

### Some mineral elements in five species of tuna

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Fish and shellfish inevitably supply essential macro and trace elements to the human diet. Five predominant tuna species namely; skipjack ( Katsuwonus pelamis ), Yellow fin tuna ( Thunnus albacore ), Bullet tuna ( Auxis rochei ), Frigate tuna ( Auxis thazard ) and kawakawa ( Euthynnus affinis ) were selected to determine some mineral elements (Na, K, Ca, Mg, Zn, Cu, Fe, Cd, Ni and Pb). Samples of the five tuna species were collected from Pitipana, Negombo landing site (July 2006 to December 2006). The edible portions of muscle were separated from the washed, cleaned, eviscerated and filleted fish samples and were dried in a muffle furnace to obtain ash. The mineral content and heavy metal content of each ash sample was assayed after dissolving in 5N HCl and were analyzed by an Atomic Absorption Spectrophotometer (GBS 932 plus). The concentrations of the Na ( $1155.4 \pm 403.5 - 1407.1 \pm 231.2$  µg/g), K ( $3024.3 \pm 389.3 - 4357.7 \pm 708.6$  µg/g), Ca ( $676.7 \pm 49.9 - 735.8 \pm 37.5$  µg/g), Mg ( $470.4 \pm 91.2 - 684.4 \pm 21.0$  µg/g), Fe ( $16.04 \pm 2.81 - 34.65 \pm 1.11$  µg/g), and Zn ( $0.45 \pm 0.29 - 1.98 \pm 1.68$  µg/g) in each species were not significantly different ( $p > 0.05$ ). In this study K concentration was consistently higher than the Na concentration in all the species and the ratio of Na:K was 1:3 in all the species except skip jack in which it was 1:4. The concentration of Fe and Ca ranged from  $16.04 \pm 2.81 - 34.65 \pm 1.11$  µg/g and  $676.7 \pm 49.9 - 738.3 \pm 20.4$  µg/g respectively. The average Mg concentration in edible portion of these tunas was ranged from  $470.4 \pm 91.2 - 684.4 \pm 21.0$  µg/g. In this study Zn concentration was ranged from  $0.45 \pm 0.29$  µg/g to  $1.98 \pm 1.68$  µg/g. The highest Zn concentration was recorded in yellow fin tuna and skipjack ( $1.98 \pm 1.68$  and  $1.14 \pm 0.74$  µg/g respectively). The Cu concentration among these five tuna species was ranged from  $1.33 \pm 0.04$  µg/g to  $2.50 \pm 1.19$  µg/g. Cd was detected only in one sample of yellow fin tuna ( $0.05$  µg/g), which did not exceed its permissible level of  $0.25$  µg/g. Although Pb was detected in every

sample of both yellow fin tuna and skipjack ( $1.22 \pm 0.77 \mu\text{g /g}$  and  $0.36 \pm 0.25 \mu\text{g /g}$  respectively) the levels were not exceeding the permissible level ( $2.5\mu\text{g/g}$ ). There was a significant difference in Pb concentration between yellow fin tuna and skipjack. Ni was detected only in one sample of skipjack ( $0.025\mu\text{g/g}$ ).

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