

Heavy metal concentrations in water and tiger prawn (*Penaeus monodon*) from grow-out farms in Sabah, North Borneo

Abstract

Concentrations of a number of heavy metals, including Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb and Zn were determined in samples of water and muscle tissue of tiger prawn (*Penaeus monodon*) from two farms. One farm was located in Tuaran (farm-A) and the other in Likas (farm-B) near Kota Kinabalu. While Co, Cr, Cu, Fe, Mo, Pb and Zn concentrations were higher in the water from farm-A, other metal concentrations (Cd, Mn and Ni) were higher in farm-B. Tiger prawns raised in farm-A had comparatively higher concentrations of Co, Cr, Cu, Ni and Pb. Those grown in farm-B had higher levels of Cd, Fe, Mn, Mo and Zn. No general correlation between metal levels was discernible in the prawn tissue. The data suggested complexities in uptake and retention of metals in tiger prawn. This animal seemed to resist the build-up of certain metals whereas it allowed the entry of others to the extent of exceeding the proportion that occurred in the environment. Some of the controlling factors include the nature of the metals, environmental factors, the body's reaction, physiological tolerance, tissue thresholds and regulatory mechanisms.