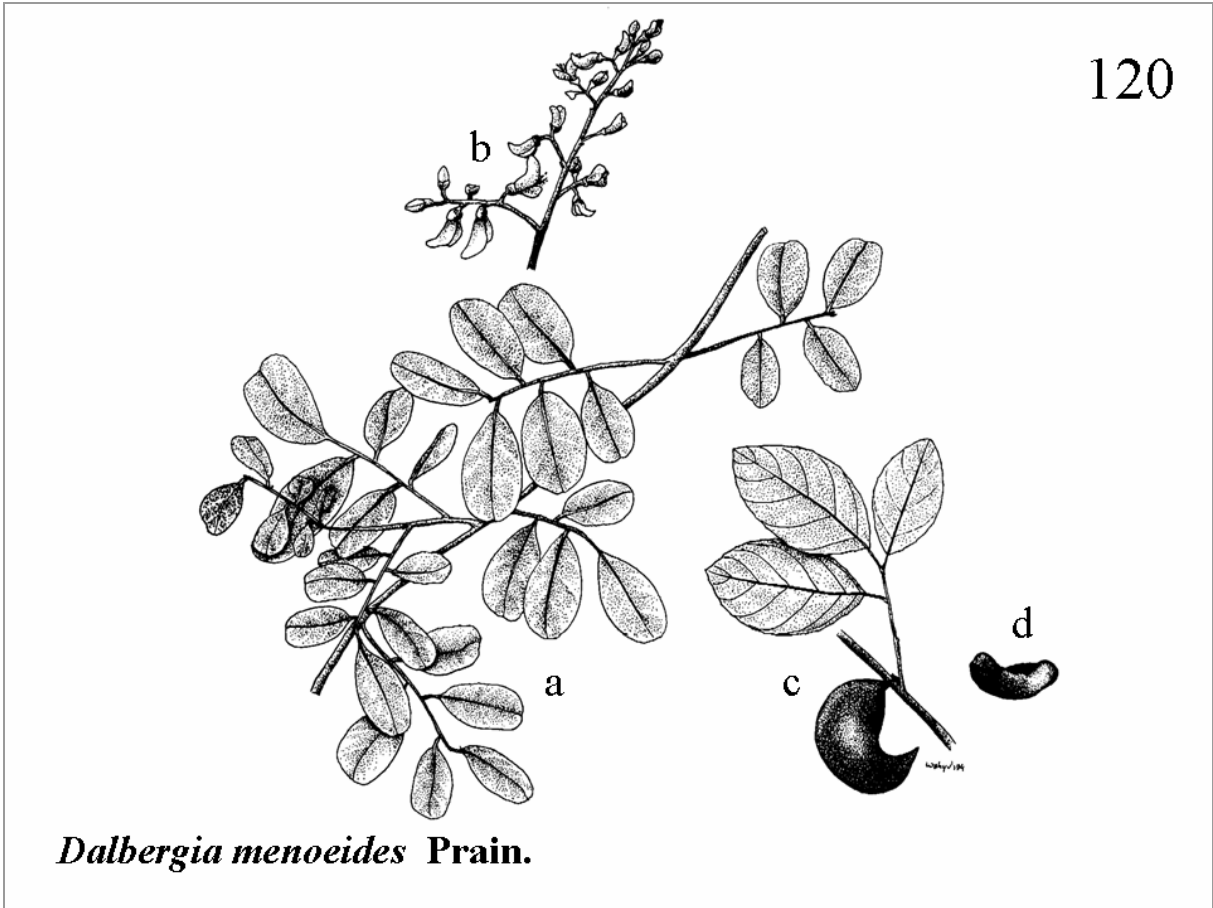


Fig. 120. *Dalbergia menoeides* Prain. (a) Section of vine, (b) flower raceme, (c) leaf with pod, and (d) seed.

LEGUMINOSAE

120

Dalbergia menoeides* Prain.*Synonyms :** Unknown.**Vernacular name(s) :** Unknown.**Description :** Liana, up to 3 m long, with light to dark brown branchlets that are flattened, and covered with soft hairs when young. The 3-5 leaflets, 4-10.5 by 2-5 cm, are oblong, and may be either pointed or rather blunt at the tip. Their upper surface is dark green and smooth, the lower surface shiny, with fine and scattered soft hairs. The flowers are white and borne on solitary, 2-8 mm-long clusters in the form of a disk. Pods remains within the calyx on a stalk of 6-8 mm and measure 3-4 by 1.5-2 cm.**Ecology :** Occurs on landward margins of mangroves and in adjacent swamp forests. Flowering has been recorded from May to July. Mangrove associate species.**Distribution :** Little is known about the distribution of this species, perhaps due to confusion with similar species. In Southeast Asia it has been recorded in Indonesia (Java), but it is probably found elsewhere in Indonesia and in the region.**Abundance :** Uncommon.**Use(s) :** Unknown.**Source of illustration :** Drawn from herbarium specimen, Bogor Herbarium.**Reference(s) :** Backer & Bakhuizen van den Brink (1963-8), Missouri Botanical Garden TROPICOS database (www.mobot.mobot.org).

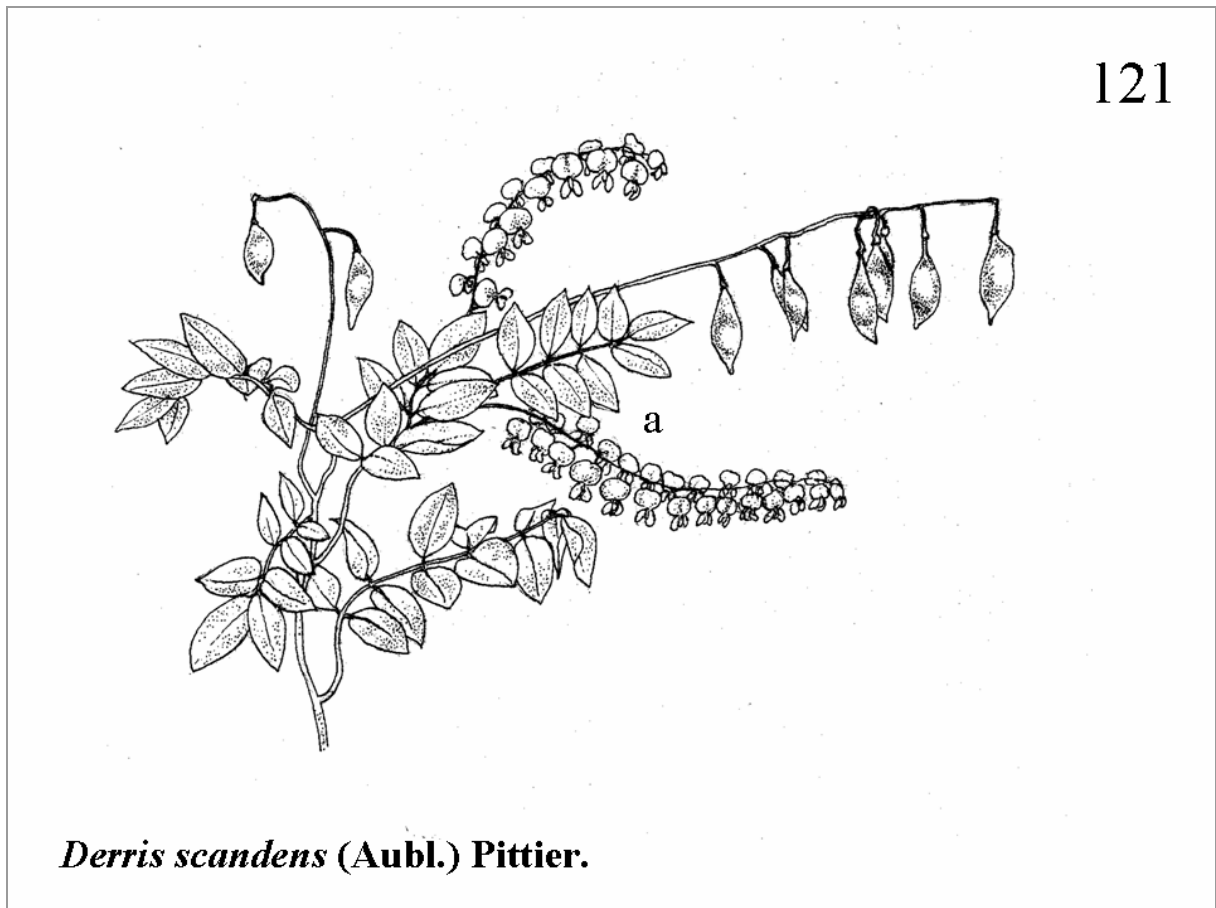


Fig. 121. *Derris scandens* (Aubl.) Pittier. (a) Flowering and fruiting branch.

