

## ABSTRACT

Julianah Kurnia Tiara. 24020220140067. ***Molecular Identification of Symbiont Bacteria from Freshwater Sponge (*Eunapius carteri*) as Antibacterial Candidate Against *Aeromonas hydrophila* and Test of Enzymatic Potential.*** Under the guidance of Agung Suprihadi dan Anto Budiharjo.

Long-term use of chemical drugs can cause side effects, such as resistance of pathogenic microbes and environmental pollution. Therefore, the search for natural materials that have the potential as antibacterials to be used as medicines, such as probiotics. Freshwater sponge has potential antibacterial activity, one of which is in bacteria isolated from *Eunapius carteri* which is used to fight aquatic pathogenic bacteria. This study aims to determine the potential antibacterial activity of *Eunapius carteri* symbiont bacteria against *Aeromonas hydrophila* and enzymatic potential which can later be applied as probiotics for freshwater fish. The method of testing the potential antibacterial activity of *Eunapius carteri* isolates with disc diffusion method and tested enzymatic ability, as well as molecular identification. Based on the results of the research that has been done, it shows that the bacterial isolates that have antibacterial potential against *Aeromonas hydrophila* are bacterial isolate EC 36 and bacterial isolate EC 43, as well as using the positive control of Amoxicillin antibiotic and the negative control of NB media. The enzyme activities of amylase, cellulase, and protease are seen in bacterial isolate EC 36 and bacterial isolate EC 43, and in the lipase enzyme is only positive in bacterial isolate EC 36. The results of molecular identification of bacterial isolate EC 36 were detected as *Bacillus velezensis* strain FZB42, while bacterial isolate EC 43 is *Bacillus stercoris* strain D7XPN1.

**Keywords:** *Aeromonas hydrophila*, Antibacterial, Enzyme, Freshwater sponge.