

## **Antimicrobial Properties from Acetone Crude Plant Extract of *Shorea curtisii***

Mohamad Izat Mohamad Izam<sup>a</sup>, Mohd Helmy Yusof<sup>b\*</sup>

### **Structured Abstract**

**Background:** New antimicrobial treatments are sorely needed since the emergence of antimicrobial resistance (AMR) poses a gravely concerning threat to public health. As a biological option for man-made antibiotics, in this study the antibacterial activity of the Southeast Asian plant *S. curtisii* was examined. Solvent extraction methods were used for the preparation of crude extracts of the stem bark of *S. curtisii* were subsequently assayed for bioactive molecules like flavonoids, tannins, and terpenoids using phytochemical assay.

**Methods:** The extract was assayed for antimicrobial activity against various Gram-positive and Gram-negative bacteria (*Bacillus cereus*, *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa*) and fungi (*Saccharomyces cerevisiae*, *Aspergillus niger*, and *Candida albicans*) by disc diffusion, MIC, MBC, and MFC.

**Results:** Results were highly antibacterial, particularly against Gram-negative bacteria, with MIC levels ranging from 1.56 to 3.13 mg/mL and MBC levels ranging from 25 to 100 mg/mL. Antifungal activity was low, and only *S. cerevisiae* was susceptible at higher concentrations. The extract was bacteriostatic and not bactericidal but exhibited fungicidal activity against *S. cerevisiae*. These results suggest that *S. curtisii* possesses potential antibacterial compounds and suggests its potential as a candidate for the development of plant-based antimicrobial products.

**Conclusion:** *S. curtisii* stem bark extract showed strong antibacterial activity, especially against Gram-negative bacteria, with bacteriostatic effects and limited antifungal action, except against *S. cerevisiae*. These findings suggest its potential as a natural source for developing plant-based antimicrobials.

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

\*Correspondence: [mohdhelmy\\_87@uitm.edu.my](mailto:mohdhelmy_87@uitm.edu.my)

<sup>a</sup> School of Biology, Faculty of Applied Sciences, Universiti Teknologi MARA, Shah Alam, Malaysia

<sup>b</sup> Centre of Foundation Studies, Universiti Teknologi MARA Cawangan Selangor, Dengkil, Malaysia