LEGUMINOSAE

121

***Derris scandens* (Aubl.) Pittier**

Synonyms : *Brachypterum scandens* W & A., *Deguelia negrensis* (Benth.) Taub., *Deguelia scandens* Aubl., *Derris guianensis* Benth., *Derris negrensis* Benth., *Derris pterocarpus* (DC.) Killip., *Derris scandens* Benth. J. Linn., *Derris scandens* (Roxb.) Benth., *Lonchocarpa pterocarpus* DC., *Lonchocarpa scandens* (Aubl.) Ducke., *Pterocarpus guianensis* (Benth.) Kuntze., *Pterocarpus negrensis* (Benth.) Kuntze.

Vernacular name(s) : Sea Derris (E), Rambai (Bru.), Malasaga (Phil.), Bendan, Goboel, Sobi, Rabut loteng (Ind.)

Description : Shrubby, evergreen, twining woody climber without tendrils, climbing or creeping, 3-15(-20) m long stems, bark dark-grey to almost black. It has a deep sunken tap root, without aerial roots. Leaves are compound, alternate, odd-pinnate, leaf axis 10-17(-19) cm long, solid and woody. Leaflets opposite, 3-5 pairs; blade of each leaflet elliptic-lanceolate, entire, blunt and smooth, 1-3 by 2-5 cm, with a pointed tip; stalks of individual leaflet is 2-3 mm long; lower pairs smaller than upper pair. Flowers are clustered in a 15-20 cm long pendulous raceme or panicle, located in the leaf axils. Sepals 5, deep purple, tubular. Petals 5, white to pink, corolla consisting of completely separate petals; butterfly-like: banner 5-8 mm long, 2 wing 8-9 mm long, 2 keel 8-9 mm. There are 10 (9+1; the single upper stamen is free, the nine others are united) white stamens, united into two unequal sets by their filaments, 7-8 mm long. The fruit is a dry pod, hairy, flat, oblong, pointed, 2 by 5-10 cm, one margin thicker than other, 1-3 round, flat seeds (3-4 mm) in each pod.

Ecology : Lowland species, found in secondary scrub and monsoon forests. Also regularly found in landward zones of mangroves. Mangrove associate species.

Distribution : Southeast Asian species, recorded from Myanmar, Thailand, Malaysia, Brunei, the Philippines and Indonesia (Java, Borneo, Lesser Sundas).

Abundance : Locally common.

Use(s) : Juice from the stem is used as fish poison (*tuba*), but *Derris scandens* is less effective in this regard than *Derris elliptica* and *Derris trifoliata*.

Source of illustration : Drawn from photo of live specimen.

Reference(s) : Heyne (1950), <http://flora.sut.ac.th/st160.html> ; http://www.rbgekew.org.uk/herbarium/brunei/fams/57_01.htm#DERRIS <http://www.indian-ocean.org/bioinformatics/mangrove/MANGCD/Derris3.htm>.

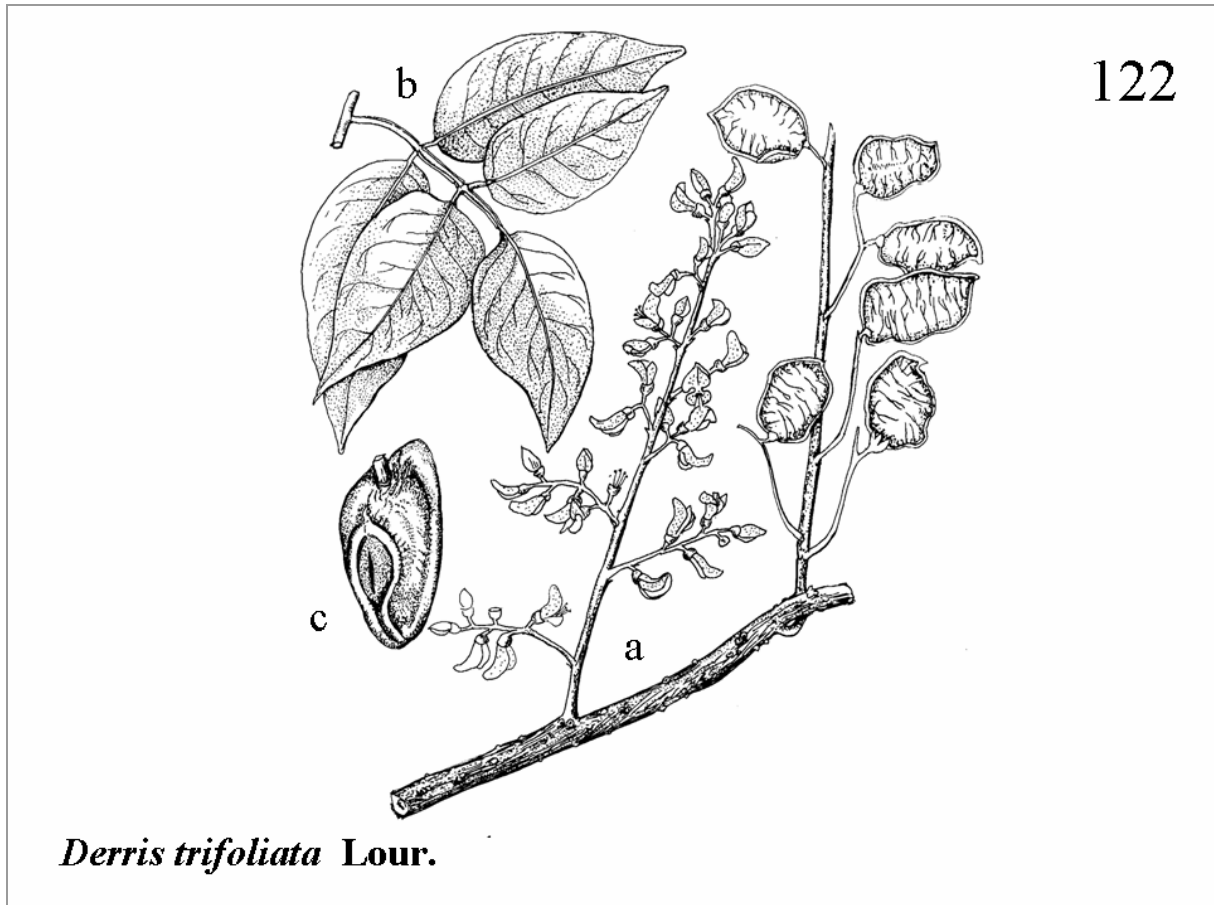


Fig. 122. *Derris trifoliata* Lour. (a) Section of vine with cluster of flowers and cluster of pods, (b) leaf, with 5 leaflets, and (c) seed.

LEGUMINOSAE

122

***Derris trifoliata* Lour.**

Synonyms : *Dalbergia heterophylla*, *Deguelia trifoliata* (Lour.) Taub., *Deguelia uliginosa* (Willd.) Baill., *Derris heterophylla* (Willd.) Backer, *Derris uliginosa* Willd. Benth., *Robinia uliginosa* Willd.

Vernacular name(s) : Tuba Laut, Areuy Ki Tonggeret, Tuwa Areuy, Gadel, Toweran, Kamulut, Tuba Abal (Ind.), Cóc kèn (Viet.)

Description : A woody, often rambling climber, up to 15 m or more in length, with a smooth, dark brown, corky bark with orange lenticels. Young stems are dark red, strongly ridged and have prominent lenticels. The alternate leaves are 9-25 cm long and have 3-7 leaflets that are ovate or elliptic, 6-13 by 2-6 cm, with a glossy-green upper surface and a dull, grey-green lower surface. Flowers occur in drooping clusters that are 7-20 cm long and occur in axils on stems growing horizontally, along the ground. The white or pale pink flowers are bisexual, and each have a 2 mm long stalk. The edges of calyx and leaflets at the base of the leaf-stalk are finely divided. The main part of standard (see glossary) of the flower measures 10 by 9 mm. The single upper stamen is free, the nine others are united. The pod is leathery, oblong or almost round, flat, inflated, 2-4.5 by 2.5-3.5 cm, with a persistent style base. The one or two seeds are wrinkled, almost round, bronze-green when dry, measuring 12 by 11 mm.

