Bioaccumulation of lead and zinc in the tissues of kidney, liver, and muscle of mallard (*Anas platyrhynchos*) from Fereydunkenar wetland

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Abstract

The objectives of this study were to determine concentrations of lead and zinc in the kidney, liver and muscle of mallard (Anas platyrhynchos) from Fereydunkenar wetland. The study was conducted between November and December 2015. The determination of Pb and Zn in mallard tissues was carried out using a graphite furnace atomic absorption spectrometer, (Thermo, Model 97GFS). Mean concentrations of Pb in kidney, liver and muscle of mallard were measured 2.95, 1.71 and 0.62 mg/kg, respectively. Also, mean concentrations of Zn in kidney, liver and muscle of mallard were observed 13.8, 20.96 and 8.69 mg/kg, respectively. The distribution patterns of Pb in tissues follow the order: kidney>liver>muscle, while Zn follow the sequence: liver>kidney>muscle. The results indicated that there were positive correlations (r = 0.688, P< 0.05) between liver and muscle in Zn. Zn levels in the kidney and muscle of mallard were below the maximum permissible limit of FAO/WHO (2015), but concentration of Zn in the liver of mallard was above the permissible limit proposed by FAO/WHO (2015). In this study, the mean concentrations of Pb in liver, kidney and muscle were higher than FAO/WHO (2015). The concentrations of Pb reported in the study are alarming and require proper management.

Keywords: Heavy metal, Fereydonkenar wetland, Mallard.