

ABSTRAK

Hotmaria Febrianti Sinaga, NIM 4171220009 (2021). Efektivitas Antibakteri Ekstrak Etil Asetat Bakteri Simbion Spons *Axinella* sp. dan *Neopetrosia* sp. Asal Perairan Sibolga Terhadap *Multi Drug Resistant Organisms* (MDRO).

Penelitian ini bertujuan untuk efektivitas antibakteri ekstrak etil asetat bakteri simbion spons *Axinella* sp. dan *Neopetrosia* sp. asal perairan sibolga terhadap *Multi Drug Resistant Organisms* (MDRO). Pada penelitian ini dilakukan identifikasi bakteri simbion spons (makroskopik, mikroskopik dan biokimia), uji aktivitas antibakteri isolat bakteri simbion spons terhadap MDRO, uji aktivitas ekstrak etil asetat bakteri simbion spons terhadap MDRO, uji komponen senyawa kimia metabolit sekunder ekstrak etil asetat bakteri simbion spons dan uji efektivitas antibakteri simbion spons terhadap MDRO. Berdasarkan hasil penelitian diperoleh 11 isolat bakteri yang bersimbiosis dengan spons *Axinella* sp. dan 9 isolat bakteri yang bersimbiosis dengan spons *Neopetrosia* sp. Kelimpahan bakteri simbion spons *Axinella* sp. dan *Neopetrosia* sp. didominasi dari genus *Bacillus*, *Corynebacterium*, *Acinetobacteria*, *Enterobacter* dan *Pseudomonas*.. Pada uji aktivitas antibakteri 13 isolat bakteri simbion spons (A1, A2, A3, A5, A6, A7, A8, A9, N1, N4, N5, N6, dan N7) memiliki aktivitas antibakteri terhadap bakteri uji MDRO dengan kategori kuat-lemah. 3 ekstrak isolat bakteri simbion spons (EEAA1, EEAA7 dan EEAN6) memiliki aktivitas antibakteri dengan kategori lemah. Senyawa metabolit sekunder pada ekstrak isolat bakteri simbion spons (EEAA1, EEAA7 dan EEAN6) merupakan golongan alkaloid, flavonoid dan saponin. Efektivitas ekstrak etil asetat bakteri yang bersimbiosis dengan spons terhadap MDRO ditetapkan pada konsentrasi 55% dan penetapan KHM (konsentrasi hambat minimum) ekstrak isolat bakteri simbion spons pada konsentrasi 15% dapat menghambat bakteri MDRO dengan kategori lemah.

Kata kunci: Bakteri Simbion Spons, Aktivitas Isolat Bakteri, Aktivitas Ekstrak Bakteri, Senyawa Metabolit Sekunder, Efektivitas Ekstrak



ABSTRACT

Hotmaria Febrianti Sinaga, NIM 4171220009 (2021). Effectiveness of Antibacterial Extract Ethyl Acetate Bacteria Symbion Sponge *Axinella* sp. and *Neopetrosia* sp. Origin of Sibolga Waters Against Multi Drug Resistant Organisms (MDRO).

This study aims for the effectiveness of antibacterial extracts of ethyl acetate bacteria symbion sponge *Axinella* sp. and *Neopetrosia* sp. sibolga waters against *Multi Drug Resistant Organisms* (MDRO). In this study, the identification of sponge symbion bacteria (macroscopic, microscopic and biochemical), antibacterial activity test of bacterium isolates of sponge symbion against MDRO, test of ethyl acetate extract activity of symbion sponge bacteria against MDRO, test of chemical compound components of secondary metabolites of ethyl acetate extract of sponge symbion bacteria and test the effectiveness of antibacterial symbion sponge against MDRO. Based on the results of the study obtained 11 isolates of bacteria symbiotic with sponge *Axinella* sp. and 9 isolates of symbiotic bacteria with a *Neopetrosia* sp sponge. Abundance of bacteria symbion sponge *Axinella* sp. and *Neopetrosia* sp. predominantly from the genus *Bacillus*, *Corynebacterium*, *Acinetobacteria*, *Enterobacter* and *Pseudomonas*. In the antibacterial activity test 13 isolates of sponge symbion bacteria (A1, A2, A3, A5, A6, A7, A8, A9, N1, N4, N5, N6, and N7) had antibacterial activity against MDRO test bacteria with a strong-weak category. 3 bacterial isolate extracts of sponge symbions (EEAA1, EEAA7 and EEAN6) have antibacterial activity with weak category. Secondary metabolite compounds in sponge symbion bacterial isolate extracts (EEAA1, EEAA7 and EEAN6) are a group of alkaloids, flavonoids and saponins. The effectiveness of ethyl acetate bacteria symbiotic with sponge against MDRO determined that KHM extract isolates of symbion sponge bacteria at a concentration of 55% weak category with a high bland zone of concentrations of 15% and 35%.

Keywords: Bacterium Symbion Sponge, Bacterial Isolate Activity, Bacterial Extract Activity, Secondary Metabolite Compound, Extract Effectiveness