

ABSTRAK

Peningkatan penggunaan antibiotik secara tidak rasional pada pengobatan manusia dan hewan mengakibatkan peningkatan kejadian organisme resisten antibiotik atau Multidrug Resistant Organism (MDRO). Disebut Multidrug Resistant Organism karena resistensinya secara *in vitro* kepada lebih dari satu agen antimikroba. Tujuan penelitian ini adalah untuk mengevaluasi potensi antimikroba dan Konsentrasi Hambat Minimum (KHM) dari ekstrak bakteri yang bersimbion dengan spon laut *Haliclona fascigera* terhadap bakteri resisten MDRO. Penelitian ini dilaksanakan dengan pengujian ekstrak bakteri sebagai antibakteri terhadap bakteri *Vancomycin resistant Enterococci spp* (VRE), *Extended-spectrum beta (β) -lactamase gram-negative organisms* (ESBL), *carbapenems-resistant Enterobacteriaceae* (CRE) dan *Multi-resistant Acinetobacter baumannii* (MRAB) pada konsentrasi 5% dalam dimetilsulfoksida (DMSO), kemudian penetapan konsentrasi hambat minimum dari ekstrak yang mempunyai aktivitas terbesar. Selanjutnya, identifikasi genus bakteri secara makroskopis, mikroskopis, pewarnaan gram dan uji biokimia. Hasilnya menunjukkan bahwa 9 isolat memiliki aktivitas antibakteri dengan aktivitas terbesar ditunjukkan oleh isolat *Micrococcus sp.1* pada konsentrasi 0.625% terhadap *Vancomycin resistant Enterococci spp* (VRE). Aktivitas antimikroba ditunjukkan oleh ekstrak dari bakteri simbion.



ABSTRACT

The increasing irrational use of antimicrobials in humans and veterinary medicine has consequently increased the emergence of antibiotic resistant organisms or multidrug resistant organisms (MDRO). Multidrug resistant organisms (MDRO) are labelled as such because of their in vitro resistance to more than antimicrobial agent. The aim of the study was to evaluate the antimicrobial potential of extracts of the bacterial symbionts *Haliclona fascigera* and Minimum Inhibitory Concentration (MIC) of the extracts bacterial symbiosis against bacteria *Multidrug resistant organisms* (MDRO). This research was conducted by testing bacterial extracts as an antibacterial against *Vancomycin resistant Enterococci spp* (VRE), *Extended-spectrum beta (β)-lactamase gram-negative organisms* (ESBL), *carbapenems-resistant Enterobacteriaceae* (CRE) and *Multi-resistant Acinetobacter baumannii* (MRAB) at 5% concentration in dimethylsulfoxide (DMSO), followed by determination of Minimum Inhibitory concentration of extracts that had the greatest activity. Furthermore, identification of bacterial genus was performed with macroscopic and microscopic evaluation, gram staining and biochemical tests. The results showed that 9 isolates have an antibacterial activity with the greatest activity by isolate *Micrococcus sp.1* (M₂R₂). Minimum Inhibitory Concentration demonstrate their antibacterial activity by isolate *Micrococcus sp.1* at a concentration of 0.625% against *Vancomycin resistant Enterococci spp* (VRE). Antimicrobial activities demonstrated by the extracts of the bacterial symbionts.

