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Assessing of fish freshness using Torrymeter, chemical, microbiological, and organoleptic methods in Skipjack tuna (*Katsuwonuspelamis*), Indian scad (*Decapterusrusselli*), and Spangled emperor (*Lethrinusnebulosus*)

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Fish is a major protein source consumed by Sri Lankans. The best keeping quality or freshness of fish retains the nutritional quality of fish, and it is essential as a marketing tool. The freshness of fish can be determined by microbiological, chemical, organoleptic, and rapid sensing instrumental methods. Torrymeter is a sensor tool that can measure fish freshness quickly. In order to validate the Torrymeter for use as a quick, easy, and non-destructive method of freshness determination for Skipjack tuna (*Katsuwonus pelamis*), Indian scad (*Decapterusrusselli*) and Spangled emperor (*Lethrinusnebulosus*), fish were kept in chilled conditions for seven days, and assessed by Total plate count (TPC), Total Volatile Base Nitrogen test (TVB-N), Organoleptic Quality Index Method (OQIM) evaluations, and the obtained data were compared. Chi-square test of Analysis of variance indicated that Spangled emperor showed a correlation coefficient with TPC, TVBN, and OQIM in 86%, 86% and 86% equality with Torrymeter, respectively. In Indian scad it was obtained as 86% (TPC), 96% (TVBN) and 86% (OQIM) respectively. However, Skipjack tuna showed poor correlation that corresponds with 1% (TPC), 2.4% (TVBN) and 3% (OQIM) with Torrymeter values due to the fish obtained from multiday boats, in which initial freshness of the fishes are very low. The results indicate that use of the Torrymeter as a quick, easy, and non-destructive method for freshness determination of Indian scad and Spangled emperor can be done in Sri Lankan fishing industry.

Key words: Fish freshness; OQIM; Torrymeter; Indian scad, Spangled emperor

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