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<b>Program</b>	Biomedical Science
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<b>Title</b>	In Vitro Study of Antibacterial Activity of Essential Oils Against Wound-Causing Bacteria
<b>Keywords</b>	Burn wounds, Essential oils, Antibacterial efficacy, Infections, Bactericidal activity

## ABSTRACT

Burn wounds are a form of thermal trauma that requires immediate specialized care to reduce morbidity and mortality. *Staphylococcus aureus* remains the main opportunistic infectious agent found in burn wounds, alongside Methicillin-resistant *Staphylococcus aureus* (MRSA), *Pseudomonas aeruginosa*, *Escherichia coli*, and *Staphylococcus epidermidis*. The objective of this study is to determine the antibacterial efficacy of four essential oils: clove, geranium rose, lavender and chamomile, against burn wound infections caused by bacteria: *S.aureus*, *S.epidermidis*, MRSA, *E. coli* and *P. aeruginosa*, using both disk diffusion and broth microdilution method. The results revealed that clove essential oil exhibited the highest antibacterial activity against MRSA, *S. epidermidis*, *E. coli*, and *P. aeruginosa*; while chamomile was most effective against *S.aureus*. In the disk diffusion test, clove oil displayed the strongest antibacterial effect against both gram positive and gram-negative bacteria, with the lowest minimum inhibitory concentration (MIC) values. Clove oil exhibited bactericidal activity at  $0.17 \pm 0.05\%$  against *S. aureus*,  $0.17 \pm 0.05\%$  against *S.epidermidis*,  $0.10 \pm 0.00\%$  against MRSA, and  $0.15 \pm 0.06\%$  against *E. coli*. Geranium rose oil exhibited bactericidal activity at  $0.26 \pm 0.11\%$  against *S. aureus*,  $0.49 \pm 0.20\%$  against *S. epidermidis*,  $0.18 \pm 0.04\%$  against MRSA, and  $25.00 \pm 0.00\%$  against *P. aeruginosa*. Lastly,