

Antimicrobial Properties from Acetone Crude Plant Extract of *Shorea ovalis*

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Structured Abstract

Background: The increasing prevalence of antimicrobial resistance (AMR) has prompted global interest in discovering new plant-based antimicrobial agents as alternatives to synthetic antibiotics. *Shorea ovalis*, a lesser-known species from the Dipterocarpaceae family, is hypothesized to possess promising antimicrobial properties due to its phytochemical profile.

Methods: Crude acetone extract of *S. ovalis* stem bark was prepared and screened for bioactive compounds using Shinoda, Salkowski, Ferric Chloride and Foam test. Antimicrobial activity was assessed against selected Gram-positive and Gram-negative bacteria and fungi using disc diffusion, Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC), Minimum Fungicidal Concentration (MFC) assays. Statistical analysis was performed using One-Way ANOVA.

Results: The extract contained flavonoids, tannins, terpenoids, and saponins. It inhibited the growth of *Bacillus cereus*, *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Candida albicans*, and *Saccharomyces cerevisiae*, with the greatest inhibition observed against *B. cereus* and *C. albicans*. A dose-dependent antimicrobial effect was evident in several species, although MIC values indicated moderate potency.

Conclusion: This study provides the first systematic analysis of the acetone extract of *Shorea ovalis* for antimicrobial purposes. It confirms the plant has potential as a natural antimicrobial source, especially against resistant pathogens. The findings contribute new knowledge to the limited data on this species and support further exploration of its potential for pharmaceutical applications.

Keywords: *Shorea ovalis*, antimicrobial activity, phytochemical screening, natural antibiotics, bioactive compounds.

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