MUHAMMAD DANIEL FIRDAUS BIN ABD MAJID AS201 FSG UiTM 2022

THE POTENTIAL OF ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF *Hibiscus rosa-sinensis* (FLOWERS AND LEAVES) EXTRACTS

MUHAMMAD DANIEL FIRDAUS BIN ABD MAJID

BACHELOR OF SCIENCE (Hons.) BIOLOGY
FACULTY OF APPLIED SCIENCES
UNIVERSITI TEKNOLOGI MARA

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The Final Year Project Report entitled "The Potential of Antioxidant and Antibacterial Activities of *Hibiscus rosa sinensis* (flowers and leaves) extracts" was submitted by Muhammad Daniel Firdaus Bin Abd Majid 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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Dr Mohd Akmal Bin Hashim
Supervisor
B. Sc. (Hons) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau, Perlis

_____

Muhammad Syukri Noor Azman
Project Coordinator
B. Sc. (Hons) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau, Perlis

_____

Zalina Zainal Abidin
Head of Programmer
B. Sc. (Hons) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau, Perlis

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ABSTRACT

THE POTENTIAL OF ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF *Hibiscus rosa sinensis* (FLOWERS AND LEAVES) EXTRACTS

Hibiscus rosa sinensis is an important traditional plant with significant medicinal benefits. Oxidative stress can occur when our body's free radicals and antioxidants are out of balance and this led to cell damage and resulting in sickness and aging. Furthermore, antibiotic resistance is increasing at an alarming rate around the world which posing a threat to our ability to treat common infectious diseases. The antioxidant and antibacterial tests were conducted to determine the potential flowers and leaves extracts of *H. rosa sinensis* whether it possess antioxidant and antibacterial properties. Maceration technique was chosen as the method for extraction, which used 95 % of ethanol as the solvent. DPPH scavenging assay and total phenolic content tests were used to determine the antioxidant activity of *H. rosa sinensis*. Five different concentrations; 20, 40, 60, 80, and 100 µg/ml were used in the DPPH scavenging assay. Leaves extracts showed higher percentage of inhibition compared to flowers extracts with relation to the concentrations. Similar trend was observed for the total phenolic content (TPC), where the leaves extracts showed higher values compared to the flowers extracts. Investigation on the antibacterial activity was performed using the disc diffusion method. There were 3 different concentrations used in this study; 50, 25, and 12.5 mg/ml. The bacteria that have been used in this study were *Escherichia coli* and *Bacillus licheniformis*. From the results obtained, both of the bacteria been tested were resistant to the 95% ethanol *H. rosa sinensis* extracts. Overall, this study has successfully proved that *H. rosa sinensis* has antioxidant and antibacterial properties by using several tests.