Ecology : *Derris trifoliata* grows on muddy and sandy substrates on the landward margin of mangrove habitats. It prefers areas with a high freshwater input, infrequently inundated by tides. Flowers from September to November, and fruits occur in November and December (in Australia). The pods and seeds are adapted to water dispersal. The inflated leathery pod owes its buoyancy to air cavities between the pod and seed. Wind is possibly also an agent of dispersal. Mangrove associate species.

Distribution : Found from South and East Africa, through tropical and subtropical Asia to southern China (Guangdong) and northern Australia. Probably found throughout Southeast Asia, but recorded in Brunei, Cambodia, Malaysia, Singapore, Indonesia, Myanmar, Thailand and Vietnam.

Abundance : Relatively common and widespread.

Use(s) : The fish stupefying and poisoning properties of *Derris* species are well known and documented. The commercial fish poison 'rotenone' or *Derris* dust is derived from the tuberous roots of another South East Asian species, *Derris elliptica*. The stem is very durable and used as rope. In Eastern Indonesia, local communities grow their own varieties with stronger chemical properties to stupefy fish.

Source of illustration : Icones Rijksherbarium Leiden.

Reference(s) : Heyne (1950), Backer & Bakhuizen van den Brink (1963), Gillett *et al.* (1971), Tomlinson (1986), Wightman (1989), Ng & Sivasothi (1999).

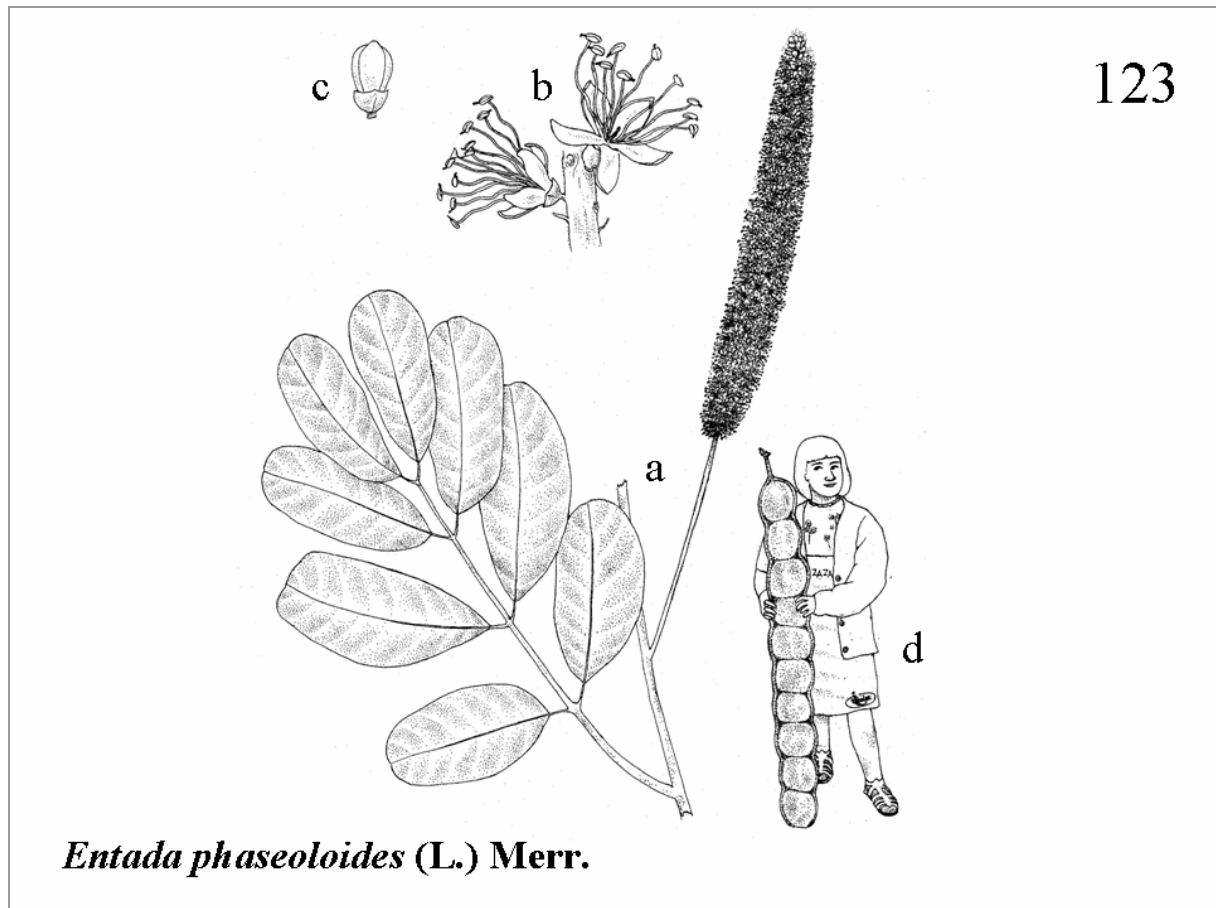


Fig. 123. *Entada phaseoloides* (L.) Merr. (a) Flower spike and leaf, (b) flowers, (c) bud, and (d) large-sized pod.

LEGUMINOSAE

123

***Entada phaseoloides* (L.) Merr.**

Synonyms : *Entada monostachya* DC., *Entada pursaetha* DC., *Entada rumphii* Scheff., *Entada scandens* (L.) Benth., *Faba marina major* Rumph., *Lens phaseoloides* L., *Mimosa scandens* L.

Vernacular name(s) : Matchbox beans (E), St. Thomasbonen (NL), Liane à boeuf (F), akar beluru, bendoh, Bhalang tambal, pikat, simbole, ipus in cawok, makente, bolowereke, kalembemba, cariju, bhalang – *Gandu* (Ind.)

Description : Very large, woody climber without fleshy tubers, often with a flattened and spiral stem. Leaves with 1-2(-4) pairs of leaflets, which like the leaf stalk (6.5-9 cm) may be smooth or hairy; leaflets are elliptic, obovate-elliptic and unequal-sided, 4.5-10 by 1.8-6.3 cm. Flowers clustered in a single spike in the leaf axils, or sometimes in several spikes from short shoots, 13-30 cm, often densely covered with short hairs. Flowers with a very short stalk or without a conspicuous stalk, with sepals and petals in 5-fold. Calyx green, broadly cup-shaped, smooth, 0.8-1.25 mm. Petals green with a reddish base, elliptic to lanceolate, pointed tip, 2.8-3.5 mm. Stamens are 6.5 mm long, white, later turning yellow. Pods straight to slightly curved, up to 100-135 cm by 7-15 cm, segments 6.5-7.5 cm long. Seeds are brown, round and flattened, 4-6 cm in diameter and about 1 cm thick. There are usually about 7-15 beans per pod.

Ecology : Found in a wide variety of habitats, from 0-900(-1700) m asl, including riparian vegetation, rain forest, montane forest dominated by *Castanopsis*, freshwater swamp forest, sandy alluvium along seashores, and along the inner edge of mangroves. Common drift seeds on seashores, and was recorded on Krakatau not long after the 1883 eruption had destroyed all vegetation. Mangrove associate species.

Distribution : Cosmopolitan species of (sub-)tropical regions. In Southeast Asia recorded from Vietnam, Philippines, Malaysia (Sarawak), Indonesia (Sumatra, Java, Kalimantan, Sulawesi, Lesser Sundas, Moluccas, Papua) and Papua New Guinea (including Bismarck Archipelago).

Abundance : Locally common, but with a patchy distribution.

Use(s) : Seeds were hollowed out and used for storing wax matches in former times, hence the common English name. Used as a substitute for soap, as the bark and seeds contain considerable amounts of saponin. In the Philippines it is used to treat scalp diseases. Grows readily from cuttings, and may be cultivated. Juice from cut stem is used to treat stomach disorders. Beans are boiled and eaten, after having been steeped in water for longer than one day to remove the saponin.

Source of illustration :

http://www.csc.pku.edu.cn/botany/disk01/12/DK25_ketengzi0002.JPG

<http://www.hku.hk/ecology/staffhp/rtc/raresp/rtrcraesp-entada.htm>

<http://www.chennaiuseum.org/draft/gallery/05/02/images/escanden.jpg>

<http://www.endemia.nc/plante/fiche.php?code=1649>.

