

## Effect of Chitosan and Ascorbic Acid Coating on the Refrigerated Tilapia Fish Fillet (*Oreochromis niloticus*)

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**Abstract :** Tilapia is a popular cultured fresh-water fish in Malaysia. The highly perishable nature of the fish and increasing demand for high-quality ready-to-cook fish has intensified the search for better fish preservation method. Chitosan edible coating has been evident to extend the shelf life of fish fillet. This work was attempted to explore the potential of ascorbic acid in enhancing the shelf life extension ability of chitosan coated Tilapia fillet under refrigeration condition ( $4 \pm 1^\circ\text{C}$ ). A 3 2 Factorial Design which comprising of three concentrations of chitosan (1, 1.5 and 2%) and two concentrations of ascorbic acids (2.5 and 5%) was used. The fish fillets were analyzed for total viable count, thiobarbituric acid (TBA) value, pH, aw and colour changes at 3-day interval over 15-day storage. The shelf life of chitosan coated (1.5% and 2%) fillet was increased to 15 days as compared to uncoated fish fillet which can only last for nine days. The inhibition of microbial growth of fish fillet was enhanced with the addition of 5% of ascorbic acids in 2% of chitosan. The TBA value, pH and aw for chitosan coated samples were found lower than that of uncoated sample ( $p < 0.05$ ). The colour stability of the fish fillet was also improved by the composite coating. Overall, 2% of chitosan and 5% of ascorbic acid formed the most effective coating to enhance the quality and to lengthen the shelf life of refrigerated Tilapia fillet.

**Keywords :** ascorbic acid, chitosan, edible coating, fish fillet

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