ABSTRAK

Latar Belakang: Ekoenzim menunjukkan efek antimikroba terhadap *Staphylococcus epidermidis* yang meningkat sesuai konsentrasi, dan berpotensi menjadi alternatif alami pengganti antibiotik.

Metode: Penelitian ini menggunakan desain *post test only control group*. Aktivitas antibakteri diuji dengan mengukur diameter zona hambat terhadap *S. epidermidis* setelah inkubasi selama 24 jam.

Hasil : Hasil skrining fitokimia menunjukkan bahwa ekoenzim mengandung senyawa terpenoid, saponin, dan tanin. Ekoenzim pada konsentrasi 25% menghasilkan zona hambat sebesar 0,4 ± 0,054, pada konsentrasi 50% menghasilkan zona hambat 0,7 mm ± 0,054, pada konsentrasi 75% menghasilkan zona hambat 1,9 mm ± 0,248, dan pada konsentrasi 100% menghasilkan zona hambat 4,6 mm ± 0,313. Kontrol positif (Oxacillin) menunjukkan zona hambat terbesar 13,8 mm ± 0,723, sementara kontrol negatif (*Dimethyl sulfoxide*) tidak menunjukkan zona hambat (0 mm). Uji one-way ANOVA menunjukkan perbedaan yang signifikan antar kelompok ($p < 0,0001$).

Kesimpulan : Ekoenzim menunjukkan efek antimikroba terhadap *Staphylococcus epidermidis* yang meningkat sesuai konsentrasi, dan berpotensi menjadi alternatif alami pengganti antibiotik.

Kata kunci: Antimikroba, *Ecoenzym, Staphylococcus Epidermidis*

ABSTRACT

Background: *Ecoenzymes exhibit antimicrobial effects against Staphylococcus epidermidis that increase with concentration, and have the potential to be a natural alternative to antibiotics.*

Methods: *This study used a post test only control group design. Antibacterial activity was tested by measuring the diameter of the inhibition zone against S. epidermidis after incubation for 24 hours.*

Results: *Phytochemical screening results showed that ecoenzyme contains terpenoids, saponins, and tannins. Ecoenzyme at a concentration of 25% produced an inhibition zone of 0.4 ± 0.054, at a concentration of 50% produced an inhibition zone of 0.7 mm ± 0.054, at a concentration of 75% produced an inhibition zone of 1.9 mm ± 0.248, and at a concentration of 100% produced an inhibition zone of 4.6 mm ± 0.313. The positive control (Oxacillin) showed the largest inhibition zone of 13.8 mm ± 0.723, while the negative control (Dimethyl sulfoxide) showed no inhibition zone (0 mm). One-way ANOVA test showed significant differences between groups ($p < 0.0001$).*

Conclusion: *The ecoenzyme showed antimicrobial effects against Staphylococcus epidermidis that increased with concentration, and has the potential to be a natural alternative to antibiotics.*

Keywords: *Antimicrobial, Ecoenzymes, Staphylococcus Epidermidis*