

Annotated List of Seed Plants of Singapore (VII)*

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II. Angiospermae-Dicotyledons (cont'd)

94. Aquifoliaceae

Ilex cymosa Bl.

Small tree; flowers small, greenish, in branched axillary cymes; fruit small, ovoid, purple then black, with 8-10 stones inside. In mangrove and swamp forests, Chua Chu Kang (*Goodenough 1862*).

Ilex macrophylla Hk. f.

Leaves thin and papery; fruit red. In forest. Bukit Timah (*Sinclair 40199*).

Ilex maingayi Hk. f.

Leaves leathery with a stout petiole; fruit red. Bukit Mandai (*Mat 6742*).

95. Celastraceae

Key to the genera

A. Stamens 4 or 5; erect shrubs or trees

B. Leaves alternate or spiral

Bhesa

B. Leaves opposite

*continued from *Gdns' Bull. Sing.* 32: 329. 1980.

C. Fruit fleshy, indehiscent *Cassine*

C. Fruit splitting by valves

D. Ovules 2 in each locule *Euonymus*

D. Ovules 4 to many in each locule *Lophopetalum, Kokoona*

A. Stamens 3, rarely 2; climbers, rarely erect shrubs or small trees

E. Flowers mostly in axillary clusters; fruit pulpy, indehiscent *Salacia*

E. Flowers in axillary cymes or terminal panicles; fruit splitting into follicle-like parts *Reisantia, Loesenerilella*

Bhesa paniculata Arn. (= *Kurrimia paniculata* Wall. ex Arn.)

Tree; twigs reddish brown, rounded, with horizontal stipular scars; leaves elliptic, 6-40 cm long, shiny below; flowers greenish, in panicles; fruit 2-lobed, 2-seeded, yellow to red; seeds with pink aril. In lowland forests, fairly common, Water Catchment Area, Bukit Timah, Bukit Mandai (*Goodenough 4940*).

Bhesa robusta (Roxb.) D. Hou (= *Kurrimia robusta* Roxb.)

Tree; twigs flattened and angled, grey; stipular scars usually oblique; leaves elliptic, 6-16 cm long; flowers red, in spikes; fruit 1-seeded. In lowland forests, less common, Tanglin, Bukit Mandai, P. Damas Laut (*Sinclair 39244*).

Cassine viburnifolia (Juss.) D. Hou (= *Elaeodendron subrotundum* King)

Shrub or small tree; leaves opposite, decussate, margin wavy; flowers in cymose panicles; fruit obovoid, indehiscent. On sandy beaches, Kranji, Katong, P. Brani (*Ridley 8072*).

Euonymus javanicus Bl.

Large shrub; leaves opposite, decussate, elliptic, 5-20 cm long; flowers solitary or in small clusters; fruit angled or lobed; seeds black, with orange aril. In swamp forests, Kranji, Sembawang (*Mat 6529*).

Kokoona littoralis Laws. (= *Lophopetalum littoralis* Ridl.)

Tree; leaves elliptic, 4-15 cm long; flowers in racemes; fruit a 3-angled capsule; seed terminally winged. Collected by Thomas Lobb, probably extinct now.

Lophopetalum wightianum Arn. (= *L. fimbriatum* Wight)

Tree; leaves oblong-elliptic to elliptic, 8-25 cm long; flowers yellow, in panicles to 12 cm long; capsule 10-15 cm long. Changi, Bukit Mandai (*Mat 6776*).

Reissantia indica (Willd.) Halle (= *Hippocratea indica* Willd.)

Climber; leaves oblong elliptic or ovate, 3.5-13 cm long; flowers small, yellowish, in cymose clusters; fruit of 3 separate 'follicles', 3-5.5 cm long. In sea-shore forests, Changi (*Ridley 1918*), Pulau Ubin.

Salacia chinensis L. (= *S. latifolia* Wall. ex Laws.)

Climber, scandent shrub or rarely a small tree; leaves oblong obovate to suborbicular, 4-17 cm long; flowers yellowish, in axillary clusters; fruit globose, orange-red, 1.5-2 cm across. In seashore forests, Loyang (*Holttum s.n.*, Apr. 1949).

Sal. exsculpta Korth. (= *S. rubra* Laws.)

Climber; leaves oblong elliptic, 5-9 cm long; flowers yellow; fruit broadly obovoid, 3 cm across. In inland forests, Gardens' Jungle (*Ridley 5660*).

Sal. grandiflora Kurz

Liana or scandent shrub; leaves oblong elliptic, 7-34 cm long; flowers whitish or yellow; fruit pinkish, 2.5-5 cm across. In inland forests, Bukit Timah (*Mat 6775*), Chua Chu Kang.

Sal. korthalsiana Miq.

Climbing or erect shrub; leaves oblong-ovate or elliptic, 6-26 cm long; fruit subglobose, 2-3 cm across. In belukar, Reservoir Jungle (*Corner s.n.*, Dec. 1935).

Sal. macrophylla Bl. (= *S. flavescens* Kurz)

Liana, sometimes shrubby; leaves lanceolate to ovate, 7-34 cm long; flowers yellow in axillary fascicles; fruit broadly ellipsoid, orange or red. In forests. Pierce Reservoir (*Md Shah and Sidek 4090*), Changi.

Sal. viminea Wall. ex Laws.

Scandent or rarely erect shrub; leaves elliptic, 5-14 cm long; fruit globose, about 2 cm across. In lowland forests, Bukit Timah (*Ridley 5850*), Gardens' Jungle.

96. **Rhamnaceae**

Key to the genera

- A. Erect small trees or shrub; ovary half-inferior or superior
 - B. Spiny; ovary superior; fruit drupaceous *Ziziphus*
 - B. Unarmed; ovary half-inferior; fruit capsular *Colubrina*
- A. Woody climbers; ovary half-inferior
 - C. Fruit with a narrow apical wing, indehiscent *Ventilago*
 - C. Fruit oblong, flat, not distinctly winged, dehiscent *Smythea*

Colubrina asiatica Rich. ex Bongn.

