

**UNIVERSITI TEKNOLOGI MARA**

**THE POTENTIAL OF *Portulaca grandiflora* IN ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES**

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Thesis submitted in fulfillment  
of the requirements for the degree of  
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**Biology**

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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

*Portulaca grandiflora* is a succulent flowering plant usually known as an ornamental plant from the family Portulacaceae. This study aims to identify the potential of *Portulaca grandiflora* extract on antioxidant activity, total phenolic content, phytochemical compounds and antibacterial activity. The plant undergoes the methanolic extraction process to obtain crude extract and followed by the preparation of extract in different concentrations. The yield of *Portulaca grandiflora* extract was 2.47%. In antioxidant activity using DPPH free radical scavenging assay, *Portulaca grandiflora* showed the highest value of antioxidant which is 73.8% at the highest concentration of plant extract which is 200 mg/ml. Based on the total phenolic assay, it indicates high phenolic content in the plant extract as the concentration of extract increases. Phytochemical screening successfully detected the presence of compounds in the extract that consists of alkaloids, terpenoids, steroids, flavonoids and tannins. The drawback of analysis in the plant extract showed no potential in antibacterial activity with no zone of inhibition in all tested bacteria for *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Staphylococcus epidermidis*. However, based on the previous study all the compounds found in *Portulaca grandiflora* extract during the phytochemical screening have the potential in antibacterial activity. The absence of inhibition zone may due to the extraction method that unable to extract out the biological compounds in the plant and may also due to the degradation of plant compounds throughout the extraction process. As a conclusion, *Portulaca grandiflora* extract could be considered having higher potential as an antioxidant agent compared to an antibacterial agent.

Keywords: *Portulaca grandiflora*, antioxidant, total phenolic compound, phytochemical, antibacterial

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