THE DIVERSITY OF MACROFUNGI FROM THE SOUTHERN PART OF ULU MUDA FOREST RESERVE COMPLEX

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Introduction

The Ulu Muda Forest Reserve is the largest of the numerous forest reserves in the Ulu Muda region, which is situated in the eastern section of Kedah, close to the Malaysia-Thailand border. The Ulu Muda Forest Reserve has a variety of vegetation types, including limestone vegetation, lowland dipterocarp forest, hill dipterocarp forest, and upper dipterocarp forest. One of the most fascinating natural sites in Kedah is the forest, which has a total area of 46,720 hectares when adding its water catchment area. It has long been acknowledged for its significance in protecting biodiversity. There are records of the plant and fauna diversity in Ulu Muda Forest Reserve from the previous Scientific Expedition in 2003 (Latiff & Faridah-Hanum, 2005), but none on macrofungi. Therefore, under the project "Microbes and insects as biological indicators for the stability of ecosystems, forest health and conservation of selected species" brings a glimpse to document some the macrofungi diversity presence from this forest. This data will serve as a baseline for the region's fungal diversity and aid in a better understanding of Ulu Muda Forest Reserve's rich biological diversity.

Materials and Methods

Field survey: Compt. 28,33A, 40

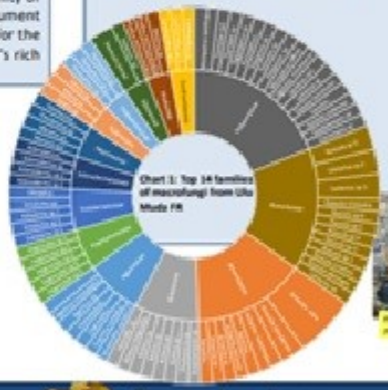
Mycology & Pathology Laboratory Lab

Identification –available keys and references (Lee, 2017; Thi et al., 2011; Zainuddin et al., 2010[a])

All specimens were given voucher number and kept in the FRIM Fungarium for future references, characterization and documentation.

Results

A total of 162 collections of macrofungi was made during this study. These collections consist of 35 families, 62 genera and 113 taxa. The top 14 highest taxa were from Polyporaceae with 16 species, Russulaceae (13), Amanitaceae (8), Boletaceae (8), Hygrophoraceae (5), Agaricaceae (5), Entolomataceae (5), Scleroderma taceae (4), Mycenaceae (4) and Ganodermataceae (4), respectively (Chart 1).



Most of the collections were from the Basidiomycete group with 33 families, while only four families were from Ascomycete group ie. Chorioactidaceae, Ophiocordycipitaceae, Sarcoscyphaceae and Xylariaceae. Ascomycete members also known as the sac fungi. One of famous brain manipulating fungus also have been recorded in Ulu Muda Forest Reserve (Mohd Salleh et al., 2016).

Polyporaceae, with 16 species is the highest macrofungi collected and this family was reported to have the highest diversity in Malaysia (Ujiang and Jones, 2001). Members of this family are mostly saprophytic fungi or wood rotting fungi that grown on dead trees or fallen trunk/debris

The other families such as Russulaceae, Amanitaceae, Boletaceae, and Scleroderma taceae are important fungi in forming symbiotic relationship with trees in the forest that called mycorrhiza (Watling and Lee, 1995; Watling and Lee, 1998).

Conclusion

In addition to their enormous medical potential, wild macrofungi perform a vital ecological function in the healthy maintenance of ecosystems, particularly those of forest ecosystems, hence it is imperative to investigate, record, and preserve this natural wealth. Ulu Muda Forest Reserve in Kedah has a great diversity of macrofungi, according to the study. However, additional research should be done to have a fuller picture of the variety of macrofungi and microfungi in this forest reserve, where many more fungus are still unexplored.

REFERENCES

Chandrasrikul, A., Suwanarit, P., Sangwanit, U., Intharatepa, V., Kongsiriwattana, W., & Morakotkarn, D. (2008). Diversity of mushrooms and macrofungi in Thailand. Bangkok: Department of Agriculture.

Latiff, A., and Faridah-Hanum, I. (2005). Biodiversity conservation and management of Ulu Muda Forest Reserve, some preliminary considerations. Pp. 51 – 66. In: Proceedings Biodiversity and conservation of Ulu Muda Forest Reserve, some preliminary considerations. Pp. 51 – 66. In: Proceedings Biodiversity and conservation of Ulu Muda. Kedah: Penyunting, Faculties of Forestry and Biology, Forestry Department and Universiti Malaya.

Lee, S.S. (2017). An field guide to the larger fungi of FRIM. Kepong: Forest Research Institute Malaysia.

Lee, S.S., Watling, R., and Rahmat, Z.H. (2002). Ectomycorrhizal fungi associated with dipterocarps in lowland rain forests of Peninsular Malaysia. Mem. of Botanical Institute Kyoto. 10: 45.

Mohd Salleh, S., Abu Bakar, M., Abriza, M.Z., and Patahayah, M. (2016). Conservation Malaysia 13(1).

Patahayah, M., Mohd Salleh, S. (2017). Bekala cendawan yang enak. FRIM in Focus Jun 2017 2: 4.

Patahayah, M., Abriza, M.Z., Abdul Kadir, S., Mohd Salleh, S., Mohd Farid, A., Wan Muhammad Azrul W.A. & Mohd Syazwan, S. (2017). Successes of Enhancement Fine Fungi in Forest Restoration of Post-Mining Sites. Proceedings in the International Conference on Sustainable Soil Management. 4-7 April 2017. Manado, Sulawesi. 1020-1025 Pp.

Pilz, D.L., Luoma, D.L., Molina, R., Pilz, J.T. (2011). A guidebook to the macrofungi of Crater Lake National Park. Kepong: Forest Research Institute Malaysia.

Ujiang, L., and Jones, E.B.G. (2001). Occurrence of wood inhabiting fungi in forest of Peninsular Malaysia. Journal of Tropical Forest Science 13 (2): 241 – 261.

Watling, R. and Lee, S.S. (1995). Ectomycorrhizal fungi associated with members of the Dipterocarpaceae in Peninsular Malaysia. Journal of Tropical Forest Science 7 (4): 417-448.

Watling, R. and Lee, S.S. (1998). Ectomycorrhizal fungi associated with members of the Dipterocarpaceae in Peninsular Malaysia. Journal of Tropical Forest Science 10 (4): 615 – 630.

Zainuddin, M., Hall, I. R., Chen, W. T., Ko Tin, H. & Lebel, T. (2010). A guidebook to the macrofungi of Tasik Chini. Kepong: Forest Research Institute Malaysia.

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