

Annotated list of seed plants of Singapore (I)

by

HSUAN KENG

*Department of Botany
University of Singapore*

Introduction

The first list of plants of Singapore and adjacent islets, entitled "The flora of Singapore", was compiled by H. N. Ridley in 1900, with supplementary notes appearing a year later. These were published in the Journal of the Royal Asiatic Society, Straits Branch, volumes 33 and 34. Subsequently, two separate lists, entitled "List of Dicotyledons in Syonan" and "List of Monocotyledons in Syonan", were compiled by the Botanic Gardens staff during the Japanese occupation (1942-45), but were never published. Only their typed manuscripts were preserved in the Botanic Gardens, Singapore.

The present annotated list is essentially based on specimens accumulated in the herbarium of the Botanic Gardens, on Ridley's Flora of the Malay Peninsula (1922-25), on the lists mentioned above and on my own notes. In addition, numerous monographs, revisions and short articles were consulted. It is my intention to bring the nomenclature of the plant names up to date as far as possible, and admittedly, a number of them may have been overlooked. In some cases, I exercised my own judgement in accepting or rejecting some of the latest nomenclatural changes.

For convenience, the arrangement of the families follows that given in my book "Orders and families of Malayan Seed Plants" (University of Malaya Press in 1969, Kuala Lumpur).

With rapid urbanization and industrialization, a large number of native plants have already vanished or are on the verge of disappearance. On the other hand, however, a number of exotic plants were introduced, and some are already well-established. To differentiate them in the list, native species are printed in *bold face*, while introduced ones are in *italics*. Only native species bear a collection number of the herbarium specimen (often historical). Where available vernacular names in Malay/Chinese are supplied. It must be understood that the list of cultivated plants can not be expected to be complete. For example, among Gymnosperms, it was recorded in the "Index of Plants" of 1912 by J. W. Anderson, that several cycadaceous plants such as *Bowenia*, *Ceratozamia*, *Stangeria*, and coniferous plants such as *Cephalotaxus*, *Sciadopitys*, *Thujopsis*, etc. were growing in Singapore. None of these have survived, the main reason being that, under local climatic conditions, many of these introduced plants do not produce cones or flowers, let alone viable seeds. The perpetuation of such species would then depend on their ability to propagate by vegetative means or on the recurring introduction of seeds and plants.

The list will be published in instalments, with the intention of eventually combining them into one volume. I would like to express my appreciation to the Director and staff of the Botanic Gardens, Singapore, for their willing cooperation and assistance in the preparation of this list.

I. Gymnosperms

1. Cycadaceae

Artificial Key to the Genera

- | | |
|---|----------------------|
| A. Leaflets with a midrib | <i>Cycas</i> |
| A. Leaflets without a midrib. | |
| B. Leaflets spinescent. | |
| C. Spines minute, to 0.25 cm long | <i>Dioon</i> |
| C. Spines conspicuous, to 1 cm long | <i>Encephalartos</i> |
| B. Leaflets entire. | |
| D. Leaflets 15–20 cm long, not jointed | <i>Macrozamia</i> |
| D. Leaflets 8–10 cm long; jointed at base | <i>Zamia</i> |

Cycas revoluta Thunb.

A dwarf cycad, with strongly curved or 'revolute' leaflets; introduced from S. China and Japan; often cultivated; sometimes producing cones. 蘇鐵

Cycas rumphii Miq.

Formerly found wild on sandy shores at Changi (*Ridley 4408*), Tempinis, and Tuas, now survived only in cultivation. Dwarf palm-like; stem thick-columnar, rarely branched. Probably not specifically different from *C. circinalis* Roxb. of India and the Pacific Islands. Vern. *Pakis laut*, *Paku raja*, 南洋蘇鐵

Cycas siamensis Miq.

A native of N. Malaya and Thailand; base of stem bulb-shaped; cultivated occasionally; producing cones. 泰國蘇鐵

Dioon spinulosum Dyer

Native of Mexico; sterile.

Encephalartos villosus Lem.

Native of S. Africa, occasionally producing cones.

Macrozamia denisonii Moore & F. Muell. var. *hopei* Schust.

Native of E. & N. E. Australia, occasionally producing cones.

Zamia floridana A. DC.

Native of Florida, U.S.A., often producing cones. 藏米亞

Zamia media Jacq. var. *gutierrezii* Schust.

Also known as *Z. integrifolia* Hort.; native of Cuba, sometimes producing cones.

Zamia media Jacq. var. *tenuis* Schust.

Also known as *Z. tenuis* Willd.; native of Bahamas, sometimes producing cones.

2. Podocarpaceae

Artificial Key to the Genera from Podocarpaceae to Gnetaceae (adapted from Corner's "Wayside Trees" and modified).

- A. Leaves flat, 0.5–10 cm wide, not needle-like.
- B. Leaves opposite, usually spreading in one plane; twigs with distinct internodes.
- C. Leaves thin, net-veined with a midrib; nodes swollen *Gnetum*
- C. Leaves thick, stiff, faintly parallel-veined; nodes not swollen.
- D. Terminal buds blunt; resin copious *Agathis*
- D. Terminal buds pointed; resin scant *Podocarpus* (in part)
- B. Leaves alternately or spirally arranged; internodes always very short.
- E. Leaf sharply pointed, without a midrib *Araucaria* (in part)
- E. Leaves not prickly, with a distinct midrib *Podocarpus* (in part)
- A. Leaves needle- or scale-like, 2 mm wide or less.
- F. Needleless over 15 cm long, 2 or 3 in a bundle *Pinus*
- F. Leaves less than 2 cm long, generally much less; not in bundles.
- G. Plants with 2 kinds of leaves: some twigs with minute scale-leaves, others with longer needle-leaves.
- H. Leaves in 4 rows (or in two, alternating pairs) *Juniperus*
- H. Leaves spirally or alternately arranged.
- I. Needle-leaves flat, alternate, twisting in one plane; scale-leaves with projecting points *Podocarpus (imbricatus)*
- I. Needle-leaves not flat; scale-leaves not with projecting points. *Dacrydium*
- G. Adult plants with only one kind of leaves, either needle- or scale-shaped.
- J. Needle-leaves 1–2 cm long, spirally arranged, with projecting points.
- K. Branches in whorls *Araucaria*
- K. Branches not in whorls *Cryptomeria*
- J. Scale-leaves 2 mm long or less.
- L. Small branches with their leaves flattened into one plane *Thuja*
- L. Otherwise *Cupressus, Calocedrus, Callitris.*

