



ABUNDANCE AND ACTIVITY OF ACETHYLOLINESTERASE AND SUPEROXIDE DISMUTASE OF BIVALVES AT LINDU LAKE, CENTRAL SULAWESI

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ABSTRAK

Bivalvia (shellfish) is one of the biodiversity found in Indonesian waters, one of which is in Lindu Lake, Central Sulawesi. The high level of community activities that provide potential as a supplier of suspended solids and anthropogenic materials that can threaten water conditions and the use of pesticides especially organophosphate pesticides are very intensive by the population. Organophosphate toxicity will inhibit the enzyme acetylcholinesterase (AChE) which functions to hydrolyse acetylcholine and can also increase the activity of the enzyme superoxide dismutase, so these two enzymes are very important to analyze. Studies on abundance, acetylcholinesterase and superoxide dismutase activities in bivalves in Lindu lakes have never been done. This study aims to identify the type of bivalves based on morphology and morphometry, calculate the abundance index, analyze the activity of acetylcholinesterase and superoxide dismutase. In this study, 3 species of Bivalvia were found, namely *Sinanodonta woodiana*, *Corbicula linduensis* and *Corbicula fluminea*. The highest bivalve abundance index at Station III with a Psi value = 60.3 individuals / m², while the lowest Psi value is 16.0 individuals / m² for Station IV. The abundance values at Station I and II are 25.5 individuals / m² and 39.4 individuals / m². The highest protein content is found in *S. woodiana* bivalvia meat (station III) with a protein value of 748.23 mg / g wet weight. While the lowest protein content was found in the bivalve coat of *S. woodiana* (station IV) and *Corbicula linduensis* (station III) with a protein value of 406.32 mg / g wet weight. The highest activity of the enzyme acetylcholinesterase was in the bivalve mantle samples of *S. woodiana* species (station IV) with a value of 0.89059. While the lowest activity of the enzyme acetylcholinesterase was in the bivalve meat sample of *S. woodiana* species (Station III) with a value of 0.11937. The highest enzyme activity of Superoxide dismutase is found in the bivalve mantle samples of *S. woodiana* species (station IV) with a value of 1.84860. While the activity of the enzyme superoxide dismutase is the lowest in the bivalve meat sample of *S. woodiana* species (station III) with a value of 0.22124. The results of this study are expected to add insight into abundance, acetylcholinesterase and superoxide dismutase (SOD) activity in bivalves in Lake Lindu, Palu, Central Sulawesi.

Keywords: Abundance, Organophosphate, Acetylcholinesterase (AChE), bivalves, Superoxide dismutase (SOD).