EVALUATION OF PROTEIN AND LIPID OXIDATION IN YELLOWFIN TUNA LOIN (THUNNUS ALBACARES) STORED UNDER REFRIGERATED TEMPERATURE (4 °C)

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Abstract - Tuna fish is the most popular seafood dish in the world. They contain high amounts of nutrients such as protein and lipids. Within the storage time period and processing, postharvest changes take place. This study aims to evaluate the changes in protein and lipid content stored under refrigerated temperature (4 0C). After receiving the tuna fish samples, they were cut into pieces and stored under the refrigerated condition. After storing the 25 g of sample at day 01, day 03, day 05, and day 07 were analysed for protein oxidation using DNPH assay, lipid oxidation using TBARS and, DPPH. To observe the change of pH, pH test was done. 2,4-Dinitrophenylhydrazine test was used for the identification of changing carbonyl content since the protein oxidation and they were 20.359 ± 0.592 nmol/mg, 79.744 ± 0.001 nmol/mg, and 5.291 ± 0.590 nmol/mg respectively on day 1, 5, 7. There was a significant difference between these results with storage ($P<0.05$). The storage time period, there was no significant difference between these results of 2,2-Diphenyl-1picrylhydrazyl values ($P>0.05$). The pH values of the sample within the storage time period, the results were Day 01 = 6.13 ± 0.005, Day 03 = 6.10 ± 0.015, Day 03 = 6.24 ± 0.070, and Day 07 = 6.29 ± 0.030 and had a significant difference with the storage ($P<0.05$). As conclusion there is a significant change in the protein oxidation and no change in lipid oxidation in tuna fish under refrigerated conditions for 7 days.

Keywords: *Protein oxidation, Lipid oxidation, Post-harvest changes, DNPH assay, DPPH assay, TBARS assay, pH test.*