Abstract

The present study was conducted to investigate the antimicrobial and antioxidant effect of chitosan coating with the extract of *withania coagulans* to increase the shelf life of silver carp fillet (*Hypophthalmichthys molitrix*). Fish fillets were kept in 6 treatments and 3 replicates for 18 days at 4 °C. Treatments included: uncoated treatments (control), 0.5% extract, 1% extract, 1% chitosan, 1% chitosan with 0.5% extract and 1% chitosan with 1% extract. The chemical factors (pH, peroxide value, Thiobarbituric acid and total active volatile basic nitrogen), microbial characteristics (total bacterial and Cryophilic bacteria counting) and organoleptic properties (taste, odor, texture, color and total utility) of the samples were studied at 0, 3, 6, 9, 12, 15 and 18. During the maintenance period all treatments had significant differences ($p < 0.05$) in terms of chemical, microbial and sensory factors. The highest amount of chemical and microbial indices was related to control treatment and the least was for 1% chitosan coating with 1% *withania coagulans* extract. In the sensory analysis, the fillets treated with chitosan 1 % with the *withania coagulans* extract of 1 % showed the best quality during the maintenance period. The results of current study showed that chitosan coating 1% and *withania coagulans* extract of 1% had a significant effect on reducing the chemical indices of corruption, microbial characteristics and increasing of shelf life of silver carp fillets.

Keywords: Hydroperoxide, Volatile basic nitrogen, *withania coagulans*, *Hypophthalmichthys molitrix*, Coating.

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Effect of chitosan edible coating enriched with extract of *Withania coagulans* fruit on the shelf life Silver carp fillet stored in the refrigerator

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