

Quality assessment of fish sold in retail markets of Western province, Sri Lanka

P.H. Ginigaddarage*, K.W.S. Ariyawansa, M. Senevirathne, J.M. Chandrika, K.S. Hettiarachchi, S. Abhayarathne and G.P. Roshan

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

Microorganisms and enzymes play a major role in the spoilage of fish. Bacterial counts, presence of pathogenic bacteria, formation of nitrogenous volatile compounds and histamine in some species of fish give a clear idea about its quality. Therefore, 139 fish samples (yellowfin tuna, skipjack tuna, squid, prawns, sail fish, mackerals, herrings etc.) were collected from 31 retail outlets of the Ceylon Fisheries Cooperation in the Western province of Sri Lanka to get an idea about the quality of fish they sell. Samples were analyzed for total plate count (TPC), *Salmonella* sp., *Staphylococcus aureus*, coliforms, faecal coliforms and *E. coli* to check the microbial quality and histamine (only for tuna and mackerel species) and TVB-N content was checked to get an idea about the chemical quality of fish. When considering the microbial quality of samples, TPC was found in the range of 2.5×10^2 to 1.0×10^8 cfu/g. Forty five percent of the samples had TPC $< 5.0 \times 10^5$ cfu/g and 15% of the samples contained $> 1.0 \times 10^7$ cfu/g of TPC. Thirty one percent of the samples contained $> 10^3$ MPN/g of total coliforms and 5% of samples had $> 10^3$ MPN/g of faecal coliforms. Seventy percent of the samples had *E. coli* content < 11 MPN/g and 2% of the samples contained $> 10^3$ MPN/g. *Salmonella* sp. was present in 16% of the samples and all the samples were negative for *Staphylococcus aureus*. TVB-N was found in the range of 15-800 mgN/100 g with 13% of samples containing > 35 mgN/100 g. Rest of the samples had TVB-N content < 35 mgN/100 g. Four percent of the samples contained > 100 mg/kg of histamine and rest of the samples contained a histamine content of < 100 mg/kg. When considering the quality of fish with both microbiological and chemical aspects, it can be stated that the quality of fish should be improved by adopting good handling practices and good chilling practices.

Keywords: TPC, pathogenic bacteria, histamine, TVB-N

*Corresponding author e-mail: hasangi_g@yahoo.com