

**CONFLICT OF NUTRITIONAL BENEFITS VS.
BIOCHEMICAL TOXICITY OF SKIPJACK TUNA
(*Katsuwonus pelamis*) IN SRI LANKA**

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Abstract

Fish, an excellent source of nutrients, which can derive health benefits to human whereas certain toxic compounds in fish; histamine and toxic trace metals, can generate certain negative consequences. The present study was carried out to assess the benefits vs. risks of a commercially important fish skipjack tuna (*Katsuwonus pelamis*) in Sri Lanka. Crude protein, fat, moisture and ash contents of skipjack tuna were analysed by their respective AOAC standard methods. Fatty acids composition was analysed by Gas Chromatography (GC). Histamine and trace metal concentrations were analysed by High Performance Liquid Chromatography (HPLC) and Atomic Absorption Spectroscopy (AAS), respectively. All the nutrients were assessed in terms of benefits, with reference to their respective Recommended Dietary Allowance (RDA) values whereas the toxicity of each trace metal was assessed based on the stipulated Provisional Tolerable Weekly Intake (PTWI) values. Histamine levels were compared with the recommended European Union and Sri Lankan regulations. As per the results, skipjack tuna is a good source of nutrients, especially with $24.13 \pm 2.01\%$ proteins and $0.41 \pm 0.56\%$ fat. From the total fatty acids content, 49.4% were PUFA which was contributed the most by ω -3 (41.67%). Skipjack tuna is rich with essential trace minerals; Fe, Zn and Cu, where the resulted mean values were 26.89 ± 19.64 , 6.89 ± 3.42 , $5.04 \pm 7.35 \text{ mg kg}^{-1}$, respectively. In addition, skipjack tuna does not pose any health risk due to trace metal toxicity, since all the recorded values ($0.13 \pm 0.06 \text{ Hg}$, $0.02 \pm 0.01 \text{ Cd}$, $0.01 \pm 0.02 \text{ Pb}$ and $0.92 \pm 1.12 \text{ As}$ in mg kg^{-1}) were well below the recommended levels. Although the resulted value for mean histamine content ($9.79 \pm 20.67 \text{ mg kg}^{-1}$) was lower, and below the recommended guidelines, in order to come in to a conclusion, a broader investigation along the market chain of skipjack tuna is required. By increasing the consumption, the benefits of skipjack tuna can be maximized while utilizing this resource effectively.

Key words: Skipjack tuna (*Katsuwonus pelamis*), Nutritional benefits, Toxicity risks, Assessment