

Analysis concentration of Mercury (Hg) and Lead (Pb) in the Fish (*Oreochromis niloticus*) and Shellfish (*Perna viridis*) and Neurophysiologic Symptoms to the Community around the Tello River, Makassar, Indonesia

Hasriwiani Habo Abbas^{1,a,*}, Muhammad Ikhtiar^{2,a}

^aFaculty of Public Health, Universitas Muslim Indonesia

*hasriwianihabo.abbas@umi.ac.id

Abstract. Background: Heavy metals released into the marine environment can destroy both biodiversity and ecosystem because of their toxicity and trend accumulative in the aquatic biota and pose a risk to fish consumers, such as humans and other wildlife. The toxicity of heavy metals such as Pb, Hg, Cd, Cu, Zn, As, Fe, and Cd is known to cause various neurological disorders in adults, including cerebellar dysfunction, altered mental status, and various motor, sensory, and ophthalmologic abnormality. Objectives: The research aims to determine of concentration mercury (Hg) and Lead (Pb) in the fish (*Oreochromis niloticus*) and Shellfish (*Perna viridis*) and the effect of neurophysiologic symptoms. Material and Method: The method of this study is to analyze of concentration of Hg and Pb using atomic absorption spectrometry and the assessment of neurophysiologic symptoms is using a questioner. Result and Discussion: The result of the study shows the concentration of Pb and Hg in the *Oreochromis niloticus* and *Perna viridis* in three points (1,2, and 3) that found of Pb concentrations in the fish namely the point 1 is 0.043 $\mu\text{g}/\text{gr}$, 0.025 $\mu\text{g}/\text{gr}$, is 0.01 $\mu\text{g}/\text{gr}$, respectively. The fish of Hg concentration is three points namely the point I is 0.00142 $\mu\text{g}/\text{gr}$, the point II is 0.0035 $\mu\text{g}/\text{gr}$, and the point III is 0.00037 $\mu\text{g}/\text{gr}$. The *Perna viridis* Hg and Pb concentrations we found the three points namely the point I is 0,0223 $\mu\text{g}/\text{g}$, the point II is 0,0283 $\mu\text{g}/\text{g}$ and the point III is 0,0278 $\mu\text{g}/\text{g}$ and the Hg concentration the all of the points are $< 0.0005 \mu\text{g}/\text{gr}$. While the assessment of neuropsychologic we found the all of the respondents have severe many symptoms including tremor, sensory disturbance, memory test, Test for irregular eye movements, and Field of vision test. They are 35% for the termors and sensory disturbance and the memory test, irregular eye movements, and fields of vision test is 20%. Conclusion: The conclusion in this study was that although fish and shellfish had normal concentrations, it was found that people who consumed fish and shellfish experienced neuropsychological symptoms, this may be due to the biomagnification process.

Keyword: Mercury (Hg), Lead (Pb), Fish (*Oreochromis niloticus*), Shellfish (*Perna viridis*), Neurophysiologic Symptoms