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.