

**Potensi Antibakteri Isolat Bakteri Endofit Akar Tanaman Obat Terhadap
Bakteri *Escherichia coli* dan *Staphylococcus aureus***

ABSTRAK

Telah dilakukan penelitian mengenai potensi antibakteri dari bakteri endofit akar tanaman *Ageratum conyzoides* L. dan *Vetiveria zizanioides* L. terhadap bakteri patogen *E. coli* dan *S. aureus*. Penelitian ini bertujuan untuk mengetahui aktivitas antibakteri dari supernatan yang diduga mengandung metabolit sekunder pada isolat bakteri endofit. Lima isolat bakteri endofit yang telah menunjukkan aktivitas antibakteri pada uji antagonis ditumbuhkan dalam medium LB agar. Selanjutnya dilakukan pengumpulan supernatan, dilanjutkan dengan uji aktivitas antibakteri menggunakan metode difusi cakram dan mikrodilusi cair. Hasil analisis data menunjukkan bahwa terdapat beberapa kelompok perlakuan isolat bakteri endofit dengan rata-rata diameter zona hambat yang berbeda secara signifikan terhadap kelompok kontrol maupun terhadap satu dengan yang lainnya. Kelompok perlakuan konsentrasi 100% dari isolat B15 (*Staphylococcus* sp.) paling berpotensi sebagai antibakteri, dengan rata-rata diameter zona hambat sebesar $12,75 \text{ mm} \pm 0,33$ pada *E.coli*, dan $13,08 \text{ mm} \pm 0,18$ pada *S. aureus*, dengan nilai MIC dan MBC masing-masing 20% dan 40% pada kedua bakteri patogen tersebut.

Kata kunci : bakteri endofit, difusi agar, isolat, metabolit sekunder, mikrodilusi cair, MIC, MBC, supernatan, zona hambat.

**Antibacterial Potential of Endophytic Bacteria of Medicinal Plants's Root
Against Bacteria *Escherichia coli* and *Staphylococcus aureus***

ABSTRACT

The research on endophytic bacteria capability from the root of *Ageratum conyzoides* L. and *Vetiveria zizanioides* L. against pathogenic bacteria *E. coli* and *S. aureus* has been conducted. This study aims to determine the antibacterial activity of supernatant that suspected containing secondary metabolites in endophytic bacteria. Five isolates of endophytic bacteria that have demonstrated antibacterial activity in the antagonistic test were grown in LB agar medium. Furthermore, the supernatant was carried out, followed by the antibacterial activity test using disc diffusion and broth microdilution method. The results of data analysis showed that there were several groups of endophytic bacteria isolate treatment with the mean of inhibitory zone diameter which differed significantly to the control group and against each other. The treatment group of 100% concentration of isolate B15 (*Staphylococcus* sp.) was the most potential as antibacterial, with an average mean of inhibition zone diameter $12.75 \text{ mm} \pm 0.33$ on *E. coli*, and $13.08 \text{ mm} \pm 0.18$ in *S. aureus*, as well as the MIC and MBC values respectively 20% and 40% in both pathogenic bacteria.

Keywords : broth microdilution, disc diffusion, endophytic bacteria, inhibition zone, isolate, MIC, MBC, secondary metabolites, supernatant.