

EVALUATION OF ANTIOXIDANT ACTIVITY OF MANGROVE TREE
***Rhizophora mucronata* LEAF EXTRACT**

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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Previous studies had reported *R. mucronata* extract as potential antioxidant agent. In this study, the antioxidant activity of *R. mucronata* leaf extract under different extraction conditions was evaluated. The study involved extracting the mangrove leaves using ultrasound-assisted extraction (UAE) under five different extraction times (5 min, 15 min, 30 min, 45 min, and 60 min), using distilled water and 70% ethanol as solvents. The extracts obtained through UAE were compared to the extract obtained through 24 hrs maceration. Folin-Ciocalteu assay was performed to determine the total phenolic content of the extracts, while diphenylpicryl-hydrazyl (DPPH) assay was performed for the assessment of antioxidant activity. Flavonoid content of the extracts was also measured. UAE extracts yielded high phenolic content (> 99.05 mg gallic acid equivalent/g dry mass raw material). Using 5 min extraction time, UAE produced comparable (ethanol extract) or better (aqueous) polyphenol yield when compared to 24 hrs maceration. Strong correlation between total phenolic content and antioxidant activity was observed. While both aqueous and ethanol extract displayed inhibitory activity towards DPPH, ethanol extract obtained through 5 min UAE displayed the highest antioxidant potential with IC_{50} of 52.85 mg dry mass raw material/L.

Keywords: *Rhizophora mucronata*, mangrove, ultrasound assisted extraction, antioxidant activity, DPPH scavenging activity



DEDICATION

I dedicate this work to my family.



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This thesis is very much far from perfect but I do hope that this thesis would be useful for future research. Suggestions are very much appreciated.

BSD, 18 June 2016

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