

## Antibacterial Activity of *Dryobalanops aromatica* Oil against *Staphylococcus aureus* and *Staphylococcus epidermidis*

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### Structured Abstract

**Background:** The prevalence of skin diseases such as impetigo, cellulitis, carbuncles, and folliculitis associated with *Staphylococcus aureus* and *Staphylococcus epidermidis*. *Dryobalanops aromatica*, commonly known as “*pokok kapur*,” has been used by indigenous communities to treat colds, wounds, and inflammation. This study aims to utilize *D. aromatica* as an alternative medication for the treatment of skin-related diseases. The purpose of this study is to investigate the antibacterial activities of *D. aromatica* oil against *S. aureus* and *S. epidermidis*.

**Methods:** The antibacterial activity of *D. aromatica* oil was tested using the disc diffusion test as well as minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) tests. *S. aureus* and *S. epidermidis* were cultured on nutrient agar and incubated for 24 hours at 37 °C. Next, the turbidity of the bacterial suspension was adjusted using a spectrophotometer at 600 nm to reach an optical density of 0.08 to 0.10. The disc diffusion method was performed using 5 different concentrations, which were 176, 352, 538, 704, and 880 mg/mL. The zone of inhibition for both tested strains was measured and recorded. The results of the experiment were collected and analyzed through percentage inhibition of diameter growth (PIDG) and statistical analysis.

**Results:** This study shows that *D. aromatica* oil can significantly inhibit the growth of the tested strains, as demonstrated by the clear zone of inhibition in the disc diffusion test. The MIC value was 880 mg/mL, as observed from the color change of the resazurin dye. Next, the MBC value at 880 mg/mL showed no presence of bacterial growth for both tested strains. In PIDG analysis, the calculation resulted in a negative result, which indicates that the positive control, chloramphenicol, had a larger zone of inhibition compared to the tested oil.

**Conclusion:** In conclusion, the findings indicate that there is significant potential in *D. aromatica* oil in inhibiting the growth of *S. aureus* and *S. epidermidis*.

**Keywords:** Antibacterial, skin diseases, *Dryobalanops aromatica* oil, *Staphylococcus aureus* and *Staphylococcus epidermidis*.

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