

**IDENTIFIKASI SENYAWA BERDASARKAN POTENSI  
ANTIBAKTERI DARI EKSTRAK MIKROORGANISME SIMBION  
SPONS LAUT *Halichondria* sp. ASAL PERAIRAN KUPANG**

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**INTISARI**

Identifikasi senyawa antibakteri dari ekstrak mikroorganisme simbion spons laut *Halichondria* sp. asal perairan Kupang telah dilakukan. Tujuan dari penelitian ini adalah untuk mengisolasi mikroorganisme simbion spons laut *Halichondria* sp., menguji aktivitas antibakteri ekstrak mikroorganisme tersebut, dan mengidentifikasi senyawa dari ekstrak yang memiliki aktivitas antibakteri tertinggi terhadap bakteri *Escherichia coli* (*E. coli*) dan *Staphylococcus aureus* (*S. aureus*).

Isolasi mikroorganisme simbion spons laut *Halichondria* sp. dilakukan dengan metode pengenceran. Setiap isolat yang diperoleh diuji aktivitas antagonisnya terhadap bakteri uji *E. coli* dan *S. aureus*. Mikroorganisme yang memiliki aktivitas antagonis terhadap bakteri uji diinokulasi pada media *marine broth*. Ekstrak etil asetat mikroorganisme yang berhasil diinokulasi kemudian diuji aktivitas antibakterinya terhadap *E. coli* dan *S. aureus* menggunakan metode mikrodilusi. Analisis LC/MS dilakukan pada ekstrak mikroorganisme yang menunjukkan aktivitas antibakteri tertinggi.

Tujuh belas isolat mikroorganisme simbion spons laut *Halichondria* sp. asal perairan Kupang telah berhasil diisolasi. Dua isolat mikroorganisme, CM-4-A dan CM-4-B, menunjukkan aktivitas antagonis terhadap *E. coli* dan *S. aureus*. Ekstrak etil asetat CM-4-B memiliki aktivitas antibakteri tertinggi terhadap *E. coli* dan *S. aureus* dengan nilai MIC masing-masing sebesar 250,0 µg/mL dan 250,0 µg/mL. Hasil identifikasi menggunakan LC/MS pada ekstrak CM-4-B mengindikasikan bahwa ekstrak tersebut mengandung *spisulosine*, *nigricine 4*, 2-hidroksi-5-((6-hidroksi-4-okso-4H-piran-2-il)metil)-2-propilokroman-4-on, dan *antimycin A<sub>19</sub>*.

Kata kunci : antibakteri, *Halichondria* sp., LC/MS, mikroorganisme, simbion

## COMPOUNDS IDENTIFICATION BASED ON ANTIBACTERIAL POTENTIAL FROM EXTRACT OF MICROORGANISM SYMBIONT MARINE SPONGE *Halichondria* sp. ORIGINATED FROM KUPANG WATER

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### ABSTRACT

Identification of antibacterial compounds from extract of the symbiotic microorganism of the marine sponge *Halichondria* sp. originated from Kupang water has been conducted. The objective of this research is to isolate the symbiotic microorganisms of the marine sponge *Halichondria* sp., to test the antibacterial activity of the microorganism extracts, and to identify the compounds in the extract with the highest antibacterial activity against *Escherichia coli* (*E. coli*) and *Staphylococcus aureus* (*S. aureus*)

Isolation of the symbiotic microorganisms was conducted by dilution method. All isolates were tested for antagonistic activity against *E. coli* and *S. aureus*. Microorganisms having antagonistic activity against test bacteria were inoculated in marine broth media. Ethyl acetate extracts of the microorganisms that successfully inoculated were tested for their antibacterial activity against *E. coli* and *S. aureus* using the microdilution method. LC/MS analysis was performed on extract of microorganism which showed the highest antibacterial activity.

Seventeen isolates of the symbiotic microorganisms had been successfully isolated from the marine sponge *Halichondria* sp. originated from Kupang water. Two microorganism isolates, CM-4-A and CM-4-B, showed antagonistic activity against *E. coli* and *S. aureus*. Ethyl acetate extract of CM-4-B had the highest antibacterial activity against *E. coli* and *S. aureus* with MIC 250,0 µg/mL and 250,0 µg/mL, respectively. LC/MS identification on the extract of CM-4-B indicated that the extract contained spisulosine, nigricine 4, 2-hydroxy-5-((6-hydroxy-4-oxo-4H-pyran-2-yl)methyl)-2-propylchroman-4-one, and antimycin A<sub>19</sub> compound.

Keywords : antibacterial, *Halichondria* sp., LC/MS, microorganisms, symbiont