EFFECT OF EXTRACTION SOLVENTS ON ANTIOXIDANT ACTIVITY OF *Swietenia macrophylla* EXTRACTS

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This Final Year Project Report entitled **"Effect of Extraction Solvents on Antioxidant Activity of *Swietenia macrophylla* Extracts"** was submitted by Mardhiah binti Mohd Raoh, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

EFFECT OF EXTRACTION SOLVENTS ON ANTIOXIDANT ACTIVITY OF *Swietenia macrophylla* EXTRACTS

Antioxidant is defined as the substance that present at low concentration together with oxidizable substrate to delay or prevent the substrate to be oxidized. *Swietenia macrophylla* is a plant known to cure high blood pressure and also exhibit antioxidant properties. This study was conducted to evaluate the effects of extraction solvents on antioxidant activity of *Swietenia macrophylla* extracts. Solvents used in this study were distilled water, 70% ethanol and 70% methanol. Ground *Swietenia macrophylla* leaves were soaked with three different types of solvents with ratio 10 ml solvent : 1 g sample for 2 days. The extracts later were dried using rotary evaporator at 40˚C. The crude extracts were tested in total phenolic content (TPC) and 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay to evaluate the antioxidant activity. IC_{50} value is the oxidation index used to measure the 50% depletion of DPPH radical scavenging activity. Lower IC_{50} value indicate higher antioxidant activity. Extraction from 70% ethanol showed the lowest IC_{50} value of 0.927 mg/ml followed by 70% methanol (0.968 mg/ml) and distilled water (2.278 mg/ml) when compared to BHT (0.811 mg/ml) and ascorbic acid (0.336 mg/ml) as the positive control and reference compound. Extraction from 70% ethanol showed the highest total phenolic content of 0.4467 ± 0.32 mgGAE/g of dry weight, followed by 70% methanol (0.3795 ± 0.01 mgGAE/g) and distilled water (0.1757 ± 0.04 mgGAE/g). However, three extraction solvents used in this study showed no significance difference in term of total phenolic content.