Shrub; leaves ovate, 3-7 cm long, 3-nerved from base; flowers small, greenish in axillary cymes. Common along sea coast, Geylang (*Ridley 8123*), Changi.

Smythea lanceata (Tul.) Summerh. (= *S. pacifica* Seem.)

Climber; leaves lanceolate to elliptic, 5-9 cm long, 3-5 nerved from base; flowers green. In belukar near the sea, Serangoon River (*Ridley 9151*), Tuas.

Ventilago malaccensis Ridl.

Woody climber, slender, branched; leaves narrowly ovate, 6-12 cm long; flowers green; fruit small, round, with a long, narrow wing. In the forest, Gardens' Jungle, Bukit Timah (*Ridley 6376*), Pulau Ubin.

Ziziphus calophylla Wall. ex Hk. f.

Thorny climber; leaves coriaceous, 3-nerved, elliptic oblong, 7-12 cm long, with sharp stipular prickles; flowers white; fruit globose, orange, edible. In belukar, Gardens' Jungle, Bukit Timah, Seletar (*Ridley 3646*).

Ziz. jujuba Mill.

Small thorny tree with spreading, drooping branches; leaves elliptic, 2.5-6.5 cm long, finely toothed; flowers greenish white, in clusters; fruit ovoid or round, 2-3 cm across. Native to India and China, occasionally planted for the edible fruits. Dried fruits and those preserved in syrup are sold in shops. Vern. *Indian jujube*, *Chinese date*. 棗樹

Ziz. oenoplia Mill.

Thorny bush; leaves lanceolate to ovate, 2-3 cm long, unequal-sided, rusty-pubescent beneath; flowers yellowish green; fruit round, black. In open belukar, (*Hullet 242*), or as hedges.

97. Vitaceae

Key to the genera

- | | |
|--|---------------------------|
| A. Erect shrubs or small trees; ovule one in each ovary locule | <i>Leea</i> |
| A. Climbers with tendrils; ovules 2 in each locule | |
| B. Flowers borne on or sunk in flattened leaf-like rachis | <i>Pterisanthes</i> |
| B. Flowers in spicate or cymose inflorescences | <i>Vitis</i> ¹ |

¹ The view that the genus *Vitis* should be divided into a number of smaller and better defined genera has latterly gained a wider acceptance (Backer & Bakhuizen, Latiff and others). The re-combined binomials are given in brackets as alternative names. A key to these genera which are represented in Singapore is as follows:

- | | |
|---|------------------------|
| 1. Petals 5, connate at the top to form a cap which falls as the flower-bud expands (leaves simple; seeds beaked at the base) | <i>Vitis</i> (s. str.) |
| 1. Petals 4 or 5, free | |
| 2. Inflorescence with tendrils; flowers 4- to 5-merous (seeds dorsally compressed) | <i>Ampelocissus</i> |
| 2. Inflorescence without tendrils; flowers mostly 4-merous | |
| 3. Flowers unisexual; carpellate flowers often with a broadened, lobed stigma | <i>Tetrastigma</i> |
| 3. Flowers bisexual, the stigma neither broadened nor lobed | |
| 4. Leaves variously divided into 3-12 parts or leaflets; berry 2- to 4-seeded | <i>Cayratia</i> |
| 4. Leaves simple; berry 1-seeded | <i>Cissus</i> |

Leea angulata Korth ex. Miq.

A thorny tree; leaves much narrower than those of *L. indica*; flowers white. Pasir Panjang (Ridley 10401).

Leea indica (Burm. f.) Merr. (= *L. sambucina* Willd.)

Large shrub, 3-4 m tall; leaves 2-3 times pinnate, 45-60 cm long; leaflets 7-9 in a pinna; flowers greenish white, in a large flattened complicated cyme to 35 cm wide; berry dark red to black. Common, Tanglin, Bukit Timah, Water Catchment Area.

Leea rubra Bl. ex Spreng.

Shrub, 2-3 m tall; flowers dark red. Tanglin, King's Road (Ridley s.n. in 1893).

Pterisanthes pilita (Miq.) Laws. (= *P. coriacea* Korth.)

Slender climber; leaves simple, ovate; inflorescence-axis ribbon-like, red, long-stalked; berry small, black, on rachis. In thick forests, Bukit Mandai, Bukit Timah, Chua Chu Kang (Ridley 6013).

Vitis cinnamomea Wall. (alt. name: *Ampelocissus cinnamomea* (Wall.) Planch.)

Climber, stem slender, woolly; leaves ovate-cordate or 3-lobed, 10-12 cm long, cinnamon-tomentose beneath. Chua Chu Kang, Bukit Timah, Water Catchment Area.

Vitis diffusa Miq. (alt. name: *Cissus diffusa* (Miq.) Amsh.)

Climber stem glabrous, slender, woody, foetid; leaves simple, ovate, 6-7 cm long; berry glabrous, black. In waste ground.

Vitis elegans Kurz (alt. name: *Amp. elegans* (Kurz) Gapnep.)

Climber, densely red-tomentose; leaves 3 to 5-foliate, the central one 12-15 cm long. In hedges and borders of forests, common; Gardens' Jungle, Water Catchment Area (Pannell & Samsuri 1008), Jurong.

Vitis furcata Laws.

Climber, stem flat, 4-angled, brown, corked along the edge; leaves simple, fleshy, 5-10 cm long; berry black. Bukit Timah, Bukit Mandai, Tanglin.

Vitis hastata Miq. (alt. name: *Ciss. hastata* (Miq.) Planch.)

Herbaceous climber; stem 4-angled, narrowly winged; tendrils reddish; leaves simple; 6-8 cm long, the base broadly arrow-shaped; berry ellipsoid, black. Common in open places, climbing over bushes, (Hullett 3).

Vitis glaberrima Wall. (alt. name: *Ciss. glaberrima* (Wall.) Planch.)

Tall glabrous vine; leaves simple, elliptic, 3-8 cm long; flowers in compound umbels; fruit small, rounded, pink to black. Bukit Timah, Bukit Mandai, Mandai Road (Sinclair 39695), Changi.