Reference(s) : Heyne (1950), Afriastini (1988), Nielsen (1992).

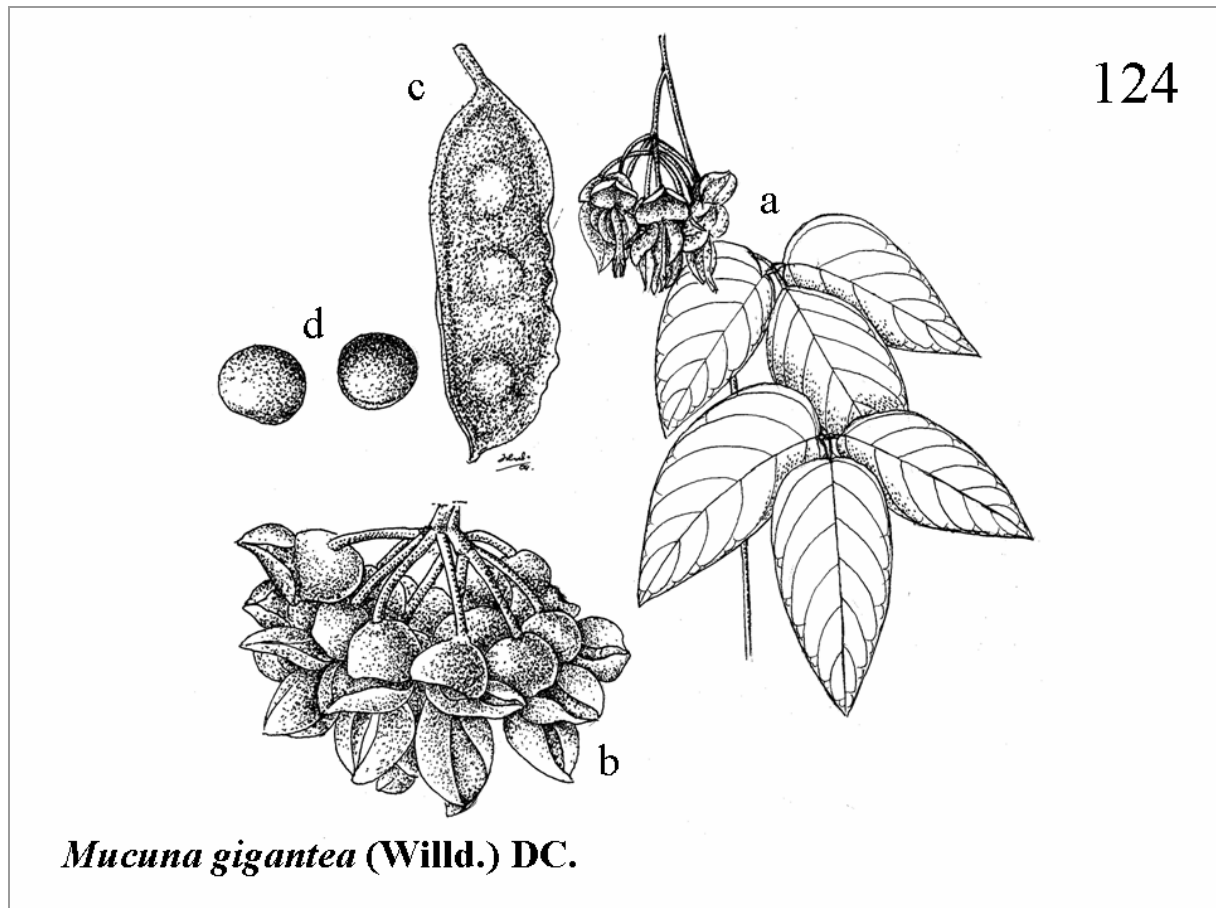


Fig. 124. *Mucuna gigantea* (Willd.) DC. (a) Flowering section of stem, with 2 leaves, (b) flower cluster, (c) pod, and (d) seeds.

LEGUMINOSAE

124

***Mucuna gigantea* (Willd.) DC.**

Synonyms : *Dolichos gigantea* Willd., *Dolichos giganteus* Willd., *Stizolobium giganteum* (Willd.) Sprengel

Vernacular name(s) : Velvet bean, Burney vine, Sea bean, Burny bean (E), Liane Cadoque, Liane Caiman, Mort aux Rats (F)

Description : A large, woody liana, 8-15 m, stems at first covered with stiff, orange-brown hairs, later smooth. The leaves are alternate, trifoliate, dull green and the lateral leaflets are elliptic or ovate, 4.2-11.5 by 2.2-7.5 cm, pointed, and decidedly asymmetrical. The leaf stalk measures 4.7-12 cm. Flowers occur in long, pendulous clusters from leaf axils. They have a pale green, finely hairy calyx and greenish-white (occasionally pale lilac), 2.5-3.5 cm long corolla; the corolla eventually turns black. Flower stalks are covered with silvery hairs. Pods are light brown, 10-15(-30) cm long, flat and have two wings along the suture (margin). The pods are densely covered with orange-brown irritant bristles, which inflame the skin when you handle them, hence the name "burny bean". The large seeds – which usually number 4 per pod – are light brown to nearly black, often mottled, round or nearly so and about 7-25 mm thick. Seeds are marked with a single black band along the edge that is slightly indented (grooved).

Ecology : Occurs in monsoon forest, open forests and woodlands, riparian, littoral, subtropical and tropical rainforest, and occasionally in mangroves. The woody seeds are well adapted for ocean dispersal. Mangrove associate species.

Distribution : Occurs world-wide in all tropical and subtropical regions. In Southeast Asia it has been recorded in Myanmar, Thailand (pers. comm. M. Silvius, December 2004), the Philippines, Vietnam, Malaysia and Indonesia. Probably occurs throughout Southeast Asia.

Abundance : Locally common.

Use(s) : Powdered bark is mixed with dry ginger and used in rheumatic complaints by rubbing it over the affected parts. In Australia, seeds were eaten by Aborigines after unknown preparation. These vines are regularly planted in gardens to attract butterflies. In Hawaii, the seeds were used medicinally as a violent cathartic and were strung into necklaces.

Source of illustration: <http://www.biologie.uni-hamburg.de/b-online/vascular/fab.htm>
<http://www.alecto.gg/BANKS/im010076.htm>; Gillett *et al.* (1971); also based on line engraving by Gerald Sibelius after Sydney Parkinson and Frederick Polydore Nodder.

Reference(s) : Gillett *et al.* (1971),
<http://www.uog.edu/cals/site/POG/mucuna.html>,
<http://www.brisrain.webcentral.com.au/database/mg.html>.

