# Dynamics of total bacterial flora in selected food fish along the distribution chain from Negombo fishery harbour

E. G. T. P. Wijesinghe[1], K. W. S. Ariyawansa[2], P. H. Ginigaddarage[2] and S. P. S. D. Senadheera[1]*

[1]Faculty of Fisheries & Marine Science, Ocean University, Tangalle, Sri Lanka, [2]Institute of Post Harvest Technology, National Aquatic Resources, Research & Development Agency, Colombo 15, Sri Lanka[2],
*shyamalie_senadheera2000@yahoo.com

A preliminary investigation was carried out to evaluate the dynamics of total bacterial flora in selected food fish species landed at Negombo fishery harbour and along the prevailing distribution channels under simulated conditions. Samples of high value species (eg. Skipjack tuna) were taken from multi-day-boats (MDB) before unloading, subsequent to unloading and washing with sea water & displayed on pellets after 2 hours, at the terminal points of transport vehicles and at retail outlets after 2 hours of displaying while the low value species (eg. herrings) were sampled from the nets/single day boats (SDB) and subsequent to washing and placing on pellets (2 hours) at the harbour premises. Aerobic plate count (APC) was determined in fish samples taken at different stages of the two major distribution chains using petrifilms. APC in skipjack tuna fluctuated relatively ($p \geq 0.05$) from MDB ($2.0 \times 10^4$ CFU/ml) to retailed stage ($1.8 \times 10^5$ CFU/g) while it varied ($p \geq 0.05$) from $2.3 \times 10^5$ to $5.1 \times 10^5$ CFU/g in Kawakawa from MDB to the retailed stage. The APC in herrings, big-eye scade, and sprats fluctuated from $3.4 \times 10^5$ to $1.6 \times 10^7$ CFU/g, $2.3 \times 10^5$ to $1.2 \times 10^7$ CFU/g and $4.6 \times 10^5$ to $1.2 \times 10^7$ CFU/g respectively indicating significantly higher rate ($p \leq 0.05$) of proliferation. Accordingly, the APC recorded from two species of large fish from MDBs to the retailed stage were within the acceptable levels whereas the APC of the 3 tested small fish species from SDBs were of unacceptable levels ($>1.0 \times 10^7$ CFU/g) at their retailed stage as per the standard of International Commission on Microbiological Specification for Foods for human consumption. The higher APC in small fish (SDB) compared to those of large fish (MDB) may be attributed to the possible adverse effects of capture method and the pollution status of fishing ground. Increasing APC along the current fish distribution chains revealed the abuse of temperatures and prevalence of unhygienic handling practices indicating the importance of good management practices.

**Key words:** Aerobic Plate Counts, Seafood, Good management practices, Microbiological quality.