Vitis gracilis Wall. (alt. name: **Amp. gracilis** (Wall.) Planch.)

Climber, stem very slender, red hairy; leaves simple, cordate, 7-9 cm long. Changi, Tanglin, Water Catchment Area (*Ridley* 268).

Vitis lawsoni King (alt. name: **Tetrastigma lawsoni** (King) Burkill)

Tall climber; leaves 3-foliate, mid-leaflet oblanceolate, 9-13 cm long, fruit large; globose (over 2 cm across), yellowish, edible. In forests, Bukit Timah, Gardens' Jungle.

Vitis macrostachya Miq. (alt. name: **Amp. spicifera** Planch.)

Climber, glabrous; leaves simple, ovate, 9-15 cm long; inflorescence spicate, 40-60 cm long; often branched. Tanglin, Bukit Timah, Jurong (*Ridley* 5585).

Vitis mollissima Wall. (alt. name: **Cayratia mollissima** (Wall.) Gapnep.)

Climber, stem with long stiff hairs; leaves with 3 leaflets, the mid-leaflet elliptic, 8-10 cm long; berry large, globose (1.5-2 cm across), pink. Gardens' Jungle, Water Catchment Area.

Vitis novemfolia Wall. (alt. name: **Cayr. novemfolia** (Wall.) Burkill)

Slender, glabrous vine; leaves palmately compound, with 7-9 leaflets, the leaflets lanceolate, 10-12 cm long; berry globose, 2 cm across, green, Tanglin, Chua Chu Kang (*Ridley* 10689).

Vitis repens W & A.

Glabrous, herbaceous climber; leaves simple, cordate, 6-9 cm long; berry small, globose or pear-shaped, red to black. Fort Canning, Chua Chu Kang.

Vitis trifolia L. (alt. name: **Cayr. trifolia** (L.) Domin)

Slender herbaceous vine, glabrous; leaves 3-foliate, the mid-leaflets ovate-elliptic, 3-6 cm long; berry small, globose. Common, Water Catchment Area, Geylang (*Teruya* 2470).

Vitis vinifera L.

The grape vine is native to W. Asia and the Mediterranean. Occasionally planted. The fruits in markets are all imported. 葡萄

98. Sapindaceae

Key to the genera

A. Leaves 3-foliate

B. Erect shrub; fruit a drupe

Allophyllus

B. Herbaceous climber; fruit an inflated capsule

Cardiospermum

A. Leaves pinnately compound

C. Leaves odd-pinnate; fruit woody, spiny; seed without aril *Paranephelium*

C. Leaves even-pinnate

D. Fruit succulent

E. Seeds arillate

F. Sepals large, imbricate, free *Xerospermum*F. Sepals small, valvate, connate at base *Pometia, Nephelium,**Euphoria, Litchi*

E. Seeds not arillate

Lepisanthes

D. Fruit dry, dehiscent

G. Fruit inflated, bladder-like with 3 wings

Arfeuillea

G. Not as above

H. Fruit 2-lobed

Arytera

H. Fruit mostly 3-lobed or 3-angled

I. Fruit 3-lobed, 3-4 cm long

Trigonachra

I. Fruit 3-angled or winged, less than 2 cm long

J. Leaflets whitish beneath; inflorescence not or rarely branched;
fruit 3-winged *Guioa*J. Leaflets not whitish beneath; inflorescence branched; fruit 3-angled
*Mischocarnus****Allophyllus cobbe* (L.) Raeusch.**

Shrub very variable; leaves 3-foliolate, the leaflets elliptic, 4-9 cm long; flowers white, in racemes; berry red. Common along seashores, Kranji, Seletar, Jurong.

***Arfeuillea arborescens* Pierre**

Small tree; leaflets 3-4 pairs, elliptic, 3-8 cm long; flowers greenish white, in hairy panicles; fruit inflated, bladder-like, 3-4 cm long, 3-winged. Native of Thailand, planted as a roadside tree in Singapore.

***Arytera littoralis* Bl.**

Shrub or small tree; leaflets 2-6 pairs, lanceolate, 8-15 cm long; flowers small, in axillary panicles; fruit 2-lobed; seeds black, with red aril. Formerly collected from Chua Chu Kang by Cantley's Collector, now probably extinct.

Cardiospermum halicacabum L.

Slender vine; leaves 3-foliolate, the leaflets ovate, 1-4 cm long; flowers unisexual, irregular, in branched racemes which have terminal tendrils; capsule inflated ('balloon vine'). Occurs in waste ground, sometimes used as a vegetable; Rochore, Pulau Ubin, Bukit Timah Road.

Lepisanthes rubiginosa (Roxb.) Leenh. (= *Erioglossum rubiginosum* (Roxb.) Bl.)

Tree, leaves odd-pinnate; leaflets 4-6 pairs, drooping; flowers small, male or bisexual, in terminal panicles; berry small, orange to black, with unpleasantly flavour. Pulau Ubin. Vern. *Mertajam*.

Euphoria malaiensis (Griff.) Radlk. (alt. names: *Nephelium malaiense* Griff. and *Dimocarpus longan* Lour.)

Tree; branches scurfy; leaflets 3-5 pairs, stalks finely tomentose; fruit glabrous, 1.5-2 cm across, brown with darker flecks; seed dark brown, shiny (cat's eye), pulp thin, sweet. Sometimes cultivated as a fruit tree. The fruits are very similar to those of Longan or Dragon's eye (龍眼) (alt. names: *Nephelium longana* Lam. and *Euphoria longan* Steud.) imported from S. China, but smaller (less than 2 cm across). Vern. *Mata kuching*.

Guioa pubescens Radlk.

Small tree; leaves odd-pinnate; leaflets 3-5 pairs; flowers small, white, in axillary spikes; fruit pink to red, 2-3 lobed, splitting; seeds with orange aril. Variable, hardly distinguishable from the allied species such as *G. bijuga* Radlk., *G. pleuropteris* Radlk., etc. Common, Bukit Timah, Water Catchment Area, Pulau Merlimau (*Sinclair* 10772).

Litchi chinensis Sonn. (alt. name *Nephelium litchie* Camb.)

