

Assessment of Microbiological and Bio-chemical Quality of Fish in a Supply Chain in Negombo, Sri Lanka

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This study aimed to investigate quality of fish landed in Negombo area and distributed in suburban areas in Western province of Sri Lanka. Hundred samples of large fish (*Katsuwonus pelamis* and *Euthynnus affinis*) and 60 samples of small fish (*Amblygaster sirm*, *Pterocaesio chrysozona*, *Stolephorus commersoni* and *Sardinella albella*) were sampled from different stages of a supply chain at five and six sampling visits, respectively. All fish samples (N=160) were analysed for aerobic plate counts (APC) at 37°C, Coliforms, faecal coliforms, *Escherichia coli*, *Salmonella* spp., *Listeria monocytogenes*, total volatile base nitrogen (TVB-N) while 130 were analysed for histamine. Water from fishery harbor basin, fishery harbour, ice manufacturing plants and ice used in multiday boats were also analysed for microbiological parameters. Large and small fish contained APC in the range of 2.0×10^2 - 2.0×10^6 and 8.0×10^3 - 2.0×10^8 cfu/g, respectively. Faecal coliform counts ranged between not detected (ND) and 90 MPN/g in large fish and between ND and > 1100 MPN/g in small fish. 5% of large fish were contaminated with *E.coli* and ranged from ND to 15 MPN/g. *E.coli* was present in 70% of small fish samples and ranged from ND to >1100 MPN/g. Of the 160 fish samples, tested *Salmonella* spp were detected in nine occasions. Of the 160 fish samples, *L. monocytogenes* was found in eight *Katsuwonus pelamis* and one *Sardinella albella* fish. TVB-N of large fish were found at range of 1-67 mgN/100 g and 79% samples contained unacceptable levels. Small fish contained about 25.10-104.30 mgN/100 g while 78% samples exceeded acceptable levels. Histamine level of large and small fish, 26% and 83% of samples exceeded the maximum acceptable levels, respectively. Harbour basin water was heavily contaminated with *Salmonella* spp. (50%), *Faecal streptococci* (100%), *Faecal coliforms* and *E.coli* (100%). Ice samples (20%) from one ice plant were found contaminated with *Salmonella* spp.

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