

Assessment level of heavy metals in *Penaeus monodon* and *Oreochromis spp* in selected aquaculture ponds of high densities development area

ABSTRACT

Tiger prawn and tilapia fish are some of the ideal species of organisms for an assessment study on effects of heavy metal contamination in aquaculture ponds that are often detected in coastal areas. The objectives of this study was to determine and compare the concentration levels of heavy metals Pb, Cd, Ni, Cu, Fe, Cr, Mn and Zn upon samples of tiger prawns (*Penaeus monodon*) and tilapia fish (*Oreochromis spp*) obtained from aquaculture ponds in Bandar and Jugra, nearby the Langat estuary of Peninsular Malaysia with the recommended maximum levels allowed in food. It was carried out also to evaluate the bioaccumulation process of the elements based on the Metal Pollution Index (MPI) calculation. Concentrations of Cd, Cu and Zn were found to be higher in tiger prawns (*Penaeus monodon*) in Bandar; whilst only Fe, Mn and Ni in tiger prawns (*Penaeus monodon*) was found to be higher in Jugra. Concentrations of Cu, Zn, Cr, Fe, Mn and Ni were found to be higher in Jugra whereas those of Pb and Cd were higher in Bandar for tilapia fish (*Oreochromis spp*). Concentrations of heavy metals studied were found to be lower than the recommended maximum level allowed in food, thus indicating that the tiger prawns (*Penaeus monodon*) and tilapia fish (*Oreochromis spp*) from Bandar and Jugra aquaculture ponds were safe for human consumption. Significant variations were observed in terms of sampling location and species selected for the study, and findings of this study indicated that it is not easy to compare the heavy metal concentrations between two different species due to various factors. MPI values suggested that the tilapia fish (*Oreochromis spp*) sp has a greater capacity for metal bioaccumulation than tiger prawn (*Penaeus monodon*).

Keyword: Heavy metals; Tilapia fish; Tiger prawn; Aquaculture ponds