

IDENTIFIKASI DAN UJI AKTIVITAS ANTIBAKTERI EKSTRAK ETIL ASETAT BAKTERI *Bacillus* sp. DARI SEDIMEN SELAT MAKASSAR

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INTISARI

Identifikasi dan uji aktivitas antibakteri ekstrak etil asetat bakteri *Bacillus* sp. dari sedimen Selat Makassar telah dilakukan. Isolasi senyawa bioaktif dilakukan dengan cara mengkultur isolat bakteri pada media *marine broth*, kemudian dipisahkan antara supernatan dan pelet. Bagian supernatan diekstraksi menggunakan etil asetat sebanyak dua kali. Ekstrak etil asetat diuapkan sehingga diperoleh ekstrak kering. Ekstrak kering etil asetat dipisahkan dengan kromatografi lapis tipis menggunakan eluen etil asetat:metanol (3:2 v/v) kemudian diidentifikasi golongan senyawanya menggunakan pereaksi penampak bercak. Ekstrak kering etil asetat diuji aktivitas antibakteri terhadap *Staphylococcus aureus*, *Bacillus substilis*, *Escherichia coli*, dan *Vibrio eltor* menggunakan metode mikrodilusi dan KLT-Bioautografi. Ekstrak kering etil asetat kemudian dianalisis menggunakan LC-MS (*Liquid Chromatography-Mass Spectrometry*).

Ekstrak kering yang didapat berbentuk padatan berwarna putih kekuningan dengan massa 330 mg. Identifikasi LC-MS ekstrak etil asetat bakteri *Bacillus* sp. dari sedimen Selat Makassar diperkirakan mengandung senyawa bengamida E, D-eritro spingosin, bacteriohopanoid, dan lobophyton O. Ekstrak etil asetat bakteri *Bacillus* sp. memiliki aktivitas antibakteri kategori sensitif terhadap bakteri *Staphylococcus aureus* dan *Vibrio eltor*, dan kategori sedang terhadap *Bacillus substilis*. Nilai MIC berturut-turut yaitu sebesar 7,81, 31,3, dan 62,5 $\mu\text{g mL}^{-1}$. Senyawa aktif yang berperan sebagai antibakteri diperkirakan adalah alkaloid bengamida E.

Kata kunci: bakteri sedimen laut, *Bacillus* sp., kromatografi lapis tipis, LC-MS, antibakteri

**IDENTIFICATION AND ANTIBACTERIAL ASSAY OF ETHYL
ACETATE EXTRACT OF *Bacillus sp.* BACTERIA FROM
MAKASSAR STRAIT SEDIMENT**

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ABSTRACT

Identification and antibacterial assay of ethyl acetate extract of *Bacillus sp.* bacteria from Makassar Strait sediment has been studied. Isolation of bioactive compounds was performed by culturing the bacteria in marine broth media. Supernatant and pellet were separated, supernatant was then extracted using ethyl acetate. Ethyl acetate extract was evaporated to obtain dried extract. The dried extract was separated by thin layer chromatography using ethyl acetate:methanol (3:2 v/v), and was identified using stained reagent to identify the compounds. Ethyl acetate extract was tested for antibacterial activity against *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli*, and *Vibrio eltor* using microdilution method and TLC-Bioautography. The extract was analyzed using LC-MS (*Liquid Chromatography-Mass Spectrometry*).

Ethyl acetate extract was obtained as yellowish white solid with mass of 330 mg. LC-MS analysis indicated that the extract contained bengamide E, D-erythro spingosine, bacteriohopanoid, dan lobophytone O. The extract had sensitive antibacterial activity against *Staphylococcus aureus* and *Vibrio eltor*, and medium antibacterial activity against *Bacillus subtilis*. MIC values were 7.81, 31.3, 62.5 $\mu\text{g mL}^{-1}$, respectively. Compound which was responsible for antibacterial activity was estimated as alkaloid bengamide E.

Keywords: marine sediment bacteria, *Bacillus sp.*, thin layer chromatography, LC-MS, antibacteria