



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018**

COURSE NAME : PLANT TAXONOMY AND DIVERSITY

COURSE CODE : BWJ 10403

PROGRAMME : BWW

EXAMINATION DATE : JUNE/JULY 2018

DURATION : 3 HOURS

INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF SEVEN (7) PAGES.

- Q1** (a) List down **FIVE (5)** books that were published by Linneaus. (5 marks)
- (b) Describe the general characteristics of land plants. (5 marks)
- (c) Plants have successfully evolved from spore-bearing organisms to seed-bearing ones. Having said that, ancient plants like mosses, liverworts and hornworts are still around today and are unique in their reproduction cycle. Demonstrate what make these plants unique in terms of reproduction. (10 marks)
- Q2** (a) Define or explain the following. Give example when necessary.
- (i) Glabrous
 - (ii) Decussate
 - (iii) Monopodial
 - (iv) Palmately compound
 - (v) Vegetative morphology
- (10 marks)
- (b) It is common that the scientific names given to plants are derived from their morphological features. Identify and illustrate the characters that are best described in the following species.
- (i) *Eurycoma longifolia* Jack
 - (ii) *Tetrastigma apiculatum* Gagnep.
- (10 marks)
- Q3** Plants are found all over the planet, in almost all types of environments. Outline and explain the adaptation mechanisms of plants inhabiting naturally in the following ecosystems. Give specific examples.
- (a) Desert
 - (b) Mangrove
 - (c) Heath forest
 - (d) Lowland tropical rainforest
- (20 marks)
- Q4** Given in **Figure Q4(a-d)** are **FIVE (5)** species of plants. Develop a taxonomic key based on the illustrations provided. Include a detailed description for each species. (20 marks)
- Q5** (a) Land plants can be very varied in terms of habit as well as general physiology. Compare the following and give example for each.
- (i) Obligate and facultative hemiparasites
 - (ii) Caudiciform and pachycaul stems
 - (iii) C3 and C4 plants
- (15 marks)

- (b) UTHM Pagoh Campus is currently devoid of natural vegetation cover except for a few ornamental plants. If you are given a chance to plan the rehabilitation of UTHM Pagoh Campus, suggest the most suitable plants that can survive and adapt in the current environmental condition.

(5 marks)

- END OF QUESTIONS -

TERBUKA

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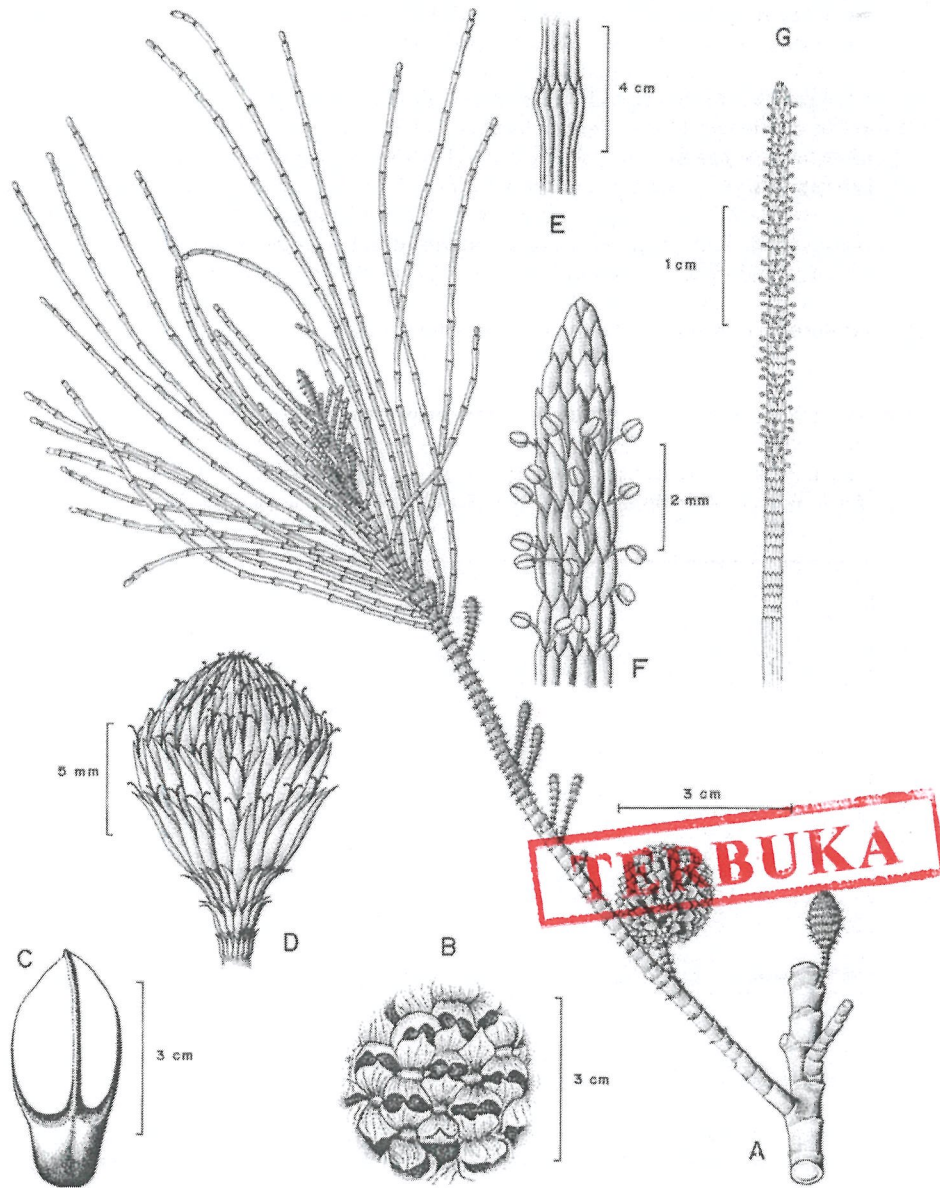
Agathis flavescens (A–F) and *A. borneensis* (G–M). A, leafy twig with pollen cones; B, side view of microsporophyll; C, front view of microsporophyll apex; D, side view of megasporophyll; E, front view of megasporophyll; F, seed; G, pollen cone; H, side view of microsporophyll; I, front view of microsporophyll apex; J, seed cone; K, side view of megasporophyll; L, front view of megasporophyll; M, seed. (A–C from *FRI 20673*, D–E redrawn from *Fl. Malesiana*, F from *FMS 12196*, G from *FRI 4838*, H–I from *Wong WYK 58*, J–L from *FRI 93380*, M from *FRI 20682*.)

