

NUR MUHIBBATUL HUSNIYAH NIM. 14.03.411.00070. Aktivitas Antibakteri Dari Bakteri Asosiasi Karang Sehat *Montipora* sp. Terhadap Bakteri Patogen Penyebab Yellow Band Disease Pada *Montipora* sp. di Pulau Gili Labak Kabupaten Sumenep. Dibawah bimbingan **Insafitri, ST., M. Sc., Ph. D.**

ABSTRAK

Yellow Band Disease merupakan salah satu penyakit karang yang menginfeksi karang *Montipora* sp. penelitian ini bertujuan untuk mendapatkan informasi tentang bakteri yang dapat menghambat bakteri patogen Yellow Band Disease serta jenis bakteri secara molekuler. Penelitian dilaksanakan pada bulan Oktober – Desember 2017. Sampel diambil di perairan Gili Labak, Sumenep. Analisa sampel di Laboratorium Biologi UTM, analisa PCR di Laboratorium Bioteknologi Laut Tropis UNDIP. Bakteri diisolasi dengan metode pour plate. Uji antibakteri menggunakan metode overlay dan difusi agar. Hasil penelitian menunjukkan bakteri patogen yang diujikan dengan bakteri karang sehat *Montipora* sp. memiliki zona hambat dengan kategori kekuatan lemah. Lima isolat bakteri yang diperoleh dari hasil isolasi bakteri karang sehat diujikan dengan bakteri patogen *Vibrio inhibens* dan *Pseudoalteromonas rubra* dengan hasil ada empat isolat yang memiliki aktivitas antibakteri. Analisa menggunakan BLAST memperoleh hasil isolat bakteri M1 ($M_{10^{-5}1}$) memiliki homolog sebesar 96% dengan bakteri *Virgibacillus salarius*, isolat M2 ($M_{10^{-5}2}$) memiliki homolog 90% dengan bakteri *Virgibacillus* sp., isolat M3 ($M_{10^{-7}1}$) memiliki homolog 85% dengan bakteri *Bacillus lichiformis*, dan isolat M4 ($M_{10^{-7}2}$) memiliki homolog sebesar 95% dengan bakteri *Virgibacillus salarius*. Hasil analisa filogenetik isolat M1 ($M_{10^{-5}1}$) identik dengan bakteri *Virgibacillus salarius* dengan nilai bootstrap 100%. Isolat M2 ($M_{10^{-5}2}$) identik dengan *Virgibacillus* sp. dengan nilai bootstrap 89%. Isolat M4 ($M_{10^{-7}2}$) identik terhadap bakteri *Virgibacillus salarius* dengan nilai bootstrap 100%. Pohon filogenetik isolat M3 ($M_{10^{-7}1}$) tergolong dalam outgroup bakteri *Bacillus lichiformis*, *Bacillus paralichiformis*, *Bacillus sonorensis*, *Bacillus permians*, *Virgibacillus* sp., *Virgibacillus salarius*, dan *Virgibacillus marismortui*.

Kata Kunci: *Montipora* sp., Antibakteri, Yellow Band Disease

NUR MUHIBBATUL HUSNIYAH NIM. 14.03.411.00070. Antibacterial Activity of Bacteria Association of Healthy Coral *Montipora* sp. Against Pathogenic Bacteria Causing of Yellow Band Disease in *Montipora* sp. on Gili Labak Island, Sumenep Regency. Under the guidance of **Insafitri, ST., M. Sc., Ph. D.**

ABSTRACT

Yellow Band Disease is a coral disease that infects Montipora sp. This study aims to obtain information about bacteria that can inhibit Yellow Band Disease pathogenic bacteria and molecular types of bacteria. The study was conducted in October - December 2017. Samples were taken in the waters of Gili Labak, Sumenep. Sample analysis at the UTM Biology Laboratory, PCR analysis at the UNDIP Tropical Marine Biotechnology Laboratory. Bacteria are isolated by pour plate method. Antibacterial tests use agar overlay and diffusion methods. The results showed that the pathogen bacteria were tested with healthy coral bacteria Montipora sp. Has a inhibitory zone with a weak strength category. Five bacterial isolates obtained from bacterial isolation il has healthy coral tested with pathogenic bacteria Vibrio inhibens and Pseudoalte romonas rubra with the results of four isolates that possess antibacterial activity. Analysis using BLAST obtained the results of M1 bacterial isolates ($M_{10^{-5}} 1$) having homologous 96% with Virgibacillus salarius bacteria , M2 isolates ($M_{10^{-5}} 2$) having 90% homologous with the bacteria Virgibacillus sp., M3 isolates ($M_{10^{-7}} 1$) has homologous 85% with Bacillus lichiformis bacteria , and M4 isolates ($M_{10^{-7}} 2$) have homologous 95% with Virgibacillus salarius bacteria . The results of phylogenetic analysis isolates M1 ($M_{10^{-5}} 1$) is identical to the bacteria Virgibacillus salarius with bootstrap value of 100%. M2 isolate ($M_{10^{-5}} 2$) is identical to Virgibacillu sp. with 89% bootstrap value. Isolate M4 ($M_{10^{-7}} 2$) is identical to the Virgibacillus salaries bacteria with a 100% bootstrap value. Phylogenetic tree M3 isolates ($M_{10^{-7}} 1$) belong to outgroups of Bacillus liciformis, Bacillus paralicheriformis, Bacillus sonorensis, Bacillus permians, Virgibacillus sp., Virgibacillus salarius, and Virgibacillus marismortui.

Keyword: *Montipora digitata*, Antibacterial, Yellow Band Disease