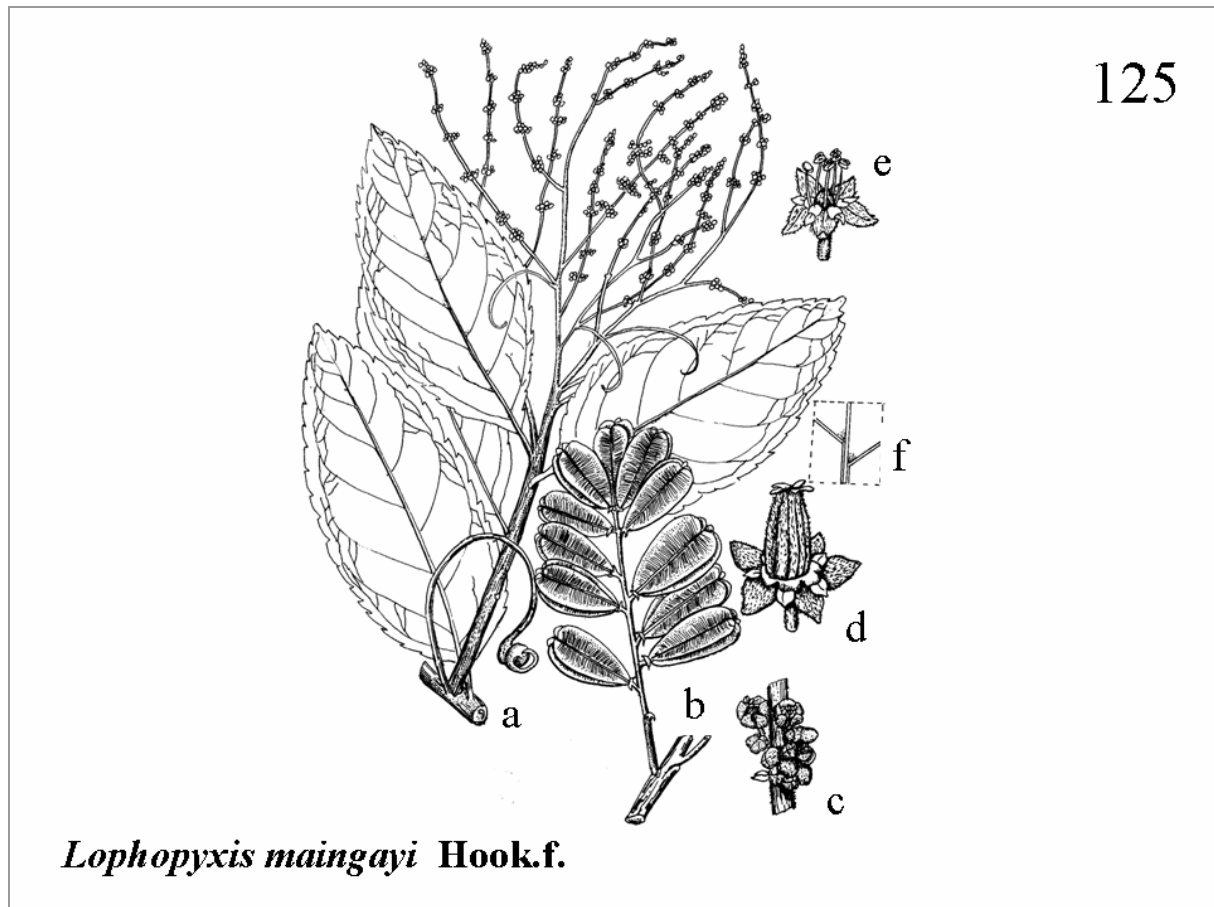


Fig. 125. *Lophopyxis maingayi* Hook.f. (a) Detail of flowering vine, (b) cluster of fruits, (c) cluster of flowers, (d) female flower, (e) male flower, and (f) hairy tufts in the axils of the lateral nerves.

LOPHOPYXIDACEAE

125

***Lophopyxis maingayi* Hook.f.**

Synonyms : *Combretopsis pentaptera* K. Sch., *Homalium gilgianum* Laut., *Lophopyxis combretocarpa* (Boerl.) Engl., *Lophopyxis pentaptera* (K. Sch.) Engl., *Lophopyxis schumannii* Boerl., *Sinapistrum* Rumph., *Treubia combretocarpa* Pierre ex Boerl.

Vernacular name(s) : Simpuru, Taburuh, Tali Sasawi (Ind.)

Description : Vigorous, straggling and woody vine or climbing shrub, up to 8 m, occasionally 30 m in length. Bark is pale to whitish, with elliptic lenticels occurring in grooves. Branches are covered with soft, short hairs. The papery to thin-leathery leaves are ovate to oblong, 8-24 by 4-10 cm, and have hairy tufts in the axils of the lateral nerves. Strong, woody tendrils occur in the axils; they are coiled only at the end, and often bear a bud. The drooping flower clusters are covered with soft hairs, and are loose, composed of a few groups of flowers that are 10-25 cm long located at the ends of branches or in the axils. Flowers may either be solitary or crowded into compact bunches. Leaflets at the base of the flowers are often transformed into a weak, flat, completely coiled tendril. The calyx is greenish-white or yellow, hairy on both sides, and measures 1.5 mm. Petals are thin and 1 mm long, while the disk of the flower is yellowish. The stamens of the male flower are hairy, as is the pale-green, round ovary. The green, later dark brown, fruit is rounded, 2-3.5 by 1.5 cm, with five papery wings, 5-8 mm wide.

Ecology : Occurs in primary, lowland forests, up to an altitude of 300 m, often on alluvial soil, in riparian forests, coastal forests and occasionally in mangroves. Also occurs in disturbed gullies and secondary forests. Mangrove associate species.

Distribution : Mainly a Southeast Asian species, occurring from Peninsular Malaysia to Micronesia (Palau) and a few small islands of the western Pacific. In Southeast Asia it has been recorded in Malaysia (Peninsular, Sabah), Indonesia (Sulawesi, Moluccas, Papua) and Papua New Guinea.

Abundance : Scattered, but may be locally common.

Use(s) : Crushed leaves smell strongly of mustard and are used to cure ulcers.

Source of illustration : Sleumer (1971).

Reference(s) : Sleumer (1971).

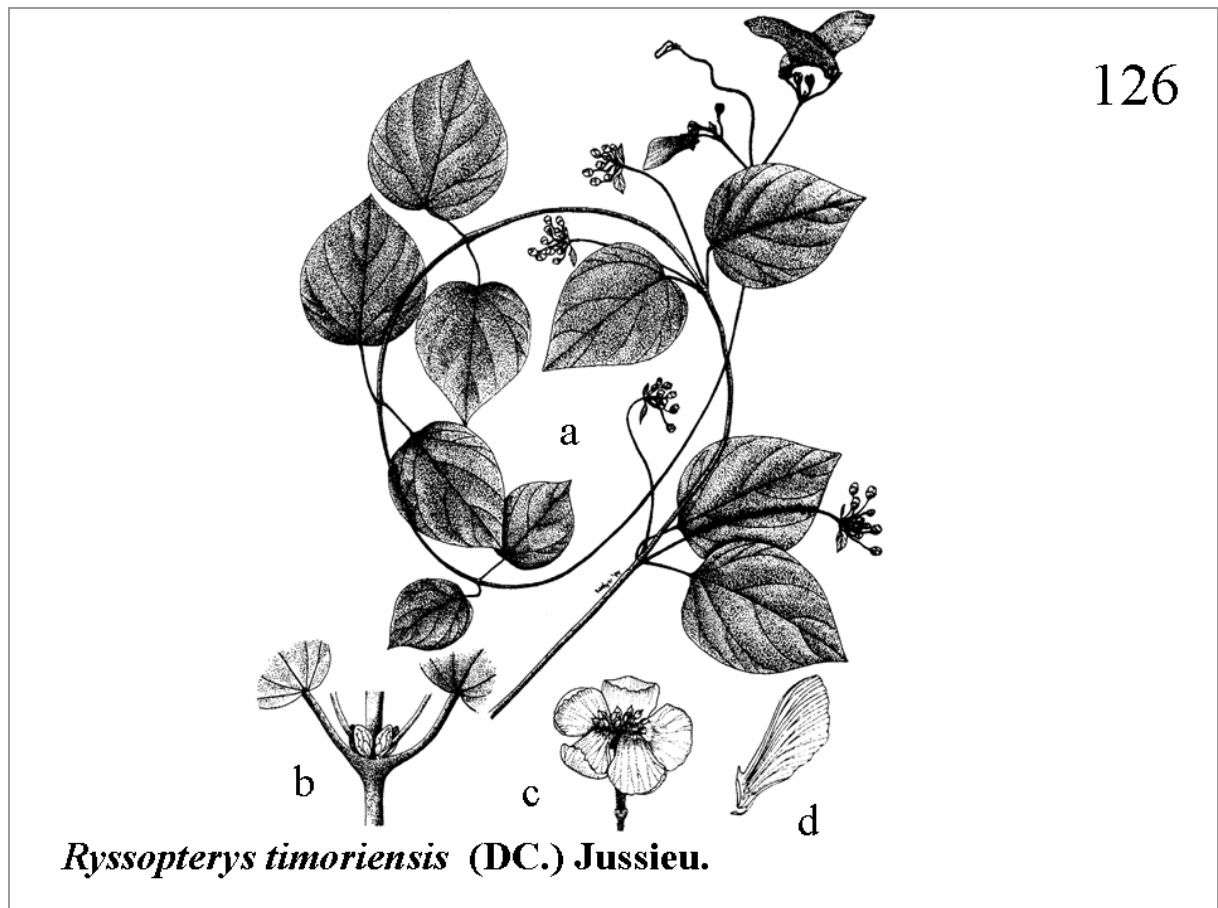


Fig. 126. *Ryssopterys timoriensis* (DC.) Jussieu. (a) Flowering vine, (b) detail of leaf insertion showing stipules, (c) flower and (d) winged fruit.

