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Histamine levels in fishery products imported to Sri Lanka

A. SASIKALA, M.J.S. WIJEYARATNE AND
J.M.P.K. JAYASINGHE*

Department of Zoology, University of Kelaniya, Sri Lanka.

* *Faculty of Livestock, Fisheries and Nutrition, Wayamba University of Sri Lanka, Markandura, Gonawila (NWP).*

ABSTRACT

The histamine levels in imported dried fish, canned fish and Maldivian fish were determined using thin layer chromatography followed by fluorometry. The results indicated that the mean histamine content of imported dried seer fish, queen fish, Indian thread fish, trevally, sail fish, spotted sardinella, skip jack tuna and anchovy were much higher than the accepted safe levels of 100 mg/kg. Imported dried catfish and shark contained a mean histamine level of <200 mg/kg. The imported canned fish of Jack mackerel, sardine and kipper packed in natural juice, tomato sauce, vegetable oil and sunflower oil contained a safe level of histamine, i.e. <100 mg/kg. In imported canned tuna packed in sunflower oil, fish oil, brine and hot and spice sauce, the histamine content was within the accepted safe levels. When the cans were bloated, the histamine content was at health risk level even if they were within the recommended shelf life period. The mean histamine content of imported Maldivian fish was also found to be higher than the accepted safe levels.

Introduction

A substantial percentage of the fish consumed in Sri Lanka are imported in the form of dried fish, canned fish and Maldivian fish. Out of the total 80659 mt of fish and fishery products imported to Sri Lanka in 2000, about 63% was dried fish, 27% was prepared or preserved (canned) fish and 5% was Maldivian fish (NARA, 2001)

Allergic reactions following the consumption of canned fish are frequently reported in Sri Lanka (Gunaratne *et al.*, 1996a) Allergic reactions occur due to histamine poisoning, which is a chemical intoxication occurring from few minutes

to several hours following the ingestion of fish that contained high levels of histamine (Taylor, 1983; 1986). The amount of histamine content in most food is usually insufficient to cause intoxication since it is readily metabolized in tissues through methylation by n-methyl transferase and oxidation by diamine oxidase (Uragoda and Lodha 1979; Huss, 1994). However, if histamine is present in high amounts, these mechanisms may fail to metabolize it effectively, resulting in histamine poisoning (Huss, 1994)

Several species of bacteria have been identified as the responsible organisms for histamine formation in fish. These