

**Heavy metal speciation in water, sediment and biota (water hyacinth) from Mwanza gulf,
Lake Victoria, Tanzania**

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This thesis reports on heavy metals pollution and speciation in water column, sediments and water hyacinth (*Eichhornia crassipes*) from Mwanza gulf, Lake Victoria. Samples were analysed for cadmium, cobalt, chromium, iron and lead by Atomic Absorption Spectrophotometry (AAS). In water samples, the mean concentrations of Cd and Pb have been found to vary significantly between dry and wet seasons, as well as among the sampling stations. The highest concentrations of cadmium (0.77 ± 0.008 ppm), iron (0.82 ± 0.003 ppm) and lead (2.8 ± 0.17 ppm) were found at Mirongo station within Mwanza urban area. Cobalt and chromium were not detected in all the water samples. The heavy metals analysed in water samples existed mainly as total labile metals. In sediment samples, the highest concentrations of cadmium (0.44 ± 0.03 ppm), cobalt (0.66 ± 0.01 ppm) and lead (3.80 ± 0.2 ppm) were recorded at stations that were adjacent to river mouths. The highest concentration of Iron (1320.60 ± 0.7 ppm) was recorded at sampling station close to the fish landing beach. Chromium was not detected in all the sediment samples. The heavy metals detected in sediments (Cd, Co, Fe and Pb) were found to exist as exchangeable metals. In water hyacinth, the highest concentration of iron (126.00 ± 0.62 ppm) was recorded at Mirongo station. Statistical tests show significant differences in mean concentrations between dry and wet seasons and among the sampling stations. All the heavy metals analyzed in plants existed as labile/soluble metals.