

UNIVERSITI TEKNOLOGI MARA

**PHYTOCHEMICAL SCREENING,
ANTIOXIDANT AND
ANTIBACTERIAL ACTIVITIES OF
Averrhoa bilimbi FRUITS EXTRACT
AND *Leucaena leucocephala*
LEAVES EXTRACT
ON COMMON SKIN BACTERIA**

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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 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.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Undergraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Averrhoa bilimbi and *Leucaena leucocephala* are medicinal plants that have several benefits like antibacterial, antifungal, anti-inflammatory and antidiabetic. The main purpose of this study is to examine the antibacterial activities of *Averrhoa bilimbi* fruits and *Leucaena leucocephala* leaves methanolic extract by Kirby-Bauer Disk Diffusion Method towards common skin bacteria, which are *Propionibacterium acnes*, *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Besides, this study also has the purpose to evaluate the antioxidant properties by DPPH assay and identify the compound in both plants by phytochemical analysis using GC-MS. Kirby-Bauer Disk Diffusion Method was used in carrying out antibacterial testing of *A. bilimbi* fruits and *L. leucocephala* leaves extracts. The results showed that all the bacteria were susceptible towards *A. Bilimbi* fruits extract while only *P. aeruginosa* and *S. aureus* were susceptible towards *L. leucocephala* leaves extract. Meanwhile, antioxidant activities that have been examined using DPPH assay resulted in high antioxidant activities with 90.4% for *A. bilimbi* and 99.1% for *L. leucocephala* at 100 mg/mL concentration. Other than that, chemical components of methanolic extract of both plants have been examined by using GC-MS phytochemical analysis. The result obtained from the analysis of *A. bilimbi* crude fruits extract showed the presence of compounds of 5(Hydroxymethyl)furan-2-carbaldehyd, 9-Undecenal,2,10-dimethyl and vaccenic acid which contributed to antibacterial activity and also n-Hexadecanoic acid that contributed to antioxidant activity. While in *L. leucocephala* leaves extract, compounds of n-Hexadecanoic acid which has antioxidant property has been found. To conclude, *A. bilimbi* and *L. leucocephala* have shown a great ability as antibacterial and antioxidant agents and have potential to be used in natural skin treatment.

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