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Antibacterial Properties of *Mangifera indica* Leaf Extract

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Structured Abstract

Background: *Mangifera indica* is an abundant plant that has been used as traditional medicine in Malaysia and around the world. The antibacterial properties of mango (*M. indica*) leaf extract using different solvents have been widely studied for their broad-spectrum antibacterial properties against bacteria. However, the bacterial properties of leaf extract in various solvents with similar polarity have not been compared. The present study aimed to compare the effect of *M. indica* leaf extract using methanol, ethanol and aqueous against selected bacteria such as *Pseudomonas aeruginosa*, *Escherichia coli*, *Streptococcus aureus* and *Bacillus cereus*.

Methods: Fresh leaves of *M. indica* were collected from a residency area located at Sungai Ramal Dalam, Kajang, Selangor. The antibacterial activity of the three extracts, aqueous, methanolic and ethanolic extracts was compared using the disc diffusion method at a concentration of 20 mg/ml with distilled water and Gentamicin as positive and negative control in a Mueller Hinton agar culture for each bacteria and the cultures were incubated at 37°C for 24 hours. In the addition, minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of the extracts were also determined using a two-fold serial dilution method.

Results: The result of the study showed that methanolic extract had a higher antibacterial activity compared to aqueous and ethanolic extract with 6.7± 0.58, 2.3± 4.04, 10.0± 3.46 mm inhibition zones, respectively. The MIC value of methanolic extract of *M. indica* was recorded at 5mg/ml against *P. aeruginosa*, 10 mg/ml (*E. coli*), 10mg/ml (*S. aureus*) and more than 20mg/ml for *B. cereus*. The findings of this study showed that the methanolic extract exhibited the highest antibacterial activity against the selected bacteria compared to other extracts.

Conclusion: In conclusion, methanolic extract exhibits prominent antibacterial activity against selected bacteria compared to other extracts at 20 mg/ml concentration. Therefore, with this current study, the *M. indica* leaf extract possessed a valuable antibacterial property and could be an alternative as natural antibacterial drug.

Keywords: Antibacterial activity, *Mangifera indica* leaf, Methanolic extract, Ethanolic extract, Aqueous extract.

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