The litchi tree is native to S. China, occasionally cultivated locally, but seldom flowers and still more rarely fruits. Imported fresh fruits can be found in markets around June or July. 荔枝

Mischocarpus pentapetalus (Roxb.) Radlk. (= *M. sumatranus* Bl.)

Shrub or small tree, rambutan-like; leaflets 3-6 pairs; fruit pear-shaped, about 2 cm long; 3-lobed, splitting; seeds large, brown, with a thin red aril. Bukit Timah, Pulau Ubin, Bukit Panjang (*Ridley s.n.*, in 1894).

Nephelium eriopetalum Miq.

Tree; leaves even-pinnate, with brown velvety stalks; leaflets 3-7 pairs; flowers white, in hanging spikes; fruit scarlet, like rambutans. Vern. *Lotong*. Gardens' Jungle, Bukit Timah. No specimens available.

Neph. glabrum Noronh.

Leaflets 1-2 pairs; fruit red, with small compressed knobs or wrinkled. Verb. *Redan*. Tanglin, Chua Chu Kang, Tuas.

Neph. lappaceum L.

Bushy tree; crown dense, rounded, spreading; leaflets 2-4 pairs; flowers greenish white, fragrant, without petals; fruit red (or some variety, yellow), 3-4 cm across, densely covered with soft spines; seed large, with a thick juicy sweet aril. Widely cultivated, one of the best known fruit trees. Vern. *Rambutan*.

Neph. mutabile Bl.

Bushy tree; branches spreading; leaflets 2-4 pairs, whitish below; fruit broadly ovoid, 4-5 cm long, crimson to dark purple, with short blunt spines; pulp pale yellow. Occasionally found in villages and orchards. Vern. *Pulasan*.

Neph. rubescens Hiern.

Tree; leaflets 3-6 pairs, whitish below; flowers with 5 pinkish petals; fruit oblong, 2.5 cm long; with short compressed spines. Chua Chu Kang.

Paranephelium macrophyllum King

Tall tree; leaves pinnate, 40-50 cm long; leaflets 5-9; flowers pinkish, paniced; fruit a woody spiny, 3-valved capsule; seeds large, brown, without pulp. In dense forests, Bukit Timah.

Pometia pinnata Forst. (= *P. alnifolia* Radlk.)

Small tree; leaves odd-pinnate, 50-100 cm long; leaflets 12-20 pairs, the lowest pair of leaflets much reduced, stipule-like; flowers male and bisexual, small, in hanging panicles; fruit oblong, with thin rind and one pulpy seed. In forests, Chua Chu Kang, Bukit Timah, Mandai (*Kiah* 37114), Tanglin.

Trigonachras acuta Radlk.

Tree; leaves pinnate, 10-20 cm long; leaflets 4-8 pairs; flowers white, in terminal panicles; fruit pear-like, 3-shouldered, 4-5.5 cm long, pinkish yellow to orange red. Tanglin, Bukit Timah (*Md. Noor* 230), rare.

Xerospermum intermedium Radlk.

Small tree; leaves pinnate, 10-20 cm long; leaflets 1-2 pairs; flowers white, in terminal and axillary racemes; ovary 2-loculate; fruit yellow, roughened with short tubercles, obovoid, 3 cm long; the seed enclosed in an edible pulp. Tanglin, Bukit Mandai. No specimens available. Vern. *Rambutan pachat*.

99. **Staphylleaceae****Turpinia sphaerocarpa** Hassk. (= *T. latifolia* Wall.)

Tree, briefly deciduous; leaves pinnate, 30-40 cm long; leaflets 5; flowers green, in large lax panicles; fruit fleshy, globose, green. In forests, Bukit Timah, Tanglin, Bukit Mandai, Seletar (*Ridley* 3650).

100. Balsaminaceae

Impatiens balsamina L.

The garden balsam is an annual herb, native to S.E. Asia. Flowers white, pink, purple or variegated, with a distinct spur; usually 1-3 flowers together in leaf-axils. Ovary woolly. Fruit elliptic, acuminate at apex, bursting into 5 coiled valves upon slight touch when ripe. 鳳仙花

Imp. sultani Hk. f.

Succulent herb flowers reddish purple, rarely white; peduncles 2-flowered. Ovary glabrous. Native to tropical Africa, sometimes cultivated.

101. Anacardiaceae

Key to the genera

A. Leaves simple

B. Leaves opposite

Bouea

B. Leaves alternate, often spirally arranged

C. Calyx cap-like, caducous; petals caducous or persistent and enlarged into fruit wings

Gluta (incl. *Melanorrhoea*)

C. Calyx usually persistent, 4-5 lobed

D. Petals persistent, usually enlarged into reflexed fruit wings

Swintonia

D. Petals deciduous

E. Fruit kidney-shaped, seated at the end of the fleshy swollen end of flower stalk

Anacardium

E. Fruit without an enlarged stalk

F. Fruit incompletely 2-loculate; seed curved

Camposperma

F. Fruit 1-loculate; seed straight

G. Fruit with 3-5 stigmas or vestiges of aborted carpels at the side or base

Buchanania

G. Fruit with 1 stigma

H. Fruit glabrous, fleshy, juicy, without black varnish

Mangifera

H. Fruit hairy, fleshy, thin and full of black varnish

Melanochyla

A. Leaves odd-pinnate

I. Leaflets with distinct intra-marginal veins

Spondias

I. Leaflets without intra-marginal veins

J. Calyx much enlarged and forming 4 red wings on the fruit

Parishia

J. Calyx not enlarged in fruit (rarely formed)

Lannea

Anacardium occidentale L.

The cashew-nut tree is a small tree, indigenous to S. America and the West Indies, often cultivated in sandy soil near the sea. The fruit is nut-like, borne on a juicy enlarged pedicel. The roasted seeds are eaten.

Bouea macrophylla Griff.

Tree; leaves 15-30 by 5-8 cm, opposite, simple; flowers small in axillary panicles. Fruit like a small mango, yellow, used as ingredient for *sambal*. In lowland forests, (*Cantley's collector, s.n.*, no precise locality), sometimes cultivated. Vern. *Kundang*.

