

Faculty of Resource Science & Technology

e-Newsletter RLL

Special points of interest:

- Professional Certificate/Diploma in Biodiversity Tourism
- Activities @ Pusat Penyelidikan Tumbuhan (PPT)

SDG 4 (Quality Education);

SD13 (Climate Action);

SDG 14 (Life Below Water)

SDG 15 (Life on Land)

SDG 8 (Decent work and Economic Growth)

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THE PROFESSIONAL AND EXECUTIVE PROGRAM IN BIODIVERSITY TOURISM

Program Overview: The Program is designed to cater for the needs of tourism industry and for interested public to acquire skills in identifying the Bornean biodiversity and their functions.

Program Objectives: The Program aims to upskill and build the capacity of community for natural heritage sustainability. The establishment of UNIMAS Real Living Lab allows on-site trainings for the Program.

Program Level/Duration

Professional Executive Biodiversity Tourism Level 1 (Certification) - 6 months

Professional Executive Biodiversity Tourism Level 2 (Diploma) - 12 months

Program Modules

- Plant Systematic
- Animal Diversity
- Aquatic Biodiversity
- Biodiversity Identification Techniques
- Wildlife Photography
- Evolution: Walking the Wallace Trail in Borneo

Additional modules for Diploma:

- Nature-based Recreation and Ecotourism
- Tropical Ecology
- Fungi
- Aquatic Invertebrate
- Aquatic Vertebrate
- Terrestrial Invertebrate (Gastropod & Insect)
- Cold-Blooded Vertebrates (Amphibia & Reptiles)
- Warm Blooded Terrestrial Vertebrates (Mammals & Aves)

UNIMAS
UNIVERSITI MALAYSIA SARAWAK

APPLY NOW

PROFESSIONAL CERTIFICATE IN BIODIVERSITY TOURISM

PROFESSIONAL AND EXECUTIVE PROGRAMME

LOCATION
Real Living Lab,
Faculty of Resource,
Science and Technology

Assoc. Prof. Dr Ramlah Zainudin
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Research Activities@Pusat Penyelidikan Tumbuhan

Orchidarium of UNIMAS

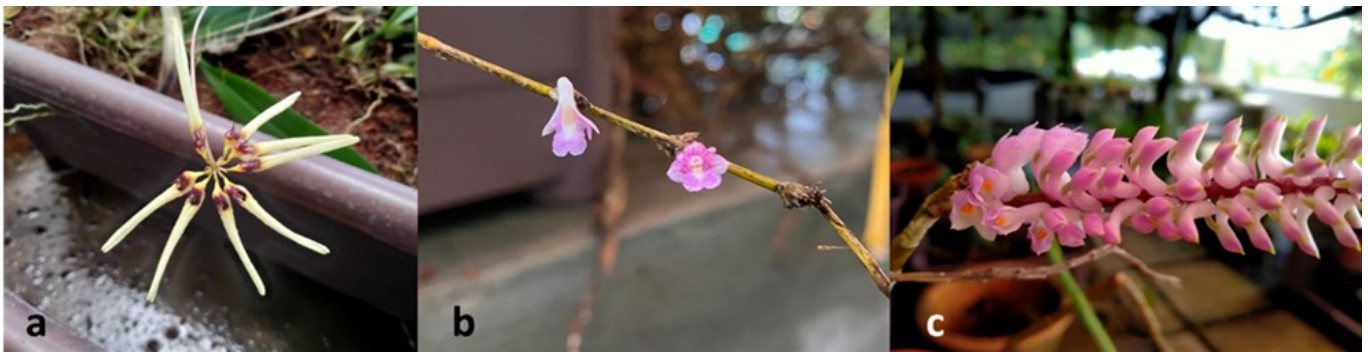
Dr Mohd Akmal Mohd Raffi

The orchidarium serves as a conservation initiative to protect the orchid species from depletion. The orchid species are collected (with license from the Sarawak Forestry Corporation (SFC)), cultivated as living collections and subjected to various propagation approaches to increase their number of individuals.

Serving as an educational tool via the exhibition of its living collections, this facility is also anticipated to raise public awareness on the importance of these orchids to the Sarawak's natural ecosystems.



Orchidarium of UNIMAS in Pusat Penyelidikan Tumbuhan



Orchid accessions in the orchidarium. a) *Bulbophyllum brienianum*, b) *Dendrobium rosellum* and c) *Dendrobium secundum*

Field practical during COVID-19 pandemic @ Pusat Penyelidikan Tumbuhan

Since March 2020, Teaching and Learning (T&L) activities in UNIMAS has faced significant challenges during this COVID-19 pandemic. With majority of the students are at home, all T&L activities have to be conducted via online learning.

As for lessons that requires hands on learning, several instructors (with the assistance of supporting staffs) has utilized the existing facilities @ Pusat Penyelidikan Tumbuhan in preparing their respective “virtual” or “lab at home” sessions. This effort is to ensure that learning can continue for students who cannot access the university during this pandemic, but will be able to conduct “home-based”



Learning video (uploaded to Youtube) of recorded practical/ field session for T&L activities

A Revision of Genus *Vatica* L. (Dipterocarpaceae) in Borneo II: *Vatica abang-zoharii*, a new species

Dr. Qammil Muzzammil Abdullah @ Meekiong B. Kalu

A new species *Vatica abang-zoharii* Meekiong, Latiff & Yahud found in Sarawak, Malaysia was described and illustrated. This new species was discovered by a team of researchers from FRST, UNIMAS, Forest Department of Sarawak and Universiti Kebangsaan Malaysia (UKM).