MALPIGHIACEAE

126

***Ryssopterys timoriensis* (DC.) Jussieu**

Synonyms : *Banisteria dichotoma* (non L.) Spanoghe, *Banisteria timoriensis* A.P. DC., *Hiraea obscura* Blume, *Hiraea ovata* Blume, *Ryssopterys abutilifolia* Jussieu, *Ryssopterys albida*, *Ryssopterys chrysantha* (non Hassk.) Hochr., *Ryssopterys cumingana* Jussieu, *Ryssopterys dealbata* Jussieu, *Ryssopterys intermedia* Hochr., *Ryssopterys microstema* Jussieu, *Ryssopterys timorensis* var. *tiliifolia* (non Vent.) K. Sch. & Laut.

Vernacular name(s) : Raoaimarinu, Kwakatehi, Olas Mea (Ind.), Olas Mea (ET), Bingkit, Bugtung-aha, Lagun, Laumus (Phil.)

Description : A rarely creeping, twining shrub, up to 10 m long. A few lenticels occur on major stems. Young parts are densely covered with greyish, cinnamon-coloured hairs, while older parts are without hairs. The leaflets (stipules) at the base of the leaf-stalk are variable in shape and size, 2-20 by 1-8 mm, and are often accompanied by smaller accompanying leaflets, occurring opposite to the side of the leaves. Leaves are variable in shape, size and hairiness, measuring 5-15 by 4-12 cm. The sparsely hairy to smooth, grooved leaf stalk has two glands at the top and is 1-7 cm long. The scented, yellow flowers occur on a densely hairy stalk that is 1-1.5 cm long, located in the axils. The 2 mm-long sepals of the calyx are (slightly) hairy on the outside, but smooth inside. Petals are 6-11 mm long, rounded and almost without a stalk. The styles are pink, and the stigmas pale yellow. The fruit consists of three 1-seeded parts, each with a wing. Veins in the wing are curled back about 30-60 degrees. Rarely two lateral abortive wings are also visible. A very variable species.

Ecology : Occurs in brushwood or forest edges, often in coastal regions. Occurs on the landward margins of mangroves, often on calcareous soil, but it may also be found in rather dry habitats. Occurs from sea level up to an altitude of 1,500 m. Flowering occurs throughout the year. Mangrove associate species.

Distribution : Found from Taiwan and Micronesia through Southeast Asia to northern Australia (Queensland) and Melanesia. In Southeast Asia it has been recorded in the Philippines, Indonesia (Java, Moluccas, Sulawesi, Lesser Sundas, Papua), East Timor and Papua New Guinea.

Abundance : Unknown.

Use(s) : Unknown.

Source of illustration : Drawn from herbarium specimen, Bogor Herbarium.

Reference(s) : Jacobs (1955), Backer & Bakhuizen van den Brink (1963-8).

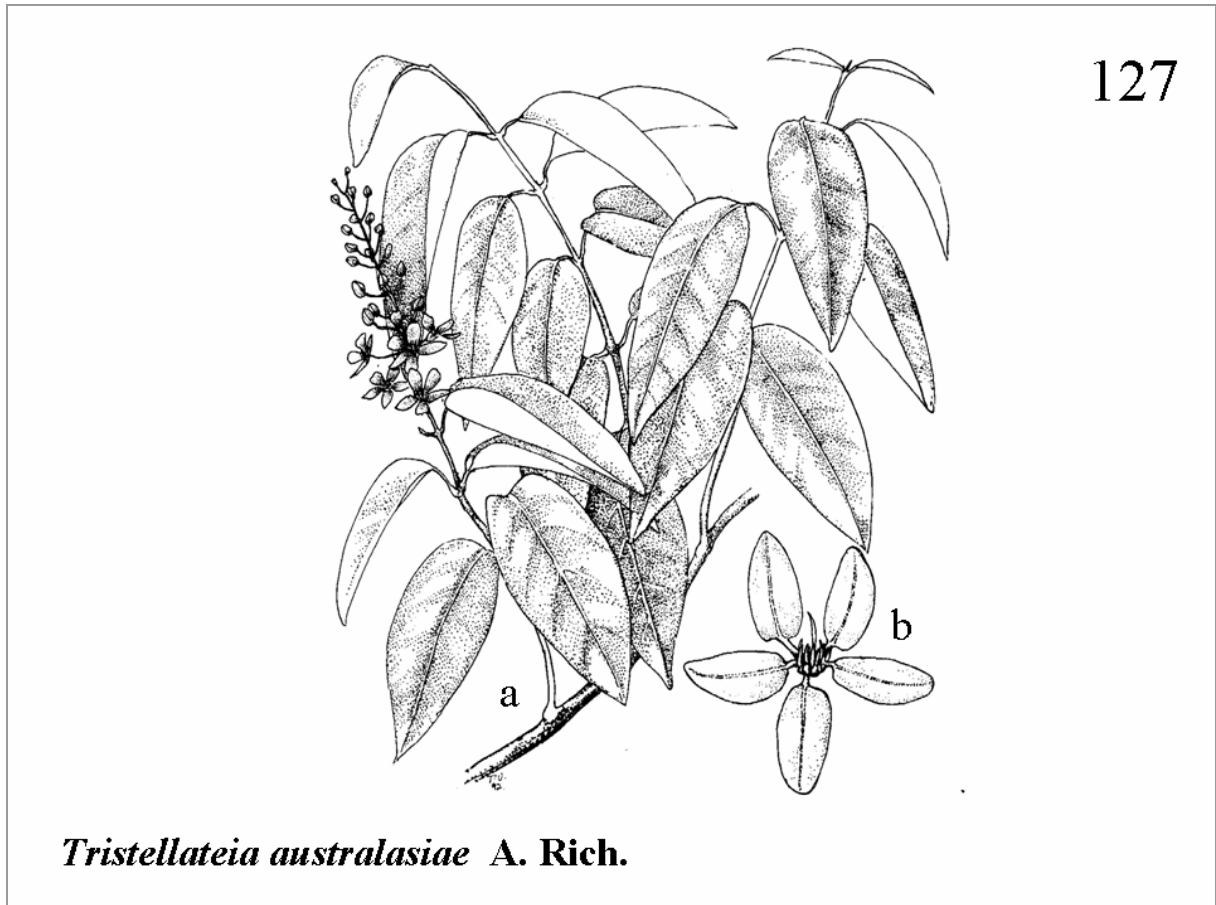


Fig. 127. *Tristellateia australasiae* A. Rich. (a) Flowering vine, and (b) flower.

MALPIGHIACEAE

127

***Tristellateia australasiae* A. Rich.**

Synonyms : *Hieraea reclinata* Blanco, *Tristellatia australasica* Miq., *Tristellatia australis* Jussieu, *Tristellatia malintana* Blanco

Vernacular name(s) : Bagu, Bejau (Brunei), Bahau, Angasin, Bagnit, Bagit, Binusisi (Phil.), Puang Tawang, Cempaga (Ind.)

Description : Liana, 3 - 6 m long, with a warty stem. Leaves are opposite, entire, smooth, ovate or ovate-elliptic and measure 3.5-12 cm by 2-6.5 cm. Usually leaves have two small glands near the base. The leaf stalk measures 1-1.5 cm, and the leaflets at its base are minute. Flowers occur at the end of branches and in the upper leaf-axils, in 4-30 cm-long clusters. Flower-stalks are 2-3 cm long, jointed below the middle and thickened above the joint. The calyx is erect and blunt. Petals are widely spreading, slightly unequal in size, bright yellow and 1-1.5 cm long. The stalk of the stamen, supporting the anther, is at first yellow, then red, and persists after the anthers are shed. Fruits usually consist of three parts.

Ecology : Occurs near the coast, including in mangroves. Found in brushwood and rainforest on and beyond the sea shores, in the *Barringtonia* formation, and in the transitional zone between rainforest and mangrove, in tidal swamps and along littoral creeks. In landward areas it is sometimes cultivated. Mangrove associate species.

Distribution : Found from Taiwan through Southeast Asia eastwards to New Caledonia and northern Australia (Queensland). In Southeast Asia recorded from Cambodia, Vietnam, Thailand, the Philippines, Malaysia, East Timor, Brunei, Indonesia (Java, Lesser Sundas, Sulawesi, Papua) and Papua New Guinea.

Abundance : Locally abundant.

Use(s) : Ornamental plant grown in gardens and along hedges.

Source of illustration : Keng (1987).

References : Backer & Bakhuizen van den Brink (1963-8).

