

## **Bioaccumulation of zinc in Java medaka fish (*Oryzias javanicus*) and identifying of metallothionein-like protein**

### **ABSTRACT**

Metallothioneins (MTs) have been broadly measured for their probable use as exact bioindicator to be a sign of the existence of heavy metal contamination, since their induction has been observed to be noticeably elevated after heavy metal exposure in a large amount organism considered. In this study with the results from spectrophotometric method induction of Metallothionein (MT) and levels of Zinc of the Java Medaka fish (*Oryzias javanicus*) were studied after long time (60 days) exposure of juvenile fishes to different concentrations of zinc. Statistically significant differences in Zn and MTs content in different organs of fish groups exposed to this metal was found between control group and other groups with diverse concentrations of metal ( $p < 0.05$ ). Correlation between Zn content and MTs in all body sections of Java Medaka fish (*Oryzias javanicus*) were statistically significant and the correlation was positive; increasing the Zn content in body sections, the MTs levels increased also ( $p < 0.01$ ). Also the Metallothioneins (MTs) content in the tissues of Java Medaka fish (*Oryzias javanicus*) showed a significant difference between the different tissues of this fish. The order of MT content was in the decreasing order of: visceral organs > gill > muscle. Long term effect and MTs protein results indicate that this fish (*Oryzias javanicus*) is more useful and accurate to monitor particular metals and ecotoxicology studies in the estuary and coastal areas.

**Keyword:** Bioaccumulation; Java medaka; Zinc; Metallothionein; Bioindicator