Bouea oppositifolia Meisn. (= *B. microphylla* Griff.)

Small tree, leaves smaller than the above species, usually 2-15 by 1-5 cm. Bukit Timah (*Corner 34949*). Vern. *Rumenia*.

Buchanania arborescens (Bl.) Bl. (= *B. lucida* Bl.)

Tree; leaves leathery, blunt; flowers white. In open country and forests, Tanglin, Chua Chu Kang (*Goodenough 1882*), Changi, Kranji, Seletar. Vern. *Otak Udang*.

Buch. sessilifolia Bl.

Tree, leaves papery, with a prominent tip. In forests, Reservoir Jungle (*Corner s.n.*, in 1937), Chua Chu Kang, Tampines, Jurong.

Campnosperma auriculatum (Bl.) Hook. f.

Large tree; leaves large, 15-50 cm long, obovate, the apex blunt, often notched; the base with a pair of small ear-like lobes. Flowers in a scurfy panicle. Common in forest openings, forest margins, and secondary forests. Tuas (*Ridley 1880*). Vern. *Terentang*.

Campn. squamatum Ridl. (= *C. minor* Corner)

Tree, leaves smaller than the above species, 10-25 cm long; ear-like lobes absent. In secondary forests, less common, Nee Soon (*Md. Shah & Ali 4109*).

Gluta renghas L.

Large buttressed tree with a dense crown, introduced from N. Malaya, planted in Institute of Education Campus in Bukit Timah. This is the well-known *East Coast Rengas* tree, containing a watery resinous sap which blackens when exposed to the air. This sap can cause painful blisters on the skin.

Gluta wallichii D. Hou (= *Melanorrhoea wallichii* Hook. f., *M. woodsiana* Scort. ex King).

Large tree, bark fissured. Leaves obovate. Fruit a round nut crowned with 5 rose-red wings formed by the persistent petals. This is *Wallich's Rengas* tree, containing toxic sap, commonly found in Bukit Timah forest and in Water Catchment Area (*Md Shah & Md Ali 3921*).

***Lannea coromandelica* Merr. (= *L. grandis* Dennst.)**

Deciduous tree; leaves pinnate, leaflets 7-13; flowers greenish, in slender racemes. Native to India, at one time ago planted as a roadside tree in Singapore.

***Mangifera caesia* Jack.**

Tree; leaves simple; petioles short, broad, flattened. Flowers pale lilac, in pinkish panicles. Mangoes pale brown, bomb-shaped, edible. Jurong (Changi *Sinclair* 40032), Vern. *Binjai*.

***Mang. foetida* Lour.**

Large tree, leaves often blunt, leathery; petioles short. Flowers scentless, pink, in reddish brown panicles. Mangoes oblong, plump, ripening green. Pulau Tekong (*Ridley* 1810), Vern. *Bachang*.

***Mang. griffithii* Hk. f. (= *M. microphylla* Griff. ex Hk. f.)**

Big tree; leaves small (5-20 cm long); flowers yellowish white, in hairy panicles. Ripe mangoes red, 2-2.5 cm long. Bukit Timah (*Corner* 34999), Changi.

***Mang. indica* L.**

Large tree. The Indian mango is commonly cultivated. Flowers yellowish white, in large panicles. Ripe fruit mostly yellow, sometimes orange or pinkish; many varieties.
 檬果

***Mang. lagenifera* Griff.**

A large tree; flowers deep violet; ripe mangoes greyish or brownish green, pear-shaped, sour and stringy. Jurong (*Ridley* 4777). Vern. *Langut*.

***Mang. odorata* Griff.**

Large tree. Leaves pointed, thin leathery; flowers pink, fragrant, in reddish brown panicles. Ripe mangoes oblong, plump, green to yellowish green with brown dots, edible, Bukit Timah (*Ridley* 4773), Vern. *Kwini*.

***Melanochyla auriculata* Hook. f.**

Big tree; branches upright; leaves stiff, upturned at the end of branchlets; flowers green, in panicles. Fruit round, fleshy. In swampy forests, Chua Chu Kang (*Ridley* 3975), Kranji, Mandai.

***Melan. kunstleri* King**

Tree. Leaves narrowed at the base; fruit broadly ovoid. Mandai (*Corner* 37128).

***Parishia insignis* Hook. f. (= *P. pubescens* Hook. f.)**

Lofty tree; leaves pinnate; leaflets 9-17, opposite, the base oblique; flowers in large, rusty panicles. Fruit a hairy nut, surrounded by 4-wings formed by the persistent, enlarged sepals. Dalvey Road, Bukit Timah (*Samsuri* 1245A).

Par. paucijuga Engl.

Tree. Leaflets 4-11, the base symmetric. Bukit Timah (*Ngadiman 36451*).

Spondias cytherea Sonn.

Tree; leaves pinnate; leaflets 4-10 pairs; flowers small, stalked, greenish white, in panicles. Fruit oblong, ripening yellow or orange (4-10 by 3-8 cm). Native to Indo-Malayan regions, often cultivated for the edible fruit. Vern. *Kedondong*.

Spond. pinnata Kurz

Like the above, but leaflets 2-8 pairs and fruit smaller (3-5 by 2.5-3.5 cm). Cultivated for the fruit. Vern. *Kedondong*.

Swintonia schwenkii T. & B.

Large tree; leaves elliptic, simple. Fruit surrounded by 5 enlarged reflexed wings formed by the persistent petals. Rare, Bukit Timah (*Ngadiman 37705*).

102. Sabiaceae

Key to the genera

A. Trees; stamens 5, unequal

Meliosma

A. Climbers; stamens 4-5, equal

Sabia

Meliosma simplicifolia (Roxb.) Walp. (= *M. elliptica* Hook. f.)

Tree; leaves simple, flowers small, in large, branched terminal panicles. Chua Chu Kang (*Ridley s.n.*, in 1894).

Mel. lanceolata B1.

Small tree; leaves pinnate; leaflets 13-17, rusty hairy beneath; flowers without a stalk. Chua Chu Kang, Jurong, Bukit Timah, Nee Soon (*Sinclair 40518*).

