

**UNIVERSITI TEKNOLOGI MARA**

**IDENTIFICATION, MUTAGENICITY  
AND ANTIOXIDANT ACTIVITIES  
OF MALAYSIAN WILD  
MUSHROOMS**

**AZIEANA BINTI JINTING**

**MSc**

**March 2019**

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of the requirements for the degree of  
**Master of Science**  
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## ABSTRACT

Ethnomycological documentation is very scanty in Malaysia and fungi are often ignored not for the lack of potential but because they are more difficult to obtain and a lot less is known about them. Hence, this study was conducted to identify selected wild mushrooms of Malaysia morphologically and through molecular biology techniques. Since some mushroom species are poisonous, it is necessary to obtain epidemiological and experimental data on the beneficial effects of the extracts of the species studied. The Ames test was performed with and without metabolic activation by using *Salmonella typhimurium* bacterial strains TA98 and TA100 to evaluate the mutagenicity of these mushrooms. Previous studies have reported the association of mushrooms with their antioxidant potentials. Spectrophotometric method was used to estimate total phenolic (TPC) and total flavonoid content (TFC) of mushroom extracts. DPPH radical scavenging and ferric reducing antioxidant power (FRAP) assays were used to determine their antioxidant capacity. Mushrooms were identified as *Leucoagaricus leucothites*, *Ascomycota* sp. BF135, *Xylaria Feejeensis* isolate A2S4-D46, *Lentinus sajor-caju* strain E882B, *Lentinus* sp. 5-D-3-A(br)-42, *Trametes pubescens*, *Polyporales* sp. 'phlebioid clade' MS253, *Fomitopsis pinicola* and *Pycnoporus sanguineus*. Result indicates that mutagenicity was negative in all strains with and without metabolic activation. *Xylaria feejeensis* isolate A2S4-D46, *Lentinus* sp. (2) 5-D-3-A(br)-42 and *Pycnoporus sanguineus* showed significant differences in their antioxidant properties. The correlation coefficients showed that TPC was strongly correlated with FRAP. This may suggest that phenolic was the major antioxidant components in the mushroom that contributed to the reducing power ability. With more research on these, wild mushrooms could become and ideal sources of nutritional supplements.

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