ABSTRACT

THE EFFECT OF pH AND TEMPERATURE ON THE PRODUCTION OF ANTIBACTERIAL METABOLITS FROM *Bacillus tequilensis* BSMF SYMBIOSIS *Halichondria panicea* FROM MADURA CABBIYA WATER IN ISP-4 MEDIA

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Antibacterial compounds are compounds that can affect bacterial growth by inhibiting or killing bacteria. Along with the increasing use of antibacterial compounds for the treatment of infections, bacterial resistance problems arise. The solution that is being taken to overcome the resistance of antibacterial compounds is by finding antibacterial compounds from new sources such as plants, animals, and microorganisms. Microorganisms especially sponges-associated bacteria are widely investigated because they can produce antibacterial metabolites, including *Bacillus tequilensis* BSMF isolated from Halichondria panicea. The production of antibacterial metabolites is influenced by components of growth media, environmental physicochemical factors such as pH, temperature, media, dissolved oxygen conditions, and production time. This research aims to determine pH and optimum temperature of antibacterial metabolites production from *Bacillus tequilensis* BSMF symbiosis *Halichondria panicea* in international streptomyces project (ISP-4) media. The solid fermentation method was used in the production of *Bacillus tequilensis* BSMF antibacterial metabolite, while the antibacterial activity test for Bacillus tequilensis BSMF against *Staphylococcus aureus* ATCC 25923 and *Eschericia coli* ATCC 25922 used agar diffusion method. The result shows that the optimum pH was reached at pH 8±0,5 and the optimum temperature was reached at 37±1^{o}C.

Keywords: antibacterial, *Bacillus tequilensis* BSMF, *Halichondria panicea,* pH, temperature