Mel. pinnata Maxim. ssp. **ridleyi** (King) Bens. (= *M. ridleyi* King)

Like the above species, but flowers stalked. Gardens' Jungle, Bukit Timah (*Haniff s.n.*, Sept. 1925).

Sabia erratica v.d. Water

Climbing shrub; leaves simple, entire; flowers axillary. Bukit Timah (*Ngadiman KEP 36149*, Type).

103. Icacinaceae

Key to the genera

- A. Trees or shrubs, erect
 - B. Trees
 - C. Leaves scaly beneath, appearing glaucous; flowers unisexual, in spikes *Platea*
 - C. Leaves not scaly beneath; flowers bisexual, in cymes *Stemonurus*
 - B. Shrubs
 - D. Flowers unisexual, in cymes; sepals nearly free *Gomphandra*
 - D. Flowers bisexual, in spikes; sepals united *Gonocarpum*
- A. Woody climber
 - E. Leaves opposite; fruit scarlet, not forming a head *Iodes*
 - E. Leaves alternate; fruit, yellow, many together in a large ball *Phytocrene*

Gomphandra quadrifida (Bl.) Sleum. var. **lanceolata** Sleum. (= *G. affinis* Mast.)

Shrub; leaves alternate; flowers in cymes, crowded into heads; fruit ribbed, crowned by a large persistent stigma. In woods. Chua Chu Kang, Bukit Timah (*Ridley s.n.*, in 1892).

Gonocaryum gracile Miq. (= *G. longiracemosum* King)

Large straggling shrub; flowers purplish green, in pendulous axillary spikes; fruit purplish green, obtusely 5-6 ridged. In forests, Tanglin, Gardens' Jungle (*Samsuri* 986), Changi.

Iodes ovalis Bl. (= *I. oblonga* Planch.)

Deciduous climbing shrub; leaves opposite; flowers in axillary cymes; petals in male flowers 5, free. Fruit scarlet. In borders of forests, Changi, Gardens' Jungle, Chua Chu Kang. No specimens available.

Iodes velutina King

Shrub. Petals in male flowers white, united into a tube. Rare, Bukit Timah (*Ridley* 2718).

Phytocrene bracteata Wall.

Large woody climber; stem prickly and hairy; flowers unisexual, small, in dense racemes arising from stem above leaf scars. Drupe covered with brown bristles and forming a large ball. In forests, Bukit Timah, Cluny Road (*Sidek* 1191).

Platea latifolia Bl.

Tree; leaves alternate, the under surfaces covered with short hair and scales giving a pale bluish grey colour. Flowers unisexual, in short spikes (♂) or cymes (♀). Drupe ellipsoid. Seletar (Collector unknown, *Herb. Acc. no. 027599*).

Stemonurus malaccensis (Mast.) Sleum. (= *S. capitatus* Becc.)

Tree; leaves alternate, leathery. Flowers white, in axillary, cymose clusters crowded at the end of peduncles. Drupe large, fleshy, subovoid, slightly pointed, 4.5 cm long, pink or pale brown. Seletar.

Stem. scorpioides Becc.

Large tree; flowers close together in a row on each side of the axis. Fruit-pointed at both ends. Seletar, Bukit Mandai (*Ridley 1837*).

104. Olacaceae**Key to the genera**

A. Slender woody climbers

Erythropalum

A. Trees or shrubs, erect

B. Inland trees, rarely shrubs, not spiny

C. Twigs (especially the young ones) zigzag; flowers in clusters; fruit enclosed in receptacle

Strombosia

C. Twigs straight; flowers in short racemes or long spikes

D. Tertiary veins on leaf-blades faint; trees not reeking of garlic; flowers in long spikes

Ochanostachys

D. Tertiary veins conspicuous; trees reeking of garlic; flowers in short racemes

Scorodocarpus

B. Sandy shore shrubs in small trees, spiny

Ximenia

Erythropalum scandens Bl.

Slender woody climber; flowers green, in long racemes; fruit orange red, enclosed in persistent bright red calyx, ultimately split into 4 parts. In forests, Catchment Area, Bukit Mandai, Nee Soon (*Samsuri 1507*).

Ochanostachys amentacea Mast.

Small to medium-sized tree; leaves elliptic-ovate, with fine ladder-like tertiary nerves; flowers green, in simple or branched spikes. A well-known timber tree. Gardens' Jungle, Changi (*Ridley 4653*), Catchment Area. Vern. *Petaling*.

Scorodocarpus borneensis Becc.

Large timber tree, cut parts reeking of garlic; leaves oblong-elliptic, tertiary veins ladder-like; flowers white, in short racemes. Gardens' Jungle, Bukit Timah (*Sinclair* 39572) Vern. *Kulim*.

Strombosia javanica Bl.

Medium-sized tree; branches drooping; leaves oblong, 10-12 cm long, tertiary veins visible; flowers 1-3, in leaf-axils. Fruit ovoid, 2 cm long. In forests, MacRitchie Reservoir (*Sinclair* 10919).

Stromb. ceylanica Gardn. (= *S. rotundifolia* King)

Small tree. Leaves smaller than (9-11 cm long) the above species, tertiary veins obscure. In forests, Bukit Timah, Bukit Mandai, Jungle, Changi (*Ridley* 4744).

Ximenia americana L.

Spiny shrubs or small trees; flowers white; drupe orange, edible. Pantropical, probably of American origin. On sandy shores, Changi, Jurong, Pasir Panjang, Pulau Seletar.

105. Santalaceae

Key to the genera

- A. Scandent shrubs; semi-parasitic; flowers minute, in clusters *Dendrotrophe*
- A. Spiny trees; autotrophic; flowers in long spikes *Scleropyrum*

Dendrotrophe buxifolia (Bl.) Miq. (= *Henslowia buxifolia* Bl.)

Scandent shrub; leaves leathery, obovate or rounded, yellowish green, 3-nerved from the base; flowers green, minute, in clusters. In open places and forests, often near the sea, Chua Chu Kang, Kranji (*Ridley s.n.*, in 1894), Changi.

