

ASSESSMENT OF FRESHNESS OF SKIPJACK TUNA (*Katsuwonus pelamis*) HARVESTED IN MULTI-DAY BOATS IN MIRISSA FISHERY HARBOUR IN SRI LANKA

M.S.A. Perera¹, M.G.C.R. Wijesinghe², K.G.S. Nirbadha², P. Ginigaddarage² M.A.A.P. Kumari¹ and K.W.S. Ariyawansa²

¹*Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.*

²*Institute of Post-Harvest Technology (IPHT), National Aquatic Resources Research and Development Agency (NARA), Colombo -15, Sri Lanka.*

Skipjack tuna (ST) (*Katsuwonus pelamis*) is one of the main fish species that includes in the inboard multi-day boats (IMDBs) catch and significant losses have been observed during the postharvest handling. This study aimed to investigate the effect of storage duration on the freshness of ST harvested by IMDBs at *Mirissa* fishery harbour. Frozen fish samples (n=30) were collected from IMDBs and they were categorized based on the storage period in IMDBs as 0-20 days (T₁), 21-40 days (T₂), and 41-60 days (T₃). Further, fresh fish (Control, C) (n=10) were collected from single-day boats. At the reception, a sensory evaluation was done by six trained panelists. The samples were analysed for Total Coliform Count (TCC), Faecal Coliform Count (FCC), presence of *Escherichia coli* (*E. coli*) and *Salmonella* to assess the microbial quality and Total Volatile Base Nitrogen (TVB-N), Trimethylamine (TMA) and Histamine (H) to assess biochemical quality. The significance of the parametric and sensory data was analyzed using Analysis of Variance and the Kruskal-Wallis test, respectively. Sensory analysis revealed the occurrence of stale fish in T₃ was significantly higher ($p < 0.05$). Further, T₃ recorded a significantly ($p < 0.05$) higher chemical and microbiological mean values for TVB-N (62.15 mgN100g⁻¹), TMA (30.83 mgN100g⁻¹), H (38.35 ppm), TCC (0.36-93 MPNg⁻¹) and FCC (0-9.3MPNg⁻¹) compared to T₁, T₂ and C. *E. coli* counts were not different ($p > 0.05$) among the treatments while *Salmonella* was absent in samples. Further, all measured parameters of T₁, T₂ and fresh fish have not exceeded the maximum permissible limits (MPL), except for *E. coli*. However, TVB-N, TMA and *E. coli* values in T₃ have exceeded the MPL, as well as the H, TCC and FCC values, were much closer to the MPL, thus, it is possible to exceed during the distribution channel. In conclusion, fish stored up to 40 days in IMDBs are suitable for consumption.

Keywords: Biochemical, Coliform, *Salmonella*, Sensory