

**ISOLASI MIKROBA ENDOFIT DARI TANAMAN
MANGROVE *Rhizophora apiculata* Blume DAN UJI
AKTIVITAS ANTIMIKROBA**

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ABSTRAK

Rhizophora apiculata Bl. merupakan tanaman mangrove yang diketahui terdapat mikroba endofit, seperti jamur dan bakteri. Mikroba ini mampu bertahan hidup pada kondisi lingkungan yang ekstrim. Penelitian ini bertujuan untuk mengisolasi mikroba yang berasosiasi pada akar dan tanah di sekitar tanaman mangrove *R.apiculata* Bl. dan uji aktivitas antimikroba. Tanaman mangrove diperoleh dari Pantai Bungus, Sumatera Barat. Isolasi dilakukan dengan metode tuang menggunakan media *Actinomycece Isolation Agar* (AIA). Berdasarkan hasil isolasi diperoleh sebanyak lima belas isolat. Isolat tersebut difermentasi dalam media *Actinomyces Broth* (AB) menggunakan inkubator shaker. Hasil fermentasi selanjutnya diekstraksi dengan pelarut etil asetat. Ekstrak etil asetat masing-masing isolat diuji aktivitas antimikrobanya dengan metode difusi agar. Berdasarkan hasil pengujian aktivitas antimikroba, isolat yang memiliki aktivitas antimikroba kuat dengan diameter hambat >10 mm yaitu RA02, RA05 dan RA06. Ketiga isolat tersebut diidentifikasi secara makroskopis, mikroskopis dan molekuler. Metabolit sekunder yang terdapat pada ekstrak etil asetat ketiga isolat tersebut dikarakterisasi melalui skrining fitokimia dan profil KLT. Berdasarkan hasil skrining fitokimia menunjukkan bahwa RA02 mengandung senyawa alkaloid dan terpenoid, sedangkan RA05 dan RA06 mengandung senyawa alkaloid, flavonoid dan terpenoid. Hasil identifikasi molekuler menyatakan bahwa isolat RA02, RA05 dan RA06 secara berurutan identik dengan *Gliomastix* sp. ZSDS1-F7 18S, *Penicillium citrinum* isolate 5110033 dan *Purpureocillium lilacinum* isolate TB54.

Kata kunci: Mangrove *Rhizophora apiculata* Bl., Aktivitas Antimikroba, *Gliomastix* sp, *Penicillium citrinum*, *Purpureocillium lilacinum*

**ISOLATION OF ENDOPHYTIC MICROBES FROM MANGROVE
PLANT *Rhizophora apiculata* Blume AND ANTIMICROBIAL ACTIVITY
TEST**

ABSTRACT

Rhizophora apiculata Bl. is a mangrove plant that is known to have endophytic microbes, such as fungi and bacteria. These microbes can survive in extreme environmental conditions. This study aims to isolate the associated microbes in the roots and soil around the mangrove *R. apiculata* Bl. and to test the antimicrobial activity. Mangrove plant was obtained from Bungus Beach, West Sumatra, Indonesia. Isolation was carried out by the pouring method using *Actinomycete Isolation Agar* (AIA) media. Based on the isolation results, there were fifteen isolates. The isolate was fermented in *Actinomyces Broth* (AB) media using a shaker incubator. The fermentation product is then extracted with ethyl acetate solvent. The ethyl acetate extract of each isolate was tested for its antimicrobial activity by the agar diffusion method. Based on the results of antimicrobial activity testing, isolates that have strong antimicrobial activity with inhibition diameters >10 mm are RA02, RA05 and RA06. The three isolates were then identified macroscopically, microscopically and molecularly. Secondary metabolites contained in the ethyl acetate extract were characterized by phytochemical screening and TLC profiles. Based on phytochemical screening results, RA02 contains alkaloids and terpenoids, while RA05 and RA06 contain alkaloids, flavonoids, and terpenoids. The results of molecular identification stated that isolates RA02, RA05 and RA06 were sequentially identical to *Gliomastix* sp. ZSDS1-F7 18S, *Penicillium citrinum* isolate 5110033 and *Purpureocillium lilacinum* isolate TB54.

Keywords: Mangrove *Rhizophora apiculata* Bl., Antimicrobial Activity, *Gliomastix* sp, *Penicillium citrinum*, *Purpureocillium lilacinum*