Scleropyrum wallichianum Arnott var. **ridleyi** (Gamble) Stauffer (= *S. ridleyi* Gamble)

Small spiny tree; leaves ovate to oblanceolate, white tomentose beneath; flowers unisexual, in spikes, tomentose. Drupe pear-shaped green, 6-7 cm long. In dry forests near the sea. Changi (*Ridley* 1921, Type), Seletar, Bukit Mandai.

106. Opiliaceae

Key to the genera

- A. Climbing shrubs; leaves 3-5 nerved from the base; flowers in dense axillary spikes *Cansjera*
- A. Erect shrubs; leaves pinnately nerved
 - B. Flowers in panicles of small cymes *Champereia*
 - B. Flowers separate or in clusters *Lepionurus*

Cansjera rheedii J. F. Gmel. (= *C. zizyphifolia* Griff.)

Climbing shrub; leaves ovate, 3-5 nerved from the base, rather fleshy; flowers small; drupe red, globose. Bukit Timah (*Corner s.n.*, Apr. 1943).

Champereia manillana (Bl.) Merr.

Shrub; leaves ovate-oblong or lanceolate; flowers green, small, in lax slender panicles; drupe ellipsoid, orange. In forests, MacRitchie (*Samsuri 1332*).

Lepionurus sylvestris Bl.

Shrub; leaves oblong to elliptic; flowers in dense spikes; drupe oblong, red. Gardens' Jungle (*Ridley 10124*), Bukit Panjang, Changi.

107. Loranthaceae

Key to the genera

- A. Flowers unisexual, less than 4 mm long; leaves present or reduced to minute scales *Viscum*
- A. Flowers bisexual, usually over 1 cm long; leaves present
 - B. Flowers 4 to 5-merous, subtended by 1 bract at the base
 - C. Flowers 4-merous; perianth zygomorphic, the segments reflexed to one side *Scurrula*
 - C. Flowers 5-merous
 - D. Perianth-lobes free or only slightly cohering at the base *Helixanthera*
 - D. Perianth-lobes connate *Dendrophthoe*
 - B. Flowers 6-merous; perianth-lobes connate
 - E. Flowers subtended by a cup-shaped bract at the base *Amylothea*
 - E. Flowers subtended by 1 bract and 2 bracteoles
 - F. Flowers sessile on thickened nodes of the rachis below the leaves *Elytranthe*
 - F. Flowers usually pedicelled, not as above *Macrosolen*

Amylothea duthieana (King) Danser (= *Loranthus duthieanus* King)

Semi-parasitic shrub; branches glabrous, stout; leaves alternate, opposite or whorled; racemes slender, 5-6 cm long; perianth-tube ('corolla') bright red, 6-lobed. Rare, Bukit Timah (*Ridley s.n.*, in 1892).

Dendrophthoe pentandra (L.) Miq. (= *Loranthus pentandrus* L.)

Large bushy shrub; leaves mostly a ternate, thick, oval to elliptic; flowers light pinkish red, in short axillary racemes. A pest in gardens and orchard, often on *Eugenia* trees; Bukit Timah, Chua Chu Kang.

Elytranthe albide Bl.

Stout glabrous shrub; leaves opposite; flowers in 2-6 flowered, distichous spikes on thickened nodes below the leaves. On high trees, in forests, Bukit Timah (Ridley 8042).

Elytr. arnottiana (Korth.) Miq. (= *E. maingayi* Gamble)

Scurfy shrub in coastal forests by mangroves, Kranji (Ridley 6923).

Helixanthera coccinea (Jack) Danser (= *Loranthus coccineus* Jack)

Much branched bush; young stems reddish scurfy-tomentose; leaves oval to round, alternate; racemes bright red; berry flask-like, reddish brown. Bukit Mandai (Mat 6697).

Macrosolen cochinchinensis (Lour.) Tiegh. (*Elytr. globosa* Don)

Much branched shrub, glabrous; leaves ovate or lanceolate, opposite or nearly so; flowers yellow, tipped purple in short axillary racemes. Berry yellowish. Common, Tanglin, Chua Chu Kang (Ridley 2022), Bukit Timah.

Macr. retusus (G. Don) Miq. (= *Elytr. retusa* G. Don)

Stout shrub; leaves thick, obovate to elliptic, opposite; flowers light pink, tipped red, racemes 1.5-2.5 cm long. On *Rhodomyrtus* trees near the sea, Changi, (Ridley 1808), Pulau Tekong.

Scurrula ferruginea (Roxb.) Danser (= *Loranthus ferrugineus* Roxb.)

Slender bush; young parts inflorescences, and leaf under-surfaces densely covered with reddish scurf; leaves elliptic, opposite; flowers 2-6, in axillary cymes. Berry club-shaped. An orchard pest; often parasitic on *Melastoma* and many other trees; Tanjung Penjuru Road (Md. Shah SFN 40974).

Viscum articulatum Burm. f. (= *Aspidixia articulata* Tiegh.)

A leafless shrub, parasitic on other loranthi; flowers 4-merous, unisexual; fruit ellipsoid, less than 1 cm long. Tanglin, Chua Chu Kang (Ridley 8054).

Viscum ovalifolium Wall. ex DC. (= *Viscum orientale* Auct. non Willd.)

Shrub; leaves opposite, obovate; flowers 1-3, very small, in axillary clusters. Parasitic on *Ficus*, *Macaranga* and other trees, Gardens' Jungle, Chua Chu Kang (Ridley 6816).

108. Cornaceae**Key to the genera**

A. Leaves alternate; flowers over 1 cm long

B. Leaves entire; sepals and petals 4-10

Alangium

B. Leaves varying from entire, coarsely toothed, incised to pinnately lobed; sepals and petals 5

Aralidium

A. Leaves opposite; flowers small, less than 5 mm long

Mastixia

Alangium ebenaceum (Clarke) Harms var. **tutela** (Ridl.) Kochum.

Medium tree; twigs white smooth; leaves oblong, rarely elliptic, 15-25 cm long, glabrous; fruit ellipsoid, faintly ridged. Ponggol (*Goodenough* 5082, Type).