Figure Q4(a)

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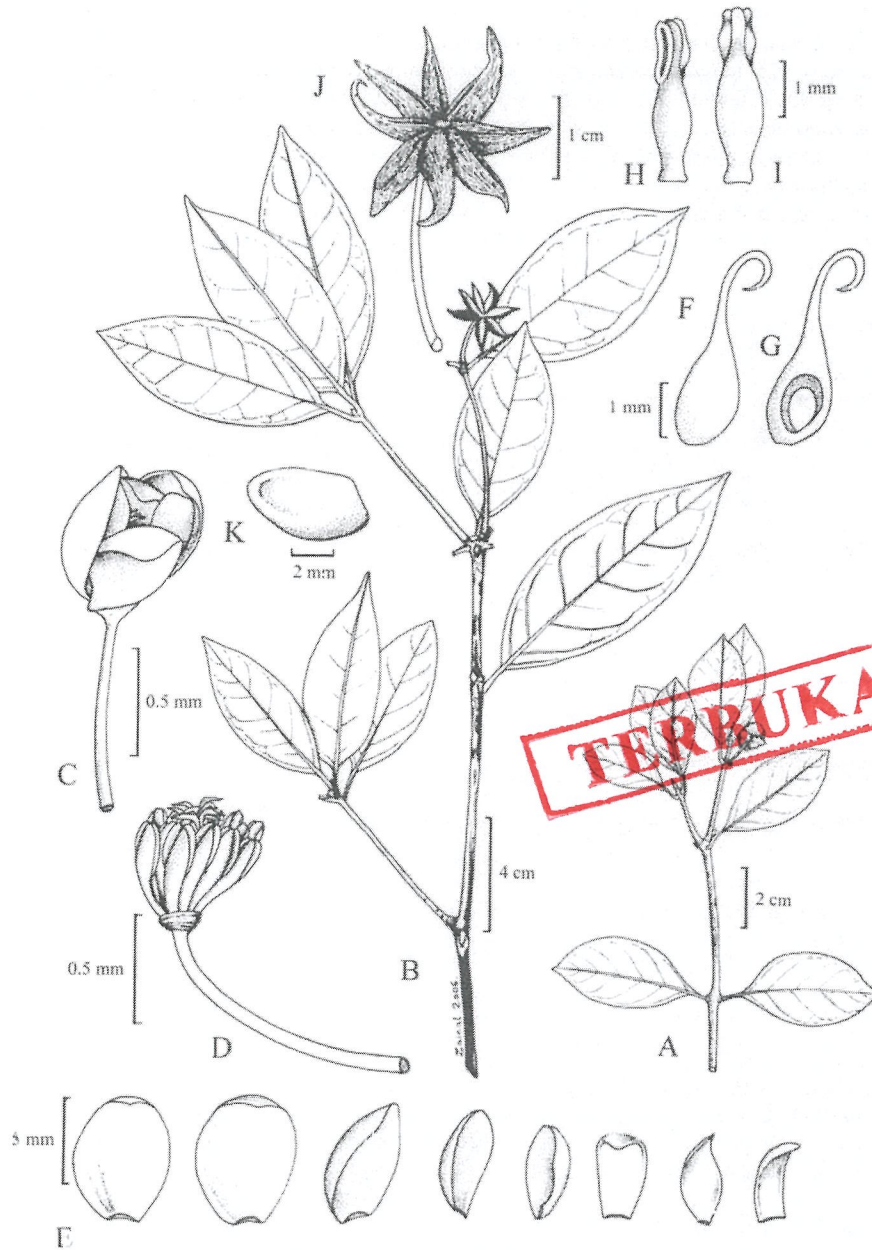
Casuarina equisetifolia A, fruiting twig; B, detailed arrangement of bracts and bracteoles in cone-like infructescence; C, samaroid nut (fruit); D, female inflorescence; E, nodal portion of needle-shaped twig; F-G, male inflorescences. (Reproduced with permission from Tr. Fl. Sabah & Sarawak 2 (1996) 122).

