

ABSTRAK

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

PRIMA CHRISTINA

14/3671678/PN/13808

Eksplorasi senyawa antimikrobia baru diperlukan seiring dengan perkembangan resistensi patogen dan jumlah penyakit baru. Bakteri endofit merupakan penghasil senyawa antimikrobia yang potensial. Penelitian ini bertujuan untuk memperoleh isolat bakteri endofit asal tanaman rempah yang menghasilkan senyawa antimikrobia dengan daya hambat tinggi. Penelitian ini dilakukan dengan metode isolasi, seleksi bakteri endofit, dan karakterisasi senyawa antimikrobia. Isolasi bakteri endofit dilakukan dengan metode *Surface Plating* pada medium nutrisi agar, seleksi isolat melalui aktivitas antagonisme terhadap mikroba uji dilakukan dengan *paper disc diffusion technique*. Mikroba yang diujikan adalah *Bacillus subtilis*, *Candida albicans*, dan *Fusarium oxysporum f.sp. cubense*. Media uji antagonistik meliputi nutrisi cair, glukosa yeast, dan antibiotik-3. Karakterisasi awal senyawa antimikrobia dilakukan dengan metode *paper chromatography*. Hasil penelitian menunjukkan bahwa 56 isolat bakteri endofit berasal dari 14 jenis tanaman rempah menggunakan nutrisi agar. Terdapat 45 isolat bakteri endofit menghasilkan daya antagonistik terhadap 3 mikroba uji, tetapi 11 isolat lainnya tidak memiliki daya hambat. Sembilan isolat terbaik memiliki daya hambat di atas 2,5. Isolat BBLC, BKYA, dan BBLF memiliki daya hambat tertinggi masing-masing sebesar 14,06; 3,01; dan 34,03 terhadap mikroba yang diujikan. Senyawa antimikrobia BBLC, BKYA, dan BBLF memiliki nilai Rf masing-masing sebesar 0,23; 0,42; dan 0,42 pada analisis dengan kertas kromatografi.

Kata kunci : Antimikrobia, bakteri endofit, tanaman rempah, kromatografi kertas.

ABSTRACT

**ISOLATION AND SELECTION OF ENDOPHYTIC BACTERIA PRODUCING
ANTIMICROBES FROM HERBAL PLANTS AND ITS CHARACTERIZATION**

PRIMA CHRISTINA

14/3671678 / PN / 13808

Exploration of new antimicrobial compounds is needed along with the development of pathogenic resistance and the number of new diseases. Endophytic bacteria have a potential of antimicrobial compound as producers. This study aim to obtain endophytic bacteria isolates from herbal plants. The research was done by using isolation, selection of microbes, and characterization of antimicrobial agents. Isolation of endophytic bacteria was carried out by surface plating method on nutrient agar medium, and selection of the isolates through antagonism activity against the tested microbes was carried out by Paper Disc Diffusion technique. The tested microbes were *Bacillus subtilis*, *Candida albicans*, and *Fusarium oxysporum f.sp. cubense*. Media for testing antagonistic activity include nutrients broth, glucose yeast, and 3-antibiotics. The initial characterization of antimicrobial compounds was carried out by the paper chromatography method. The results showed that 56 isolates of endophytic bacteria from 14 types of herbs were found on agar nutrient. There were 45 endophytic bacterial isolates which produced antagonistic activity against the three tested microbes, but 11 other isolates did not have any inhibitory activity. Nine selected isolates have antagonistic activity more than 2.5. Isolates of BBLC, BKYA, and BBLF has the highest inhibitory activity of 14,06; 3,01; and 34,03 against the tested microbes, respectively. Antimicrobial compounds of BBLC, BKYA, and BBLF have Rf values of 0,23; 0,42; and 0,42 in analysis with chromatographic paper, respectively.

Keywords: Antimicrobia, endophytic bacteria, herbal plant, paper chromatograph.