

ABSTRAK

Latifah Ningrum Abdillah, NIM 4173220011 (2021). Pengaruh Nutrisi dan Suhu terhadap Selektivitas Bakteri Symbion Spons Asal Perairan Sibolga, Sumatera Utara yang Berpotensi sebagai Antibakteri.

Penelitian ini bertujuan untuk mengetahui keanekaragaman dan seleksi bakteri yang bersimbion dengan spons *Agelas* sp. sebagai penghasil senyawa bioaktif potensial. Pada penelitian ini dilakukan uji pengaruh berbagai media isolasi (M1 dan M2) dan uji pengaruh berbagai suhu (tanpa pemanasan dan pemanasan 50⁰C) terhadap sampel. Media M1 dengan komposisi nutrisi yaitu amilum, pepton, agar dan ekstrak khamir, sedangkan pada media M2 hanya media air laut dan agar, perlakuan pemanasan suhu 50⁰C dilakukan terhadap larutan sampel sebelum dilakukan isolasi pada media M1 dan M2, uji aktivitas antibakteri terhadap bakteri *Multi Drug Resistant Organisms* (MDRO), pewarnaan gram bakteri simbion spons dan uji aktivitas ekstrak bakteri simbion spons. Berdasarkan hasil penelitian, diperoleh kepadatan tertinggi hasil isolasi bakteri simbion spons pada media M1 tanpa pemanasan sebanyak 5,8 x 10² dan kepadatan terendah diperoleh pada media M2 dengan pemanasan sebanyak 0,4 x 10. Keanekaragaman bakteri simbion spons diperoleh 22 isolat dengan keanekaragaman tertinggi pada perlakuan M1P1 sebanyak 10 isolat dan keanekaragaman terendah pada perlakuan M2P2 sebanyak 2 isolat. Dari data isolasi menunjukkan dengan kandungan nutrisi yang rendah dan perlakuan pemanasan 50⁰C akan menurunkan jumlah kepadatan bakteri yang tumbuh sehingga keanekaragaman yang diperoleh ialah rendah. Hasil aktivitas antibakteri terhadap bakteri uji menunjukkan bakteri yang tumbuh pada perlakuan M2P2 seluruh bakteri memiliki keaktifan dalam menghambat ketiga bakteri uji sedangkan bakteri yang tumbuh pada perlakuan M1P1, M1P2 dan M2P1 menunjukkan tidak semua bakteri dapat menghambat ketiga bakteri uji. Hasil uji aktivitas menunjukkan pada perlakuan M1P2 diperoleh bakteri potensial dengan zona bening katerogi kuat.

Kata kunci : Bakteri simbion spons, media isolasi, nutrisi, suhu, antibakteri.

ABSTRACT

Latifah Ningrum Abdillah, NIM 4173220011 (2021). The Effect of Nutrition and Temperature on the Selectivity of Sponge Symbiotic Bacteria from Sibolga Waters, North Sumatra which have the Potential as Bacteria.

This study aims to determine the diversity and selection of symbiotic bacteria with sponge *Agelas* sp. as a potential producer of bioactive compounds. In this study, we tested the effect of various insulating media (M1 and M2) and tested the effect of various temperatures (without heating and heating 50°C) on the sample. M1 media with nutritional composition, namely starch, peptone, agar and yeast extract, while on M2 media only seawater and agar media, heating treatment at 50°C temperature was carried out on sample solutions before isolation on M1 and M2 media, antibacterial activity test against bacteria Multi Drug Resistant Organisms (MDRO), gram staining of sponge symbiont bacteria and activity test of sponge symbiont bacterial extract. Based on the results of the study, the highest density obtained from the isolation of sponge symbiont bacteria on M1 media without heating was 5.8×10^2 and the lowest density was obtained on M2 media with heating as much as 0.4×10 . The diversity of sponge symbiont bacteria obtained 22 isolates with the highest diversity in M1P1 treatment consisted of 10 isolates and the lowest diversity in M2P2 treatment was 2 isolates. The isolation data shows that low nutrient content and 50°C heating treatment will reduce the number of bacterial densities that grow so that the diversity obtained is low. The results of antibacterial activity against the test bacteria showed that all bacteria that grew in the M2P2 treatment had activity in inhibiting the three test bacteria, while the bacteria that grew in the M1P1, M1P2 and M2P1 treatments showed that not all bacteria could inhibit the three test bacteria. The results of the activity test showed that in the M1P2 treatment, potential bacteria were obtained with a strong catterogenic clear zone.

Keywords: Sponge symbiont bacteria, isolation media, nutrition, temperature, antibacterial.

