EVALUATION OF PROTEIN AND LIPID OXIDATION OF OREOCHROMIS NILOTICUS HARVESTED FROM HADAPANAGALA RESERVOIR WHICH WERE STORED UNDER CHILLED TEMPERATURE (4-10 °C)

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Abstract - The study investigated the effects of chilled storage (4-10°C) over a period of seven days on protein and lipid oxidation in Nile tilapia (Oreochromis niloticus) harvested from Hadapanagala reservoir. Fish samples (250 ± 50 g) were harvested and stored at 4-10°C for 07 days. Protein oxidation was assessed by analyzing carbonyl concentration (nmol/mg protein) and SDS- PAGE analysis while lipid oxidation was assessed by analyzing malonaldehyde concentration (mg MDA per kg of fish) and antioxidant capacity (%). Freshness indicators, hypoxanthine proportion and pH values were also measured. According to data, there were significant differences in carbonyl content, malonaldehyde concentration and antioxidant capacity with different time periods of storage temperature condition at 4-10°C (P<0.05). Carbonyl content which was the protein oxidation indicator was reached to its maximum from the first day reading (5.41 ± 0.26) nmol/ mg protein to (7.87 ± 0.11) nmol/ mg protein on the seventh day while antioxidant capacity of the samples was reached its minimum from the first day reading (68.82 ± 3.28 %) to (18.82 ± 5.14 %) on the seventh day indicating the oxidation. These findings lead to conclude that storage temperature time period have a significant effect on oxidation of proteins and lipids hence preserving fish meat at 4-10°C for longer time periods is not very effective to in the terms of preserving of nutrients and extending shelf life.

Keywords: *Protein oxidation; Lipid oxidation; Nile tilapia (Oreochromis niloticus); Carbonyl concentration; Malonaldehyde concentration*