ISOLASI DAN IDENTIFIKASI BAKTERI SIMBION SPONS YANG BERPOTENSI SEBAGAI ANTIBAKTERI TERHADAP BAKTERI MULTI DRUG RESISTANT ORGANISM (MDRO) DENGAN PENANDA GEN 16S rRNA

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ABSTRAK

Permasalahan tentang penyakit infeksi semakin meningkat dari tahun ke tahun. Banyak faktor yang menyebabkan penyakit infeksi tidak dapat ditanggulangi, salah satunya adalah bakteri sudah resisten terhadap antibiotik bahkan banyak bakteri sudah tergolong Multi Drug Resistant Organism (MDRO) . Pencarian alternatif terbaru untuk menggantikan antibiotik adalah dengan pemanfaatan bakteri yang bersimbiosis dengan spons. Metode penelitian pada penelitian ini adalah eksperimental dengan analisis data deksriptif. Tujuan penelitian ini adalah untuk mengisolasi dan mengidentifikasi bakteri simbion spons yang berpotensi sebagai antibakteri terhadap bakteri MDRO dengan penanda Gen 16S rRNA. Hasil penelitian 2 spons yaitu *Clathrina sp* dan *Agelas sp* ditemukan 30 isolat bakteri simbion dan 4 isolat yang berpotensi sebagai antibakteri terhadap bakteri MDRO (*Klebsiella pneumonia* Jenis ESBL, *Pseudomonas aeruginosa* jenis ESBL, dan *Stapyhlococcus lugdunensis* jenis MRSA). Isolat S1I3, S1I9, dan S2I3 dipilih dengan zona bening terbesar (9.3 mm, 8,3 mm, dan 8,1 mm). Hasil uji biokimia menunjukkan ketiga isolat menunjukkan dari famili Bacillaceae. Sekuensing gen 16S rRNA dan disesuaikan dengan database GenBank dengan metode BLAST ditemukan bahwa isolat S1I3 memiliki homology 98% denggan *Bacillus wiedmannii* strain FSL W8-0169, Isolat S1I9 memiliki homology 99, 32% dengan *Bacillus paramycoides* strain MCCC 1A04098, dan Isolat S2I3 memiliki homology 97,28 % dengan *Bacillus albus* strain MCCC 1A02146.

Kata kunci : Antibakteri, Bakteri Simbion Spons, Bakteri MDRO, Gen 16S rRNA

ISOLATION AND IDENTIFICATION OF BACTERIAL SYMBIONT SPONGE THAT ARE POTENTIAL AS ANTIBACTERIAL TO BACTERIA MULTIDRUG RESISTANT ORGANISM (MDRO) WITH A 16S rRNA GENE MARKER

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ABSTRACT

Problems about infectious diseases have increased from year to year. Many factors that cause infectious diseases cannot be overcome, one of which is that bacteria are resistant to antibiotics and even many bacteria are classified as Multi Drug Resistant Organism (MDRO). The latest alternative search to replace antibiotics is by utilizing bacteria that are symbiotic with a sponge. The research method in this study is experimental with descriptive data analysis. The purpose of this study was to isolate and identity sponge symbiotic bacteria that have the potential to be antibacterial againts MDRO bacteria with a 16S rRNA gene marker. The results of two sponges namely *Clathrina sp* dan *Agelas sp* found 30 isolates of symbionic bacteria and 4 isolates that have potential as antibacterial against MDRO bacteria (*Klebsiella pneumoniae type ESBL, Pseudomonas aeruginosa* type ESBL, dan *Staphylococcus lugdunensis* type MRSA). S1I3, S1I9, and S2I3 isolates were selected with the largest clear zone (9.3 mm, 8.3 mm, and 8.1 mm). The results of biochemical tests showed that the three isolates were from the Bacillaceae family. Based on the 16S rRNA gene sequencing results and adjusted to the GenBank database with the BLAST method it was found that isolate S1I3 had 98% homology with *Bacillus wiedmannii* strain FSL W8-0169, isolate S1I9 had homology 99,32% with *Bacillus paramycoides* strain MCCC 1A04098, and isolate S2I3 had 97,28% homology with *Bacillus albus* strain MCCC 1A02146.

Keywords : Antibacterial, Bacteria Symbiont Sponge, MDRO Bacteria, Genes 16S rRNA.