

Phytochemical Screening, Antimicrobial and Antioxidant Activities of Selected Fungi from Mount Singai, Sarawak, Malaysia

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Abstract: *Fungi play important roles in the forest ecosystem as the main decomposers, symbionts in mutualistic association with other organisms, and as parasites. Some fungi are consumed as food and some like Ganoderma are well known for its medicinal values, thus, these treasures are still waiting to be uncovered. The study area, Mount Singai in Bau District, Sarawak, Malaysia, was settled by Bisingai Bidayuh tribe for almost 300 years before they moved downhill to 14 villages some 40 years ago. A recent survey on fungi in the area discovered more than 50 species. Seven species were selected, namely Amauroderma rugosum, Earliella scabrosa, Fomitopsis dochmia, Ganoderma australe, Lentinus sajor-caju, Microporus xanthopus, and Trametes pubescens for assay of their antimicrobial activities against Staphylococcus aureus, Streptococcus pyogenes, Pseudomonas aeruginos, Escherichia coli and Clostridium difficile using Minimum Inhibitory Concentration method. All fungi demonstrated strong inhibition towards the five bacteria while F. dochmia, however, only exhibited strong inhibition against S. pyogenes. Phytochemical screening showed that among all the fungi, only G. australe contains alkaloids as supported by its high activity in 1,2-diphenyl-2-picrylhydrazyl radical scavenging. All fungi indicated absence of triterpene and steroid content with L. sajor-caju recorded the highest presence of saponins while A. rugosum and M. xanthopus showing the least. These findings showed that the selected fungi from Mount Singai have great potential in the development of pharmaceutical and dermatological products and thus warrant further investigation.*

Keywords: *Fungi, phytochemical screening, antimicrobial, antioxidant, Mount Singai, Sarawak, Malaysia*

1. INTRODUCTION

Fungi are microorganisms found in various forms such as yeasts and molds, as well as the more familiar mushrooms. Abundant worldwide, most fungi are inconspicuous because of the small size of their structures, and cryptic lifestyles in soil, on dead matter, and as symbionts with plants, animals or other fungi. They may become noticeable when fruiting, either as mushrooms or molds.

Being part of the forest flora, they play important roles in the forest ecosystem. Some fungi have mutualistic association with trees in the form of mycorrhizae, whereas some are parasites. Their most important role in the ecosystem is in the decomposition of organic compounds returning important nutrients to the soil and environment benefiting plants that get their sustenance from the soil's nutrients.

Many fungi are also being used by human for various purposes. They have long been used as a direct source of food such as mushrooms and truffles, as a leavening agent for bread, and in