

## ABSTRAK

### ISOLASI DAN SELEKSI BAKTERI ENDOFIT PENGHASIL ANTIMIKROBIA ASAL TANAMAN OBAT SERTA KARAKTERISASI SENYAWANYA

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Penggunaan antimikrobia semakin meningkat seiring dengan resistensi patogen pada penyakit infeksi. Eksplorasi sumber antimikrobia alami perlu dilakukan antara lain pemanfaatan bakteri endofit di dalam jaringan tanaman obat. Penelitian ini bertujuan untuk mendapatkan isolat bakteri endofit tanaman obat yang menghasilkan senyawa antimikrobia dan berguna di bidang kesehatan dan pertanian. Isolasi dilakukan dengan metode *surface plating* pada medium agar dengan 20 bahan tanaman obat lokal sebagai sumber isolat. Seleksi berdasarkan daya hambat dilakukan dengan metode *paper disc diffusion* terhadap 3 mikrobia uji (*Bacillus subtilis*, *Candida albicans*, dan *Fusarium oxysporum f.sp. cubense*). Karakterisasi awal senyawa antimikrobia dilakukan dengan *paper chromatography*. Hasil isolasi diperoleh 65 isolat bakteri endofit berasal dari 20 jenis tanaman obat, tetapi hanya 34 isolat yang memiliki daya hambat terhadap 3 mikrobia indikator. Empat isolat terbaik dipilih, yaitu isolat RMTIB, BBLED, BKPGB, dan BBLEB berturut-turut memiliki daya hambat sebesar 3,83; 4,34; 6,41 dan 6,25 terhadap mikrobia yang diujikan. Karakterisasi awal senyawa antimikrobia isolat RTMIB, BBLED, BKPGB, BBLEB masing-masing menunjukkan nilai Rf sebesar 0,25; 0,3; 0,44; 0,28 dan 0,41 menggunakan eluen air yang dijenuhi butanol.

Kata kunci : bakteri endofit, tanaman obat, senyawa antimikrobia, kromatografi kertas

**ABSTRACT**

**ISOLATION AND SELECTION OF ENDOPHYTIC BACTERIA PRODUCING  
ANTIMICROBIAL FROM MEDICINAL PLANTS AND THEIR  
CHARACTERIZATION**

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The use of antimicrobial compounds is increasing along with pathogen resistance to infectious diseases. Exploration of natural antimicrobial sources needs to be carried out, including the use of endophytic bacteria in medicinal plant tissue. This study aims to obtain endophytic bacterial isolates of medicinal plants that produce antimicrobial compounds and are useful in health and agriculture. Isolation was carried out by surface plating method on agar medium using material of 20 local medicinal plants as isolate sources. Selection based on inhibition was carried out by using paper disc diffusion method on 3 tested microbes (*Bacillus subtilis*, *Candida albicans*, and *Fusarium oxysporum f.sp. cubense*). Initial characterization of antimicrobial compounds was carried out by paper chromatography. The isolation resulted 65 endophytic bacterial isolates from 20 types of medicinal plants, but only 34 isolates had an inhibition toward 3 indicator microbes. Four best isolates were selected, isolate RMTIB, BBLED, BKPGGB, and BBLEB had an inhibition potency of 3.83; 4.34; 6.41 and 6.25 against the tested microbes. Initial characterization of the antimicrobial compounds of the RTMIB, BBLED, BKPGGB, and BBLEB isolates showed an R<sub>f</sub> value of 0.25; 0.3; 0.44; 0.28 and 0.41 used a butanol-saturated water eluent, respectively.

Keywords: endophytic bacteria, medicinal plant, antimicrobial, paper chromatograp