

Effects of chitosan and ascorbic acid coating on the chilled tilapia fish (*Oreochromis niloticus*) fillet

ABSTRACT

The effect of chitosan-based coating containing ascorbic acid (AA) for shelf-life extension of chilled (4 °C) tilapia fish fillet was evaluated over a 15-day duration of storage. A 3 X 3 Factorial Design comprising three concentrations of ascorbic acid (0, 2.5 and 5% w/v) and three concentrations of chitosan (1, 1.5 and 2% w/v) were used. The fish fillets were analyzed for aerobic plate count, lipid peroxidation, aw and pH changes throughout the duration of storage. The shelf-life of coated fillets (1.5 and 2%) was lengthened up to 15 days as compared to uncoated one (less than 6 days). The lipid oxidation of fillet with chitosan and AA (2C-5AA) was reported to be four times lower than that of the uncoated sample. The pH and aw of fish fillet coated with chitosan were lower than that of uncoated sample. The addition of ascorbic acid in chitosan coating further improved the oxidation inhibition by giving a lowered pH and aw changes for the duration of the storage. In conclusion, 2% chitosan coating added with 5% AA was the most effective coating to enhance the shelf life of chilled tilapia fish fillet.