

ABSTRACT

Shrimp farming industry in Sri Lanka has become a foreign exchange spinner during the last two decades. With the rapid industrialization and urbanization, the aquatic environment upon which the shrimp culture industry entirely depends, is being contaminated with anthropogenic substances such as heavy metals. Nevertheless, fish and fishery product exports are to comply with the stringent quality guidelines enforced by the statutory authorities to ensure food safety. Hence, the present study was carried out to determine the levels of three heavy metals; lead, chromium and cadmium in black tiger shrimp, *Penaeus monodon* cultured in the North Western Province of Sri Lanka and their immediate environment to examine the bioaccumulation potential of these metals in shrimp tissue and to assess whether existing levels of these metals could pose a significant risk to the shellfish consumers.

Levels of the three metals were determined in the shrimp collected at harvest during the period of January to May 2001 from twelve selected shrimp farms fed from four main water sources namely Puttalam lagoon, Dutch canal, Mundal lagoon and the Gembarandiya lagoon in Chilaw by atomic absorption spectrophotometry. The metal levels in water, sediments of the water sources and the farms and in the formulated shrimp feed were also determined. Bio-transfer factors of the three metals in shrimp were enumerated in relation to water, sediments and the formulated shrimp feed.

Results indicate that concentrations of the three metals in water of the four water sources that fed the shrimp farms: lead; 0.10 to 0.29 mg l⁻¹; chromium; 0.11 to 0.15 mg l⁻¹;