Figure Q4(b)

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Illicium ridleyanum. A, flowering leafy twig; B, fruiting leafy twig; C, flower; D, flower with tepals removed; E, tepals from outermost (left) to innermost (right); F, carpel; G, carpel in longitudinal section; H, stamen in abaxial view; I, stamen in adaxial view; J, fruit; K, seed. (A–I from FRI 26079, J from KEP 11003, K from FRI 12572.)

Figure Q4(c)

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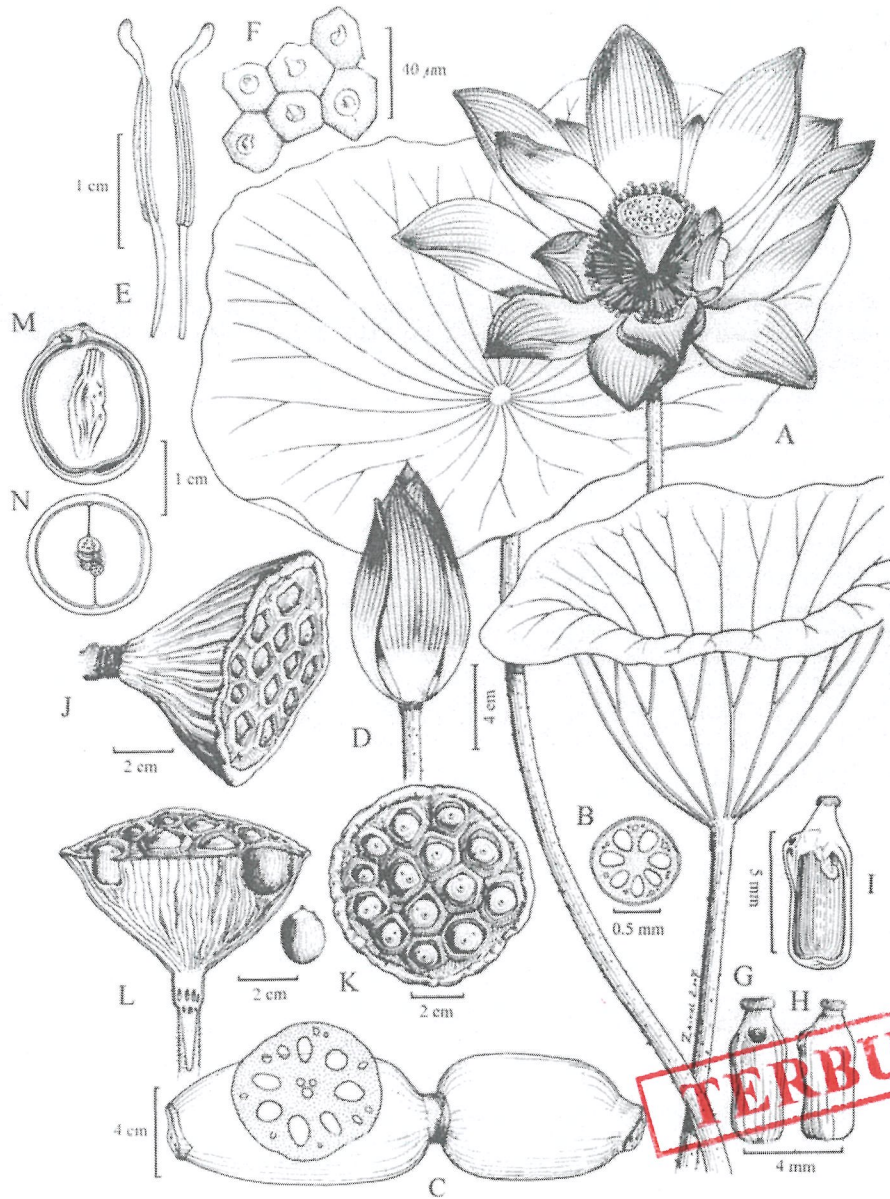


Figure 1. *Nelumbo nucifera*. A, leaves and flower; B, transverse section of petiole; C, rhizome and its transverse section; D, flower bud; E, stamens with connective appendage; F, portion of receptacle surface with stigmas; G, carpel front view; H, carpel side view; I, longitudinal section of carpel; J, receptacle, side view; K, receptacle top view; L, longitudinal section of receptacle; M, mature nut in longitudinal section; N, nut in transverse section. (All from *FRI 52957*.)

Figure Q4(d)