Effect of mercury and cadmium on early life stages of Java medaka (Oryzias javanicus): a potential tropical test fish.

ABSTRACT

Several organisms have been used as indicators, bio-monitoring agents or test organisms in ecotoxicological studies. A close relative of the well established Japanese medaka, the Java medaka (Oryzias javanicus), has the potential to be a test organism. The fish is native to the estuaries of the Malaysian Peninsula, Thailand, Indonesia and Singapore. In this study, newly fertilised eggs were exposed to different concentrations of Cd and Hg. Observations were done on the development of the embryos. Exposure to low levels of Cd and Hg (0.01-0.05 ppm) resulted in several developmental disorders that led to death. Exposure to ≥1.0 ppm Cd resulted in immediate developmental arrest. The embryos of Java medaka showed tolerance to a certain extent when exposed to ≥1.0 ppm Hg compared to Cd. Based on the sensitivity of the embryos, Java medaka is a suitable test organism for ecotoxicology in the tropical region.

Keyword: Java medaka; Test organism; Tropical; Early life stage.