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A Study on an Active Functional Group and Antimicrobial Properties From Rhizophora apiculata Extracts Used in Traditional Malay as Medicine

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Abstract
A mangrove plant known as Rhizophora apiculata is employed by Malay for treating skin diseases, diarrhea, vomiting, and nausea, as an antiseptic, for tanning, and also as fuelwood and fodder. Its large-scale use can be attributed to its high-quality timber, availability as well and the presence of a chemical named tannin that is employed for reinforcing fishing lines, nets, and ropes. The tannin content of R. apiculata's roots, bark, and leaves is regarded to be a natural inhibitor of fungal infections. This study is focused on determining the different kinds of functional groups, as well as individual phenolic compounds present in R. apiculata for identifying new bioactive compounds via decoding of the traditional values of Malay remedies. There is a high demand for such natural bioactive compounds, particularly in the healthcare and pharmaceutical markets. Alkaline fractional extracts were employed to design an analytical extraction method for R. apiculata. As per the HPLC results, there were three phenolic acids detected namely Caffeic acid, 4-Hydroxybenzoic acid, and Vanillic acid. Meanwhile, ten volatile compounds were identified by the GCTOF-MS. With regards to antibacterial activity, S. aureus, S. epidermidis, and E. coli were inhibited by R. apiculata leaf extract, while C. albicans and Fusarium sp. were inhibited by their antifungal activity. © 2023 Malaysian Society of Applied Biology.

Author Keywords
Bioactive ingredients; ethnoscience; GCTOF-MS; HPLC; phenolic compound; Rhizophora apiculata

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