Metallothionein-like protein levels in Java medaka fish (Oryzias javanicus) exposed to different concentrations of cadmium

ABSTRACT

In this study, induction of metallothionein (MT) and levels of cadmium (Cd) in the Java medaka fish (Oryzias javanicus) are studied after long time (60 days) exposure of juvenile fish to different concentrations of Cd. Statistically significant differences in Cd and MT content in the gills, caudal muscles and livers of the fish groups exposed to this metal are found between the control group and other groups exposed to different concentrations of metal ($p < 0.05$). Correlation between Cd content and MT in all body sections of Java medaka fish are statistically significant and the correlation is positive; the Cd and MT concentrations in all studied tissues indicate that an increase in Cd levels is followed with an increase in MT levels also ($p < 0.01$). Long term effects and MT protein results indicate that this fish is a suitable bioindicator for the monitoring of particular metals, such as Cd, and for ecotoxicology studies in the estuary and coastal areas.

Keyword: Metallothionein (MT); Cadmium (Cd); Java medaka fish; Ecotoxicology