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DETERMINATION OF HEAVY METALS IN SKIPJACK TUNA (*Katsuwonus pelamis*) SAMPLED FROM DIFFERENT FISHING AREAS OF SRI LANKA

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The skipjack tuna (*Katsuwonus pelamis*) is a highly nutritious marine fish species that contributes substantially to the daily fish catch in Sri Lanka; however, its safety may be compromised by heavy metal contamination resulting from marine pollution. In this study, 30 skipjack tuna samples (three from each site) were collected from ten Sri Lankan coastal locations (Beruwala, Galle, Modara, Moratuwa, Negombo, Panadura, Sarakkuwa, Trincomalee, Uswetakeyyawa, and Wadduwa), mainly in areas affected by the X-Press Pearl disaster. The edible flesh of the samples was dried and digested using a well-established acid digestion procedure reported in the literature, employing concentrated HNO_3 and 50% H_2O_2. Initially, three samples, each from Sarakkuwa, Negombo and Panadura, were analysed using inductively coupled plasma mass spectrometry (ICP-MS) for Cr, Hg, Cd, Pb, and As. The mean concentrations (±SD) were: Cr 0.625 (±0.478) mg kg^{-1}, Hg 0.064 (±0.034) mg kg^{-1}, Cd 0.041 (±0.017) mg kg^{-1}, Pb 0.353 (±0.352) mg kg^{-1}, and As 1.850 (±1.553) mg kg^{-1}. Based on these preliminary findings, further analyses were conducted for Pb and As in all 30 samples, as their concentrations exceeded the permissible limits (Pb = 0.2 mg kg^{-1}; As = 0.5 mg kg^{-1}). The highest concentrations were observed in samples from Sarakkuwa, with As 3.831 (± 0.381) mg kg^{-1} and Pb 0.595 (±0.120) mg kg^{-1}, while statistical analysis indicated that Pb concentrations in Sarakkuwa samples were significantly higher than the maximum permissible level (p = 0.008). The lowest Pb concentration was recorded in Modara samples (0.026±0.046 mg kg^{-1}), whereas the lowest As concentration was found in Panadura samples (0.490±0.053 mg kg^{-1}). Overall, samples from Sarakkuwa exhibited the highest Pb and As levels among all sampling sites, which may be attributed to their proximity to the X-Press Pearl disaster site.

Keywords: ICP-MS, Permissible levels, Sri Lanka, Wet digestion, Xpress Pearl.