

Assessment of heavy metal in self-caught saltwater fish from Port Dickson coastal water, Malaysia

ABSTRACT

Freshwater fish has been studied and reported numerously. However, little attention has been made and limited studies available on local marine fish in Malaysia. Thus, in this study, concentrations of heavy metals (Cd, Cr, Pb and Cu) were studied in four major local marine fish *Megalaspis cordyla* (hardtail scad), *Rastrelliger kanagurta* (Indian mackerel), *Selaroides leptolepis* (yellowstripe scad) and *Sardinella fimbriata* (fringescale sardinella). The study was also intended to estimate potential health risk assessment from these heavy metals to the consumption of fish and assess maximum allowable fish consumption rate. The range of heavy metal concentrations were 0.053-0.096 mg/kg for Cd, 1.16-2.34 mg/kg for Cr, 8.34-12.44 mg/kg for Pb and 1.40-3.21 mg/kg for Cu in four major self-caught saltwater fish. Heavy metal levels of Cd and Cu in the local marine fish from Port Dickson are below the limit enforced by Food Regulations (1985) while the levels of Cr and Pb have exceeded the limit. Potential health risks associated with Cd, Cr, Cu and Pb were assessed based on target hazard quotients. HQ values calculated for Cd, Cr and Cu were less than 1, thus indicate that no adverse effects while HQ values for Pb exceeded 1 for all the fish species assessed with the exception of *Megalaspis* spp. and *Sardinella* spp. Cr was the highest while Pb concentrations were the lowest in all the studied fish samples for maximum allowable fish consumption rate. A long term monitoring program is crucial to be done in coastal areas with high consumption of local marine fish along Port Dickson to obtain real consumption rates and other cofounders factors in local population.

Keyword: Fish; Health risks; Heavy metal; Marine