The genus *Vatica* is one of the most common dipterocarps in the Bornean tropical forest and might also be the most difficult genus to identify in the field. This new species is quite similar to *V. elliptica* but can be readily distinguished by its bark greyish brown, small lenticels scattered along the stem, low buttress and shorter petioles that turned black when dry. *Vatica abang-zoharii* displays unequal fruit calyx (three long and two short) thus belongs to sect. *Sunaptea*. Previously 33 species of the genus were enumerated for Sarawak (Meekiong et al. 2014) which is about 44% of the total number in the world.

With the discovery of *V. abang-zoharii*, the number of *Vatica* species in Sarawak increases to 34 and it is very likely, more species under this genus may be discovered in future.

Further information on this new species is available in *The Malaysian Forester*, vol. 84 (1): 1 - 6 published in by Kalu et al. (2021).



Figure Presenting our YAB Chief Minister of Sarawak a copy of the drawings and relevant documentation on this new species during the International Forestry Day, 2021 held in Kuching on 26 March 2021.

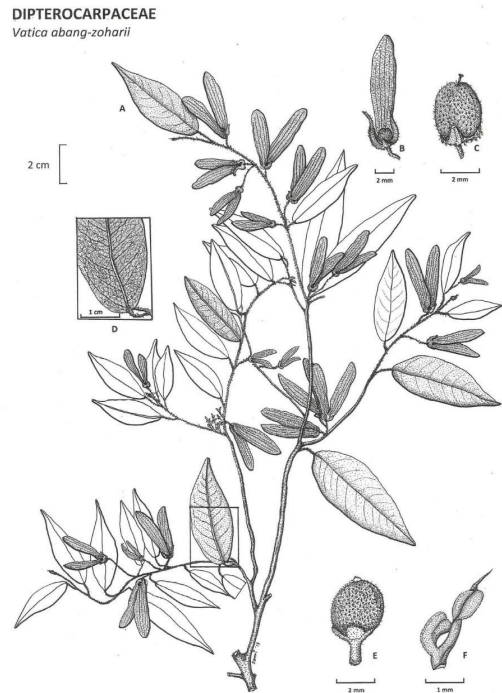


Figure *Vatica abang-zoharii* Meekiong, Latiff & Yahud *sp. nov.* A. young twig with fruits, B: fruit with calyx, C: seed, D: part of leaf showing secondary venations, E: ovary, F: stamen. Drawing from a holotype MK2336



Figure *Vatica abang-zoharii* Meekiong, Latiff & Yahud *sp. nov.*. A: bark, B: slashed inner bark; C: young twig with fruits; D: fruit stages. (All photos by K. Meekiong).

Studies on propagation of *Castanea sativa*

Dr Hashimah Elias

Castanea sativa Mill. (Sweet chestnut) is among the most significant trees in the world that has been widely cultivated and consumed due to its renowned value and great potential especially in food, agriculture, forestry, cosmetic, pharmaceutical industry, etc. Nevertheless, only a few attention being paid on this species as a little number of publications recorded in related fields. At present, limited supply of plant production and yield becoming a hindrance in trade as well as research and development activities. Consequently, more detail and advance researches should focus on both primary (nut and timber) and secondary (bioactive compounds)

products of *Castanea sativa*. Thus, the research aimed to establish the efficient protocol for production of biological active compounds from *Castanea sativa* that involve comparative studies of samples extracted from different environment (*in vivo*, *in vitro* and *ex vitro*) whereby the amount of bioactive compounds will be measured to identify the optimum condition that could produce the highest production of bioactive compounds. Comparison will also be made for the *in vivo*, *in vitro* and *ex vitro* regenerated plants to examine their morphology. Investigations include the production of normal, healthy and uniform plants which could provide sufficient supply of planting materials throughout the year. In addition, field trial assessment will be done to determine the production of good quality plants by observing their growth and development in respond to soil fertility as well as pest and disease infestation.



Figure Seedlings growing in the plastic cups after the seeds were sown approximately one month in the selected planting medium.



Figure Seedlings grow vigorously whereby the leaf appearance could be seen clearly after 2 months in the selected planting medium.



Figure Seedlings were transplanted into polybags and maintained under shade area for several weeks before transferred to the field.

Studies on propagation of *Ficus carica* L.

Dr Hashimah Elias

Ficus carica L. or fig is among the precious versatile plants that have numerous benefits. Nowadays, the species have been widely cultivated around the world especially in Mediterranean region. The species could be propagated by stem cuttings, air layering, grafting as well as tissue culture.

Although various cultivation methods are available for the plant propagation, however the most preferred technique applied by many fig planters is stem cutting, as it is considered feasible in current fig commercialization. The present study aims to investigate the efficient system for propagation of selected varieties of *F. carica* L. by stem cutting and subsequently identify the factors contribute to their growth performance. Furthermore, the attempts to graft between the same species of *F. carica* L. (different varieties) and between different species also proposed.

The graft compatibility will be examined for both grafting on the plants that grown under the roof (potted plants) and the plants grown under direct sunlight (field condition), respectively. The species that hardy to local climate which grow vigorously in the field condition will be identified. In this study, the success rate of stem cutting and grafting will be assessed. The findings of the study will provide significant knowledge in the nursery management and benefit the fig planters.



Figure The plants that have been transplanted were successfully adapted to the environment after 4 months of planting.



Figure The appearance of shoot buds on semi hardwood stem cuttings were observed after 1 week planting in the selected medium.



Figure Plant sources for studies on propagation of *Ficus carica* by stem cuttings were collected from PPT.

