

## ABSTRACT

**SCREENING AND IDENTIFICATION OF MARINE BACTERIA PRODUCING ANTIBACTERIA SYMBIOSIS *Halichondria panicea* FROM CABBIIYA MADURA COAST WITH 16S rRNA GENETIC ANALYSIS**

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One of the antibacterial sources is obtained from bacteria that symbiosis with sponges. The purpose of this study is to isolate bacteria that are symbiotic with sponges from Cabbiiya Madura Coast and have a large antibacterial effect. The sponge sample was identified as *Halichondria panicea*. Antibacterial activity was tested by initial screening using the well-diffusion method from isolation media. Six isolates continued with activity testing, but only two isolates produced inhibitory zones (BSM-D and BSM-F). The inhibitory zone from BSM-D and BSM-F isolates are  $12.47 \pm 0.45$  mm and  $20.18 \pm 1.10$  mm respectively. So, BSM-F isolate has the greatest antibacterial activity. BSM-F isolate inoculated on various kinds of medium. Further tests using agar-plug diffusion method against pathogenic bacteria that are *Staphylococcus aureus* ATCC 25923, *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 27853, and *Bacillus subtilis* FNCC 0059 so that bacterial isolates were obtained with the greatest antibacterial activity. BSM-F that inoculated on Starch Casein Agar (SCA) medium has the largest antibacterial activity against those pathogenic bacteria. The identification of bacteria was carried out by Gram-staining, biochemistry, and 16S rRNA gene analysis. BSM-F bacteria were then characterized and identified microscopically, macroscopically, biochemically, and 16S rRNA genes. The identification results showed that BSM-F was a Gram-positive bacillus bacteria and based on the phylogenetic tree shows that BSM-F had the closest kinship with *Bacillus tequilensis* with a similarity of 98.72%.

**Keywords:** Antibacterial activity, *Halichondria panicea*, sponge-associated bacteria, 16S rRNA