

Lactic Acids Bacteria from Shipworm (*Spathoteredo Obtusa*) and Its Inhibition Capacity to Shrimp Patogen *Vibrio Parahaemolyticus*

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Abstract:

Shipworms (*Spathoteredo obtusa*) are marine bivalves known for their wood-boring abilities and pivotal ecological role in decomposing submerged wood and produce secondary metabolites with potential applications in aquaculture and marine biotechnology. Despite their ecological importance, the microbial symbionts and bioactive compounds associated with *S. obtusa* remain poorly understood. This study aimed to explore the microbial diversity and secondary metabolite composition of *S. obtusa* collected from Probolinggo and Sidoarjo East Java to evaluate microbial diversity and metabolite composition. The methods used were descriptive and experimental. Biochemical tests included Gram staining, Hydrogen Sulfide (H₂S), Indole, Motility, Methyl Red, Voges Proskauer, and Simmons' Citrate. This study used six bacterial isolates in the biochemical tests, namely three isolates from Sidoarjo and three isolates from Probolinggo. The bacterial antagonism test used the Kirby-Bauer disc method and measured the inhibition zone around the paper disc. Two treatments were used: bacterial isolates from the gills of Sidoarjo and Probolinggo, with the addition of 20 µL of positive (chloramphenicol) and negative (aquadest) controls. The biochemical test results indicated that the six isolates belonged to the *Enterococcus* genus of LAB. Based on the antagonism test results, *Enterococcus* sp. was able to inhibit *Vibrio parahaemolyticus*, shrimp pathogen bacteria. The average values for both isolates were 7.65 mm for Probolinggo and 6.59 mm for Sidoarjo, which are considered moderate based on their inhibitory strength.

Keywords:

Shipworms, identification, microbial symbiosis, bioactive compounds, *V. Parahaemolyticus*.