UNIVERSITI TEKNOLOGI MARA

COMPARATIVE ANTIOXIDANT ACTIVITY OF BANANA PEEL (*Musa* sp.) WITH DIFFERENT SOLVENTS

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Thesis submitted in fulfillment
of the requirements for the degree of
Bachelor of Science (Hons.) Biology

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AUTHOR'S DECLARATION

I declare that the work in the thesis was carried out accordance with the regulations of Universiti Teknologi MARA. It is original and the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic or non-academic institution for any degree or qualification.

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ABSTRACT

Banana is used widely because of its nutritional values. In past, there are studies that show banana plant parts, and their fruits can be used to treat the human diseases. Banana peel is a part of banana fruit that also content compounds that contributed to the antioxidant activity but has not been studied extensively. Thus, the study focuses on comparing the suitable solvents use for banana peels extraction in order to obtain the most powerful solvents to extract banana peels compounds that compulsory in antioxidant activities. By that purpose, the maceration method used in extraction process with three different solvents (Distilled water, methanol and chloroform). The calculated percentage of yield shown the best solvent was the chloroform with 49.03 %. Unfortunately, the expected result should be the methanol solvent as the best solvent for banana peels extraction. This was due to present of contamination that disrupt the compound of the banana peels. As for another objective, to screen and compared the phytochemical compounds of banana peel extract from three different solvents (methanol, chloroform and water), the practical method was Preliminary Qualitative Phytochemical Analysis. From the studies, the present of all five components (flavonoid, glycosides, phenols, saponins, and terpenoids) were presented in samples with methanol. Next, for the antioxidant assay, two test were conducted included Total phenolic content (TPC) analysis and DPPH Scavenging Test. As for TPC, methanol at 100 mg/mL concentration shown the highest total phenolic content with 926.2 ± 0.0006 (mg GAE/g dry weight) followed by chloroform and distilled water with 778.5 ± 0.0006 and 605.0 ± 0.0006 (mg GAE/g dry weight. Finally, DPPH Scavenging Test proved that methanol was the best solvent for used in extraction process followed by chloroform and distilled water with percent of inhibition at 100 mg/mL (Methanol=96.74%, Chloroform=53.45%, Distilled water=41.66%).

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