

Zn, Cd, and Pb Pollution in water, sediment and shrimp (*Macrobrachium nipponense* De Haan, 1849) of Alagol wetland

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Abstract

The objective of this study was to determine concentrations of zinc, cadmium and lead in the surface water, sediment and shrimp (*Macrobrachium nipponense*) from Alagol wetland in January 2016. The water and sediment samples were collected by Ruttner bottle and Ekman grab, respectively. Shrimps were randomly caught using a Funnel Trap and then transported to the laboratory. The concentrations of heavy metals in samples (shrimp, water and sediment) were measured by GF-AAS and Flame-AAS. In this study, the mean concentrations of Zn, Cd and Pb in the water were 0.04, 0.08 and 0.11 mg/L and also, for sediment samples were as 1.87, 0.1 and 1.49 mg/kg, respectively. Mean concentrations of Zn, Cd and Pb in muscle of shrimp were measured 29.24, 0.58 and 2.81 mg/kg dry weights, respectively. Zn concentrations in the water were below the maximum permissible limit of the World Health Organization, but the concentration of Pb and Cd in water exceeded the permissible limit proposed by the WHO. In the present, the Zn, Pb and Cd concentrations in the sediment were lower than the mean values determined by WHO for the world sediments and crust limits. Pb in the muscle of shrimp exceeded the permissible limit proposed by the WHO, but Zn and Cd concentrations in the muscle of shrimp were below the maximum permissible limit of the WHO. The results of this study showed that the Alagol wetland is threatened by heavy metals particularly Cd and Pb.

Keywords: Heavy metal, Alagol wetland, Shrimp, Water and Sediment.