Dacrydium elatum Wall.

Native of Malayan mountains and elsewhere; remaining sterile; leaves of two forms: needle-shaped and scale-like, often on separate branches. 淚柏

Podocarpus imbricatus Bl.

Native of Malayan mountains and elsewhere; producing male ones only. 爪哇羅漢松

Podocarpus motleyi Dummer

Native of Malayan swamps and elsewhere.

Podo. neriifolius D. Don¹

Native of Malayan mountains and elsewhere; producing cones and seed. 百日青

***Podo. polystachyus* R. Br.**

A native species, found in Labrador, Kranji (*Ridley 13304*) and other parts of the island near the sea and in mangroves; also growing in gardens. Vern. *Sintada*.

***Podo. wallichianus* Presl**

Collected at Changi and Jurong (*Corner s.n.* Apr. 1933); erroneously known as *Podo. blumei* Endl.; commonly found in Malayan mountains. 大葉竹柏

1. Several other species of *Podocarpus* from China, Indonesia and elsewhere are introduced, some even producing viable seeds.

3. Araucariaceae

Agathis dammara (Lamb.) L. Rich.

Native of Malayan mountains and elsewhere; cultivated; producing cones, occasionally viable seeds. A small patch of trees on the back of Raffles Hall, Univ. of Singapore. Variouslly called *A. loranthifolia* Salisb. or *A. alba* Jaff. in literature. Vern. *Damar minyak*, 貝殼杉

Araucaria bidwillii Hook.

Introduced from Queensland; Australia. Leaves lanceolate, 2-rowed; known as Monkey puzzle.

Arau. cunninghamii Sweet

Native of Australia and New Guinea. Needle in dense spirals, sharp; known as Hoop pine.

Arau. excelsa R. Br.

Native of Norfolk Island, New Zealand. Needles in dense spirals, blunt. Known as Norfolk I. pine; propagated by cutting; one of the commonest *Araucaria* in cultivation. 南洋杉

Arau. kunsteinii K. Soh.

Native of New Guinea. Known as Kling pine.

4. Pinaceae

Pinus merkusii Jungh. & De Vriese²

Native of Thailand, Cambodia and Elsewhere. Producing cones and occasionally viable seeds. 末氏松

5. Taxodiaceae

Cryptomeria japonica D. Don

Native to S. China and Japan; sterile, rarely producing male cones. 柳杉

6. Cupressaceae

Callitris macleayana Muell.

Possibly together with one or two other species, is cultivated; all from Australia; sterile. 澳洲柏

Calocedrus formosana Florin

Formerly known as *Libocedrus formosana* Florin; native to Formosa; occasionally producing male cones. 肖楠

2. Several other species of pines, such as *P. insularis* Endl. (3-neededled, from the Philip-pines), *P. caribaea* Morelet (3- or 2-neededled, from the W. Indies), *P. massoniana* Lamb. (2-neededled, from S. China) are sometimes cultivated; often remain sterile, rarely producing male cones.

Cupressus macrocarpa Hort. ex Gordon

Native to N. America; sterile. 大毬柏木

Juniperus chinensis L.

Native of China; several horticultural forms commonly cultivated; sterile or producing male cones only; propagated by cutting. 圓柏

Thuja orientalis L.

Native of N. China; commonly cultivated in gardens; often producing male cones; propagated by cutting. 側柏

7. Gnetaceae

Gnetum gnemonoides Brongn.

Listed in Ridley's Flora as *G. wrayi* Gamble. Recorded from Tuas, Jurong, Chua Chu Kang (*Ridley 6126*), etc. Seeds large, 5–7 cm long.

Gnetum gnemon L.

Shrub or small tree (in contrast to other species listed here being woody climbers) easily mistaken as a dicot. It is either a native or at least was introduced during the memorable past. Usually only the female plants are cultivated near Malay villages (*Ridley 6106*) because of the edible seeds (erroneously called as "nuts"). Vern. *Meninjau* or *Belinjau*, 樹倪籐

Gnetum latifolium Bl. var. **funiculare** MGF.

Known as *G. kingianum* Gamble in Ridley's Flora. Recorded from Garden Jungle, Tanglin (*Ridley 5688*) Kranji. A big climber, the bark used for making string; leaves large, elliptic. Vern. *Akar tutubo*, *Akar susurus*.

Gnet. macrostachyum Hook.

Recorded from Siglap and Changi (*Ridley 4822*); leaves elliptic; seeds nearly globose.

Gnet. microcarpum Bl.

Formerly known separately as *G. campestre* Gamb. and *G. sylvestris* Gamb. Recorded from Tanglin, Kranji, Garden jungle, Seletar (*Ridley 3851*), etc. A large climber; seed golden yellow; leaves narrow; relatively common. Vern. *Akar jullah*, 倪籐