Effect of storage conditions on fresh yellowfin tuna (*Thunnus albacares*)

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This study was conducted to investigate the effect of storage temperatures on the shelf life and safety of consumption of yellowfin tuna (*Thunnus albacares*) by studying the changes in microbial, chemical, and organoleptical attributes. Shelf life of yellowfin tuna was determined through the changes in total aerobic bacterial plate counts, total volatile base nitrogen (TVB-N) and tri methyl amine (TMA) and organoleptic properties 9 times during the 21 days of the storage trial, whereas one aspect of its safety was determined through histamine development during storage at 0°C, 4°C, and 7°C. Samples were reserved from 5 top exporting companies as 25 loins each. Based on TVB-N value indices, yellowfin tuna maintained an acceptable shelf life for 21, 17 and 12 day at 0°C, 4°C, and 7°C, respectively. However, yellowfin tuna were rejected earlier by the sensory panelists based on their TVB-N value indicated. Histamine development was found to be lower than the European Union (EU) safety level of 100 mg/kg fish during storage at 0°C for 21 days. Yellowfin tuna stored at 4°C and 7°C was unsafe for human consumption as histamine reached unacceptable levels, after 21 and 15 days, respectively. Aerobic bacteria initially dominated the microflora in yellowfin tuna, however, with the increase of storage time, aerobic bacteria became dominant at cold storage, but the numbers did not exceed the limit of 10^7cfu/g specified under the International Commission on Microbiological Specifications for Foods (ICMSF).

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