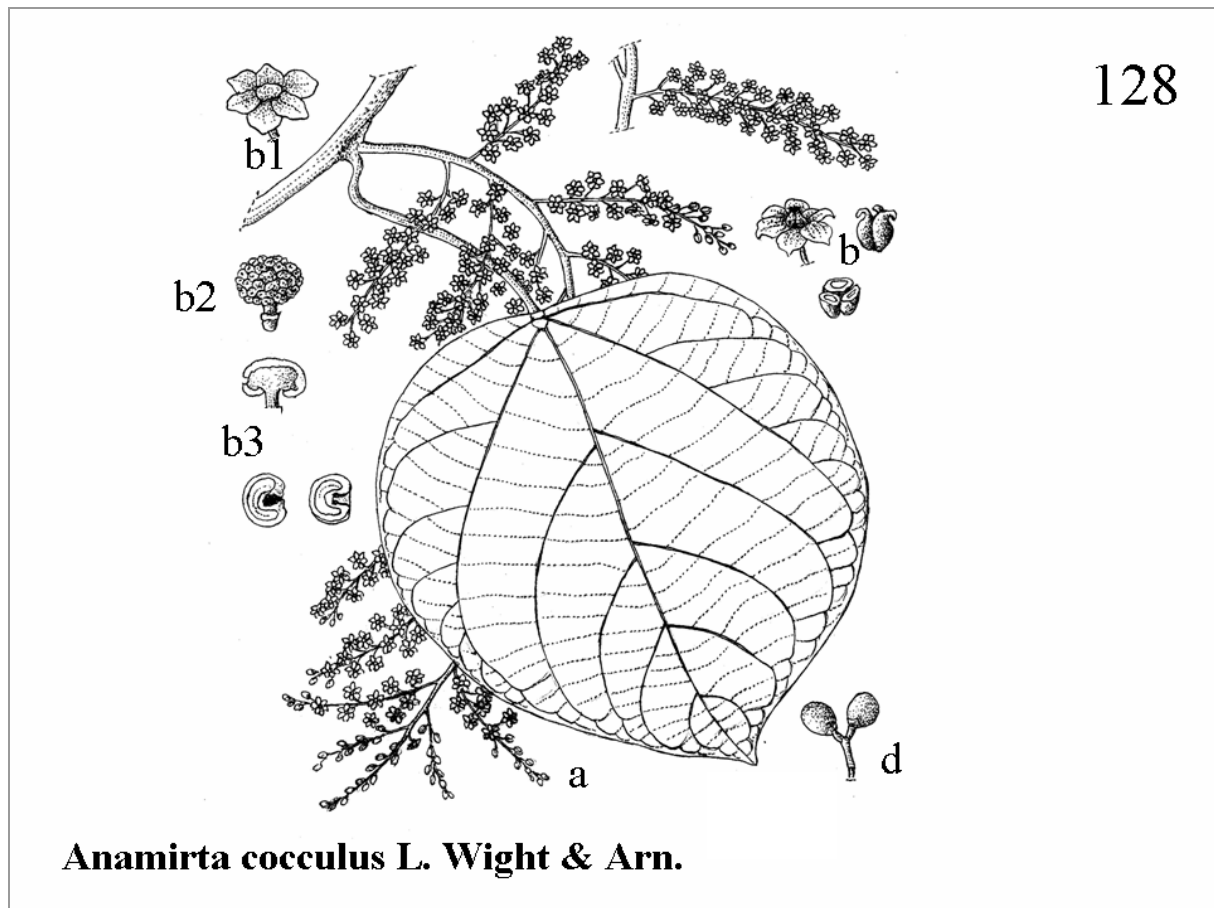


Fig. 128. *Anamirta cocculus* L. Wight & Arn. (a) Part of vine with leaf and flower clusters, (b) male flower with 3 stamens (right) and cross-section of stamens, (c) female flower, with embryos, and (d) fruit.

MENISPERMACEAE

128

***Anamirta cocculus* L. Wight & Arn.**

Synonyms : *Anamirta jucunda* Miers., *Cocculus populifolius* Dc., *Menispermum cocculus* L., *Menispermum lacunosum* Lamk., *Tuba baccifera* Rumph.

Vernacular name(s) : Tuba biji, oyod peron, waran pisang, kruppe – *Oyod peron* (Ind.), array, lagtang, ligtang (Phil.)

Description : Large liana, 5-15 m, smooth, stem up to about 10-15 cm thick. Young stems and leaf stalks usually drying pale grey to straw coloured. Leaves spirally arranged, palmately nerved at the base, with smooth leaf stalks 6-18(-26) cm, swollen at both ends, and with a knee-like bent at the base. Leaf blade broadly heart-shaped at base, 16-28 by 10-24 cm, with a pointed tip and 3-5(-7) nerves at the base and 4-5 pairs of lateral nerves. Flower clusters 16-40 cm, with lateral branches 2-5 cm, smooth. Male flowers with white, yellow or green sepals, outer sepals 2, barely 1 mm long, inner sepals 6, broadly elliptic 2.5-3 by 2 mm. Female flowers like the male ones, but with 6 minute staminoides, 0.25 mm. Fruiting branchlets up to 15 cm. Fruits white, 9-11 mm long, smooth.

Ecology : Lowland species (<300 m asl) found in a variety of habitats, including river and stream banks, coastal forests, savannas, rain forest, and occasionally landward margins of mangroves. Has a preference for seasonal conditions, and is more common in monsoon forests. Mangrove associate species.

Distribution : Found from India and Sri Lanka eastwards to Papua New Guinea. In Southeast Asia found in Myanmar, Cambodia, Vietnam, Thailand, Philippines, Indonesia (Sumatra, Java, Lesser Sundas, Sulawesi, Papua) and Papua New Guinea.

Abundance : Fairly uncommon to locally common, widespread, rare in Sumatra and Java (both once collected).

Use(s) : Fruits are used as fish poison, and to kill lice. Source of *picrotoxin*, which is a violent convulsant poison. Known in 16th century European herbals as *Cocculus indicus* as a medicine for treating lice.

Source of illustration : <http://www.tripease.org/te4.html>

Reference(s) : Heyne (1950), Forman (1986), Win Maung (2003).

