

Investigation of histamine in *Katsuwonu spelamis* (skipjack tuna) harvested by multi-day boats using a rapid colourimetric method

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Histamine, a biogenic amine is a chemical hazard in fish and histamine food poisoning is found to be associated with high level consumption of scombroid fish, such as skipjack tuna. The present study tries to investigate the histamine levels in skipjack tuna by using a gravimetric and colourimetric methods, as simple and rapid methods. Skipjack tuna in the present study was obtained from three different markets. These methods were validated in terms of accuracy, repeatability, linearity and range of determinations. Linearity of histamine concentration determinations were range from 0.5-300 µg/mL with a correlation coefficient (R^2) of 0.9997. The recovery of histamine determination was 81.79% and demonstrated no significant difference between the percentage recoveries obtained at different histamine levels ($p < 0.05$). The repeatability of histamine determinations were less than 2% of the relative standard deviation (RSD). These methods were demonstrated the valid histamine determination in skipjack tuna and relied for routine analysis. Among the tested skipjack tuna samples, 86% were positive for histamine concentrations. The skipjack tuna samples were significantly different in histamine concentrations between Peliyagoda fish market, retail fish market and the Negombo fish market. The highest histamine concentration (>180 ppm) was in the skipjack tuna from Negombo. The lower defect action level of 50 ppm was observed in skipjack tuna from Peliyagoda fish market (91.6%) and 83% from retail fish market. The higher defect action level was observed in all skipjack tuna samples from Negombo.

Keywords: colourimetric method, gravimetric method, histamine determination, skipjack tuna, scombroid fish

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