

Determination of formaldehyde, TVB-N and TMA in Skipjack tuna and Indian scad caught from multiday boats in Sri Lanka

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This study was conducted for quantitative analysis of formaldehyde content, the levels of total volatile base nitrogen (TVB-N) and Trimethylamine (TMA) of Skipjack tuna (*Katsuwonus pelamis*) and Indian scad (*Decapterus russelli*) fish samples, collected from three different fisheries harbours in Sri Lanka (Mirissa, Tangalle, and Kudawella), from multiday boats. Multi-day boats normally carry out fishing for around 60 days at once, and the samples were graded based on the number of days the catch was being caught (0-20, 20-40, and 40-60 days: A, B, and C respectively). The control samples were collected from single-day boats. The formaldehyde content was observed by UV-Vis spectrophotometer, absorbance at 412 nm using Nash reagent in conjugation with Trichloroacetic acid (TCA) extraction. The TMA and TVB-N contents were analysed using steam distillation and Dyer's (1945) colorimetric method. The formaldehyde contents of fish ranged between 0.024 and 0.163 mg/kg. The values were higher in Kudawella C grade Skipjack tuna and Indian scad samples, the values were 0.157 and 0.163 mg/kg respectively. Significantly high levels of formaldehyde were detected in the samples obtained from the harbours than in the control sample (0.035 mg/kg and 0.046 mg/kg for Skipjack tuna and Indian scad respectively). The concentration of TMA in Skipjack tuna ranged from 12.69 - 15.46 mg/100g and in Indian scad ranged from 13.27-25.51 mg/100g during the 40-60 days of storage time in multiday fishing boats, while TVB-N levels over the same storage period and conditions ranged from 31.29 - 40.11 mg/100g for Skipjack tuna and 28.75 - 57.5 mg/100g for Indian scad. All the results obtained were below the acceptable formaldehyde content (5 mg/kg). According to the research findings, Skipjack tuna and Indian scad fishes stored for up to 40 days in multiday boats from these harbors were at an acceptable level in terms of the formaldehyde content and TMA and TVB-N contents.

Keywords: formaldehyde, Indian scad, Skipjack tuna, TMA, TVB-N

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