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ANTIOXIDANT ACTIVITIES OF *Garcinia mangostana* WASTES

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of the requirements for the degree of
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AUTHOR'S DECLARATION

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

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ABSTRACT

In the recent years, the implementation of natural antioxidants in the industrial or daily life has been growing interest in rather than of synthetic antioxidants, thus fostered research on identifying new sources of potential antioxidants derived from plant raw materials. *Garcinia mangostana* plants are of well-known species of fruit trees in Malaysia.The botanical parts of the trees are used for medicinal purposes, where their extracts contains concentrated anti-inflammatory, antioxidant, anti-allergic, anti-tumoral, anti-bacterial and anti-fungal properties. This study focused on the assessment of antioxidant potential from *G.mangostana* wastes which are the peel and seed. In this study, fresh plant materials were collected, dried and extracted using maceration with methanol as solvent, and various antioxidant activities of the extracts were evaluated. *In-vitro* antioxidant properties studied were total phenolic content using the Total Phenolic Content (TPC) Assay, free radical scavenging scavenging activity using 2,2-diphenyl-2-picrylhydrazyl (DPPH) Assay and ferric reducing power using Ferric Reducing Power (FRAP) Assay. All the samples and standards were prepared based on different concentration which are 1000 µg/mL, 100 µg/mL and 10 µg/mL respectively. At the most optimum concentration which is 1000 µg/mL, *G. mangostana* peel were found to consist of the highest value of total phenolic content (2100.00 µg GAE/g), percentage of free radical scavenging activities (77.22 %) and ferric reducing power activities (1806.42 µg AAE/g) compared to the *G. mangostana* seed extract. As a conclusion, methanolic *G. mangostana* peel extracts exhibited a remarkable antioxidant activities, and can be the alternative natural antioxidant agent to reduce the use of synthetic antioxidant.

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