

**FACULTY OF MEDICINE AND HEALTH SCIENCES  
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**TEST OF MINIMUM INHIBITORY CONCENTRATION (MIC) OF RED  
GINGER (*ZINGIBER OFFICINALE* VAR. *RUBRUM*) TO GRAM-  
POSITIVE BACTERIA *STAPHYLOCOCCUS AUREUS***

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**Abstract**

The rising antibiotic resistance of *Staphylococcus aureus* infections has prompted exploration of herbal alternatives like red ginger (*Zingiber officinale* var. *rubrum*), rich in bioactive compounds such as gingerol and shogaol. This study aimed to determine the minimum inhibitory concentration (MIC) of red ginger extract against *Staphylococcus aureus*. Serial broth dilution method at 2%, 3%, 4%, and 5% concentrations post-96% ethanol maceration extraction, 24-hour incubation in Nutrient Broth, and supportive well diffusion assay. Turbidity in all treatments (no bacterial growth inhibition), with MIC not achieved in the tested range (likely >5%), while positive control erythromycin was effective and well diffusion showed only a minimal 1.5 mm inhibition zone at 5% (ineffective category). The extract lacks significant antibacterial activity against *Staphylococcus aureus* at tested concentrations, upholding the null hypothesis, with recommendations for higher concentrations and fresh rhizomes.

**Keywords** : Red ginger (*Zingiber officinale* var. *Rubrum*), *Staphylococcus aureus*, Minimum Inhibitory Concentration (MIC)

## **Abstrak**

*Infeksi bakteri Staphylococcus aureus yang resisten terhadap antibiotik semakin meningkat, mendorong eksplorasi tanaman herbal seperti jahe merah (Zingiber officinale var. rubrum) yang kaya senyawa bioaktif seperti gingerol dan shogaol sebagai alternatif antimikroba alami. Penelitian ini bertujuan menentukan konsentrasi hambat minimum (KHM) ekstrak jahe merah terhadap bakteri Staphylococcus aureus. Menggunakan metode dilusi cair serial dengan konsentrasi 2%, 3%, 4%, dan 5% setelah ekstraksi maserasi etanol 96%, inkubasi 24 jam pada media Nutrient Broth, dan uji pendukung metode sumuran. Semua konsentrasi tetap keruh (pertumbuhan bakteri tidak terhambat), dengan KHM tidak tercapai pada rentang tersebut (diduga >5%), sementara kontrol positif eritromisin efektif dan uji sumuran hanya menunjukkan zona hambat minimal 1,5 mm pada 5% (kategori tidak efektif). Ekstrak jahe merah pada konsentrasi uji belum memiliki aktivitas antibakteri signifikan terhadap Staphylococcus aureus, sehingga hipotesis nol tidak ditolak, dengan saran pengujian konsentrasi lebih tinggi dan rimpang segar.*

**Kata kunci** : Jahe merah, Staphylococcus aureus, Konsentrasi Hambat Minimum (KHM)