Alang. nobile Harms

Small tree. Leaves oblong or obovate, 3-nerved from the heart-shaped base, densely hairy beneath. Bukit Timah (*Ngadiman* 34601).

Alang. ridleyi King

Large tree. Leaves oblong, 20-30 cm long; flowers white; fruit purple. Gardens' Jungle, Bukit Timah (*Ngadiman* 36136).

Aralidium pinnatifidum Miq.

Unarmed small tree; leaves varying from entire, coarsely toothed, incised to pinnately lobed; flowers relatively small (0.25 cm long), in terminal panicles. Kranji (*Ridley* 5895), Bukit Timah, Jurong.

Mastixia trichotoma Bl. var. **maingayi** Danser (= *M. maingayi* Clarke)

Large tree; leaves opposite, woolly below; flowers small, in cymose panicles. Gardens' Jungle, Reservoir Jungle (*Corner s.n.*, 10 Dec. 1940).

109. Araliaceae

Key to the genera

A. Leaves simple, pinnately lobed or compound

B. Trees in secondary forests; leaves (at least the lower ones) odd-pinnate, with 12-14 pairs of leaflets *Arthrophyllum*

B. Shrubs in cultivation; leaves simple, compound (with 3-5 leaflets) or 2-3 times compound *Polyscias*

A. Leaves palmately lobed or compound, rarely simple

C. Mostly epiphytic shrubs, stout or slender; leaflets 3-14 *Schefflera*

C. Shrubs, erect; leaves palmately 7-12 lobed but connected by a webbed fan-like base *Trevesia*

Arthrophyllum diversifolium Bl.

Small to medium tree; leaves very diverse: the lower ones of vegetative shoots odd-pinnate, spiral, 100-200 cm long with 12-14 pairs of leaflets, the upper ones of flowering shoots opposite or whorled, with smaller and less numbered leaflets, often 3-foliate or simple; flowers green, in branched umbels. Fruit black. Common in secondary forests, forest margins, Changi (*Ridley* 5838), Catchment Area, Bukit Timah.

Polyscias fruticosa Harms (= *Nothopanax fruticosum* Miq.)

Shrub, 2-3 m tall; leaves to 30 cm long, 2-3 times pinnate; leaflets irregularly lanceolate, often toothed; occasionally flowering. Native to Polynesia, sometimes cultivated.

***Pol. guilfoylei* Bailey (= *Nothopanax guilfoylei* Merr.)**

Shrub, 2-6 m tall; leaves pinnate, of 5-7 ovate leaflets which are toothed or laciniate, white-spotted or margined. Native to S. Polynesia.

***Pol. scutellaria* Fosb. (= *Nothopanax scutellarium* Merr.)**

Shrub, 2-6 m tall; leaves unifoliolate, rounded (cv. *scutellaria*) or simple pinnate with 3 or 5 nearly rounded leaflets (cv. *pinnata*), subentire, toothed, variously shaped, green. Native country unknown, often cultivated.

***Schefflera actinophylla* Harms (= *Brassaia actinophylla* Endl.)**

Native to N. Guinea and Australia. Terrestrial or epiphytic shrub; leaves palmately compound; leaflets about 15. Native to New Guinea and Australia, a common pot plant, known as 'Octopus tree' or 'Umbrella tree'.

***Scheffl. cephalotes* (C. B. Clarke) Harms**

Stout climbing epiphytic shrub; leaflets about 8. Sungei Bajau (*Ridley* 3973).

***Scheffl. elliptica* (Bl.) Harms (= *S. micrantha* Ridl.)**

Woody climber or straggling shrub; leaflets 4-6 in mangroves. Kranji.

***Scheffl. hullettii* (King) Viguier**

Large stout shrub, climbing; leaflets 9-11. Seletar (*Corner s.n.*, June 1944).

***Scheffl. lanceolata* Ridl.**

Slender epiphytic climber; leaves simple or 3-foliolate; in mangroves, Kranji (*Ridley* 5840).

***Scheffl. oxyphylla* (Miq.) Viguier (= *S. subulata* (Miq.) Viguier)**

Slender epiphytic creeper; leaflets 3-5. Chua Chu Kang, no specimens available.

***Scheffl. ridleyi* (King) Viguier**

Epiphytic shrub, sometimes straggling; leaflets 5. In mangroves, Sungei Morai (*Ridley* 6336, Type).

***Trevesia burckii* Boerl. (= *T. cheirantha* Ridl.)**

Prickly shrub; leaves large, palmately lobed or palmatisect with a webbed fan-like base; flowers unisexual; in panicles formed by umbels; flower parts 7-12. Collected once at Bedok (*Ridley s.n.*, in 1899), now extinct.

110. Umbelliferae

Key to the genera

A. Creeping herbs; leaves not spiny

B. Leaves crenate, reniform; mericarp 7-9 ribbed

Centella

B. Leaves nearly entire, lobed or divided, rounded in outline; mericarp 3-ribbed

Hydrocotyle

A. Erect herb; leaves spiny

Eryngium

***Centella asiatica* Urb (= *Hydrocotyle asiatica* L.)**

Creeping herb, very variable; leaves reniform with toothed margin; flowers 2-3 in a cluster; half-fruit 7-9 ribbed. Common in wet grassy places, Tuas (*Ridley* 343); used in local medicine; also eaten as a vegetable, raw or cooked.

***Eryngium foetidum* L.**

A prickly erect herb with a strong odour; leaves all from the base of stem, with spiny teeth; flowering shoot branched, with thick, spiny bracts in groups of 4-5, groups at intervals. A native of the West Indies, sometimes used locally to flavour food.

***Hydrocotyle sibthorpioides* Lamk. (= *H. rotundifolia* Auct. non Roxb.)**

Tiny creeper; leaves rounded in outline, the margin lobed or divided; flowers 5-15 on a obliquely erect stalk; fruit schizocarpous, half-fruit 3-ribbed. Often in flower pots or other damp places. Botanic Gardens (*Purseglove* 4064).

(to be continued)



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