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Selected heavy metals content in commercial fishes at different season landed at Fisheries Development Authority of Malaysia Complex (LKIM) Complex, Kuala Terengganu, Malaysia (Article)

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Abstract

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Fish is a common table food consumed by people for protein nourishment in Kuala Terengganu state. Therefore, a study was carried out to determine the bioaccumulation level of selected heavy metals; copper (Cu), zinc (Zn), arsenic (As), cadmium (Cd) and lead (Pb) in muscle of four most popular and landed fish species which are *Nemipterus furcosus* (Fork-tailed threadfin bream), *Katsuwonus pelamis* (Skipjack tuna), *Decapterus macrosoma* (Shortfin scad) and *Atule mate* (Yellowtail scad) which were caught at different season and landed at Fisheries Development Authority of Malaysia Complex (LKIM), Kuala Terengganu, Malaysia. A total of 30 individuals for each species were collected during monsoon (December 2015) and non-monsoon season (September 2016). Concentrations of these heavy metals (Cu, Zn, As, Cd and Pb) were determined by using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) after 0.05 g of dried samples were digested with 1.5 mL of Suprapur nitric acid. The average concentrations of Cu, Zn, As, Cd and Pb for samples of non-monsoon season are 3.31±0.26 mg/kg dry wt., 14.9±2.68 mg/kg dry wt., 9.12±3.45 mg/kg dry wt., 0.05±0.01 mg/kg dry wt. and 0.23±0.08 mg/kg dry wt., respectively. On the other hand, the average concentration of the same metals in samples of monsoon season are 5.25±1.23 mg/kg dry wt. for Cu, 32.7±9.67 mg/kg dry wt. for Zn, 24.9±6.77 mg/kg dry wt. for As, 0.11±0.07 mg/kg dry wt. for Cd and 0.66±0.21 mg/kg dry wt. for Pb, respectively. Generally, the average metals concentrations in this study were below the permitted levels set by Malaysian Food Act 1983 and Food Regulation 1985 except for As and Cd. However, the Provisional Tolerable Weekly Intake (PTWI) have been calculated for each metals and found that the PTWI value for Cd in *K. pelamis* caught during monsoon season was exceeded the permitted level set by FAO/WHO. This study would be useful for creation of guidelines to protect the public from the harmful effects of the toxicant present in the fish that is consumed by Kuala Terengganu people. © Penerbit UMT.

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