

ABSTRAK

FORMULASI SEDIAAN GEL *HANDSANITIZER* EKSTRAK ETANOL DAUN PANDAN WANGI (*Pandanus amaryllifolius* Roxb. Ex. Lindl) DALAM MENGHAMBAT PERTUMBUHAN BAKTERI *Staphylococcus aureus* SECARA *In vitro*

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Penularan penyakit infeksi melalui tangan yang terkontaminasi *Staphylococcus aureus* masih menjadi masalah kesehatan. Handsanitizer berbasis alkohol efektif, tetapi dapat menimbulkan efek samping sehingga diperlukan alternatif berbahan alam. Daun pandan wangi (*Pandanus amaryllifolius* Roxb. ex Lindl.) mengandung senyawa bioaktif yang berpotensi sebagai antibakteri. Penelitian ini bertujuan mengetahui aktivitas antibakteri formulasi gel handsanitizer ekstrak etanol daun pandan wangi terhadap pertumbuhan *Staphylococcus aureus* secara *in vitro*

Penelitian menggunakan desain *quasi experimental* dengan variasi konsentrasi ekstrak 0% (kontrol negatif), 0,5%, 0,75%, dan 1%, serta *handsanitizer* alkohol 70% sebagai kontrol positif. Aktivitas antibakteri diuji menggunakan metode difusi cakram. Data dianalisis dengan uji *Kruskal–Wallis* dan dilanjutkan uji *Mann–Whitney U*.

Formulasi 0,5% dan 0,75% tidak menghasilkan zona hambat, sedangkan formulasi 1% menghasilkan zona hambat $7,29 \pm 0,71$ mm. Kontrol positif menghasilkan zona hambat 21 mm, sedangkan kontrol negatif tidak menunjukkan aktivitas. Terdapat perbedaan signifikan antar kelompok ($p < 0,05$), dan formulasi 1% menunjukkan aktivitas antibakteri terbaik

Disimpulkan bahwa ekstrak etanol daun pandan wangi berpotensi sebagai bahan aktif gel handsanitizer antibakteri. Formulasi konsentrasi 1% merupakan formulasi paling efektif dalam menghambat pertumbuhan *Staphylococcus aureus* secara *in vitro*.

Kata Kunci : Antibakteri, Daun pandan wangi, *Handsanitizer*, *Pandanus amaryllifolius* Roxb. Ex. Lindl, *Staphylococcus aureus*

ABSTRACT

FORMULATION OF HANDSANITIZER GEL FROM ETHANOL EXTRACT OF FRAGRANT PANDAN LEAVES (*Pandanus amaryllifolius* Roxb. Ex. Lindl) INHIBITING THE GROWTH OF *Staphylococcus aureus* BACTERIA In vitro

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Transmission of infectious diseases through hands contaminated with *Staphylococcus aureus* remains a public health concern. Although alcohol-based hand sanitizers are effective, prolonged use may cause adverse effects, highlighting the need for natural alternatives. Fragrant pandan leaves contain bioactive compounds with antibacterial potential. This study aimed to evaluate the antibacterial activity of hand sanitizer gel containing ethanol extract of fragrant pandan leaves against *Staphylococcus aureus* in vitro.

A quasi-experimental study was conducted using ethanol extract concentrations of 0% (negative control), 0.5%, 0.75%, and 1%, while a 70% alcohol hand sanitizer served as the positive control. Antibacterial activity was evaluated using the disc diffusion method. Data were analyzed using the Kruskal–Wallis test followed by the Mann–Whitney U test.

The 0.5% and 0.75% formulations produced no inhibition zones, whereas the 1% formulation showed an inhibition zone of 7.29 ± 0.71 mm. The positive control produced a 21 mm inhibition zone, while the negative control showed no antibacterial activity. Significant differences were observed among the groups ($p < 0.05$).

In conclusion, ethanol extract of fragrant pandan leaves has potential as an antibacterial agent in hand sanitizer gel, with the 1% formulation demonstrating the greatest antibacterial activity against *Staphylococcus aureus* in vitro.

Keyword : Antibacterial, Fragrant pandan leaves, Handsanitizer, *Pandanus amaryllifolius* Roxb. Ex. Lindl, *Staphylococcus aureus*