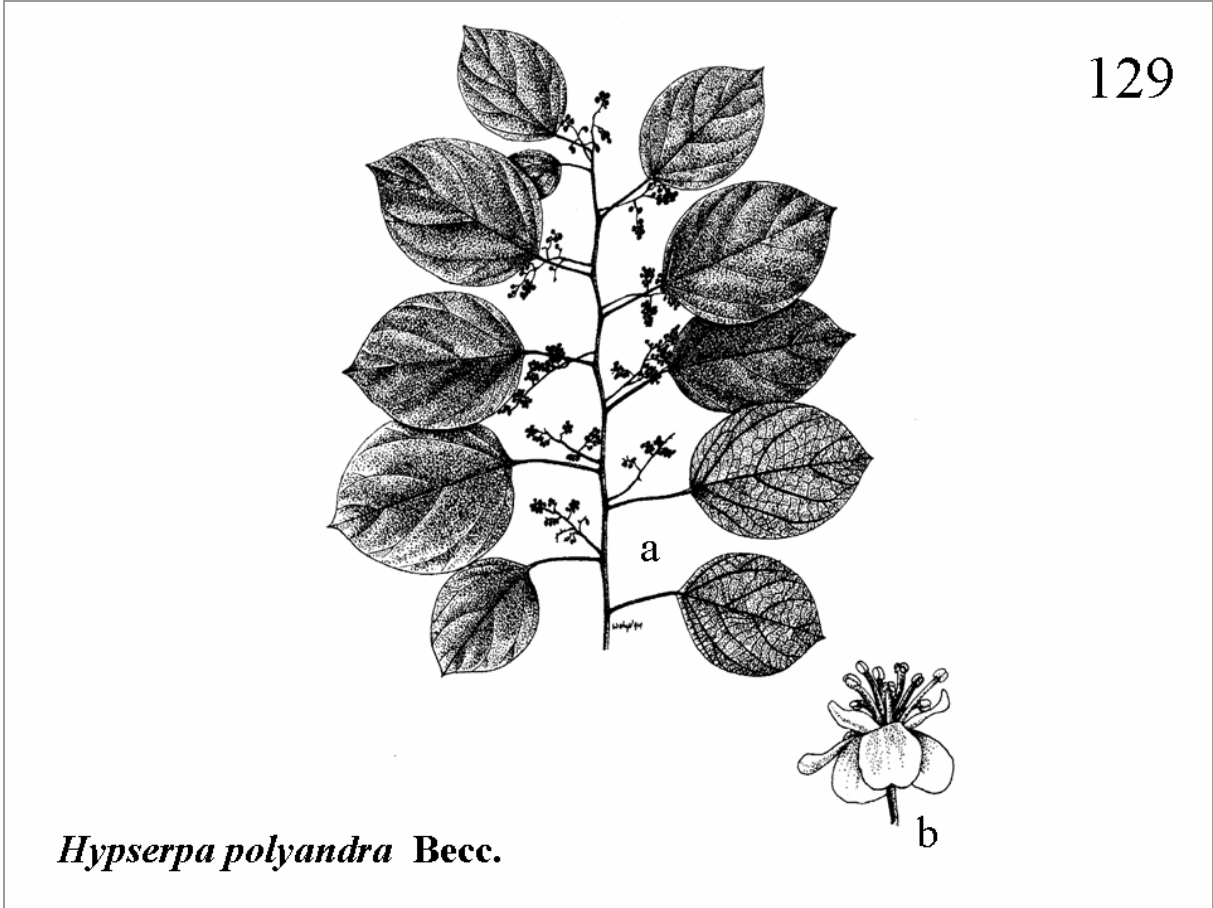


Fig. 129. *Hypserpa polyandra* Becc. (a) Flowering vine, and (b) flower.

MENISPERMACEAE

129

***Hypserpa polyandra* Becc.**

Synonyms : *Hypserpa latifolia*, *Hypserpa monilifera*, *Hypserpa raapii*, *Hypserpa selebica*, *Limacia monilifera*

Vernacular name(s) : Unknown.

Description : Climbing shrub or woody climber up to 40 m long, with branchlets and leaves that are either smooth or covered with short, soft, yellowish hairs. Leaves are stiffly paper-like or leathery, ovate to ovate-elliptic, measuring 6-17 by 4-11 cm, with a leaf stalk of 2-4.5(-6) cm, 5-7 nerved. The yellowish-green flower clusters are triangular in shape, measuring 2.5-11 by 1.5-5 cm, and are covered with short, soft hairs. Flowers are yellow, either male or female, covered with short, soft hairs, and are 2-3 mm long. The white or red berries are round to obovate, 7-8 by 4-6 mm.

Ecology : Occurs in mangrove swamps and lowland mixed rain forests up to 1,200 m. Flowering occurs from March to November, and fruits are found from July to November. Mangrove associate species.

Distribution : Found from Southeast Asia eastward through northern Australia (Queensland), Solomon Islands and the Carolines. In Southeast Asia recorded from East Timor, Indonesia (West Sumatra, the Lesser Sunda Islands, the Moluccas, Papua) and Papua New Guinea.

Abundance : Not recorded in references, but probably locally common.

Use(s) : Bark after being pounded and powdered is applied to the head as a treatment for headaches in Bougainville Island.

Source of illustration : Drawn from herbarium specimen, Bogor Herbarium.

Reference(s) : Forman (1986).

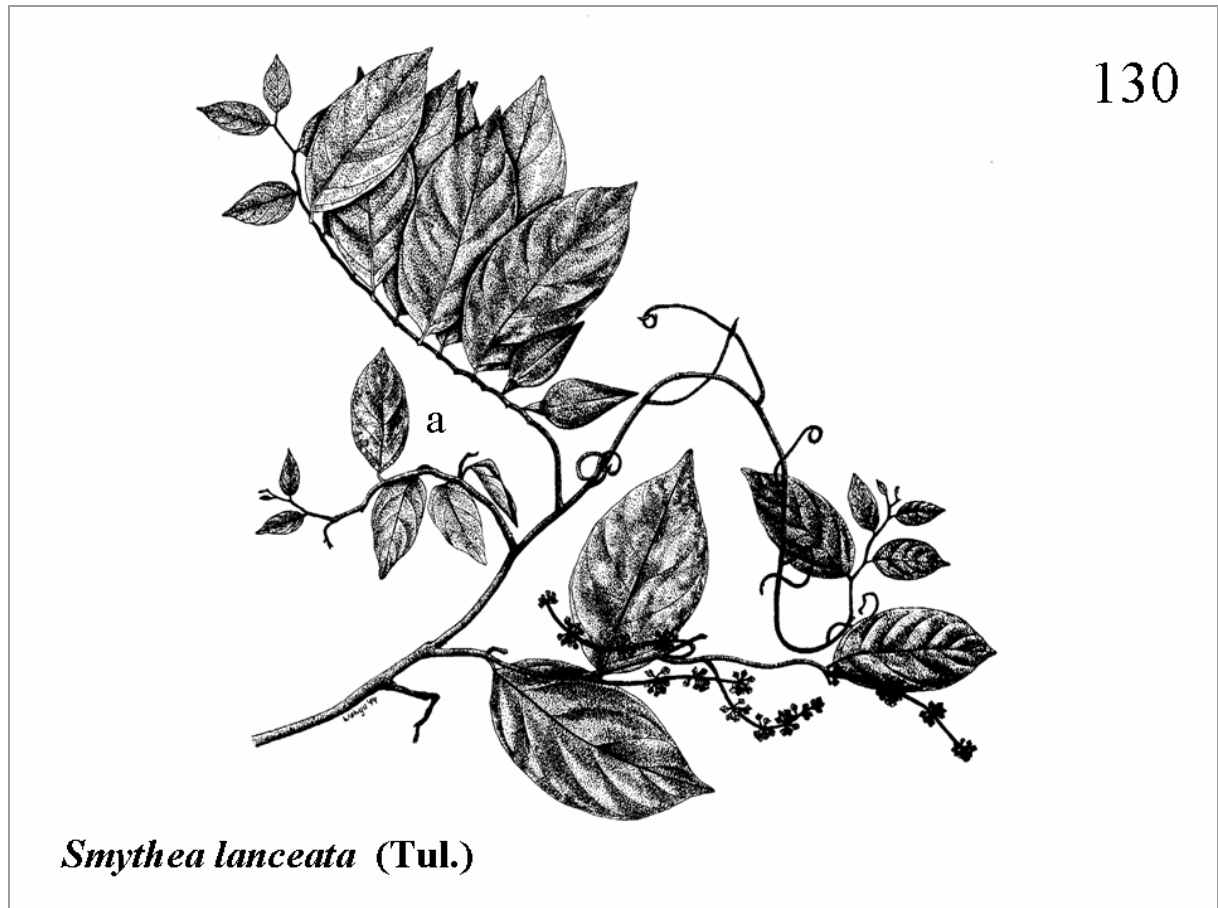


Fig. 130. *Smythea lanceata* (Tul.) Summerh. (a) Flowering vine.

RHAMNACEAE

130

Smythea lanceata* (Tul.) Summerh.*Synonyms :** *Smythea pacifica* Seem**Vernacular names :** Unknown.

Description : Thornless liana, up to 5 m long, with leathery, almost smooth, ovate-oblong leaves that measure 6-13.5 by 2.5-5.5 cm. Leaf edges may be either shallowly toothed or entire and undulating. The leaf-stalk measures about 3 mm. Flowers are bisexual, measuring 4-5 mm across, and occur in clusters in the axils. The upper clusters may sometimes be combined into a widely branched bunch. The individual flower stalks are 2-3 mm long and covered with soft hairs. The calyx tube is shortly funnel-shaped and sparsely covered with soft hairs. During full flowering the tube is less than 1 mm long. Petals are hood-like, notched at the end, and greenish-yellow, about 0.5 mm long, with a spur about 0.25 mm long. The ovate fruit, 3.5-4.5 cm long, is single-seeded and has a flat, pointed end that is tipped by what remains of the style.

Ecology : Occurs near the coast, especially in mangroves. Flowering occurs from April to December. Mangrove associate species.

Distribution : Occurs from Micronesia through Southeast Asia eastwards to Micronesia and Fiji. In Southeast Asia it has been recorded from Brunei, Malaysia, Indonesia (islands in the Sunda Straits and Java Sea, Central Java) and Papua New Guinea.

Abundance : Locally common, but on the whole uncommon.

Use(s) : Unknown.

Source of illustration : Drawn from herbarium specimen, Bogor Herbarium.

Reference(s) : Backer & Bakhuizen van den Brink (1963-8),
http://www.rbgekew.org.uk/herbarium/brunei/fams/49_01.htm

