

Zn, Pb, Cd and Cr were determined by Atomic Absorption Spectrophotometry. Cu, Zn, Pb and Cr were found both in water and bottom sludge samples of all sites, while Cd was not recorded from any of the sites. Significantly higher concentrations of heavy metals (Mean \pm SEM: Cu 120.75 $\mu\text{g/g} \pm 8.43$; Zn 570.98 $\mu\text{g/g} \pm 11.53$; Pb 204.37 $\mu\text{g/g} \pm 7.50$; Cr 52.50 $\mu\text{g/g} \pm 4.36$; One-way ANOVA; $P < 0.01$) were found in bottom sludge of the Southern lagoon than the Northern lagoon and the three drains. This is possible because the Southern lagoon is situated away from the sea outfall and the intensity of flushing by sea water is relatively less in this sector. Heavy metal concentrations in water in different sites did not differ significantly, however, water in the Southern lagoon contained a relatively higher concentrations of Cu (0.049 ppm \pm 0.002) and Pb (0.096 ppm \pm 0.006) while the highest level of Cr (0.035 ppm \pm 0.020) and Zn (0.151 ppm \pm 0.017) were recorded from the Eastern Drain. Bottom sludge contained significantly higher concentrations of all heavy metals than in water ($P < 0.001$) indicating accumulation of metal ions in the sludge for a long period of time. Lagoon water could have been contaminated by point sources (such as Automotive Workshops and Textile Factories) and non-point sources (such as Service Stations along the Galle Road) of heavy metal pollutants.

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Effects of some water quality parameters and some metals on osmoregulation of *Oreochromis mossambicus* in Bolgoda lake

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The present study was carried out in Bolgoda Lake at Attidiya, Borupona and Dampe from September 2005 to January 2006 with the objective of studying the effect of some water quality & some heavy metals on Osmoregulation of *Oreochromis mossambicus*. Only the Dissolved Oxygen and Transparency showed significant difference among measured water quality parameter within 3 sites. The highest value of Dissolved Oxygen (9.40 \pm 1.56 mg/l) was recorded at Attidiya & lowest from Borupona (3.88 \pm 1.1 mg/l). Dissolved Oxygen of Dampe was 6.44 \pm 2.20 mg/l. Osmoregulatory Capacity of three sites were significantly different. Maximum Osmoregulatory Capacity (240.90 \pm 2.01) was recorded in Borupona and minimum Osmoregulatory Capacity (126.30 \pm 1.12) was recorded in Dampe station. Osmoregulatory Capacity of Attidiya was 168.70 \pm 0.79. A significant negative correlation of Dissolved Oxygen was recorded with Osmoregulatory Capacity. Transparency also made great effect to the Osmoregulatory Capacity. Maximum Osmoregulatory Capacity value was recorded in Borupona that has high transparency (87 \pm 1.1 cm) and with low Transparency (65 \pm 0.71cm) minimum Osmoregulatory Capacity value was recorded. That was in Dampe station. Transparency of Attidiya was 80 \pm 0.79 cm.

There was a significant difference ($P < 0.05$) in the metal levels in a particular organs (gills, muscles) and between the three sites. Gills recorded highest values for all measured metals in three sites. Most abundant metal in three sites was Fe. The Highest value was recorded in Attidiya (2940 \pm 27.3 $\mu\text{g/g}$). The lowest Fe value was recorded in Borupona (1290 \pm 31.5 $\mu\text{g/g}$). Next most abundant metal was Zn. The highest value of Zn (805 \pm 7.43 $\mu\text{g/g}$) was recorded in Dampe and lowest value was recorded in Borupona (382 \pm 3.59 $\mu\text{g/g}$). Cu was found only in Attidiya site, but it was very low, relative to the other elements. A significant negative correlation with Osmoregulatory Capacity was observed for Zn in gills & muscles.