

Abstract:

The objective of this research was to investigate the effect of chitosan film containing *Colpomenia sinuosa* algae extract and fish protein hydrolysates on the quality of silver carp fillets during refrigerated storage. In this study, different percentages of *C. sinuosa* algae extract and FPH (1, 2 and 3%) were prepared. To determine the optimum percentage, the antibacterial activity and DPPH antioxidant activity of the extract and hydrolyzed protein were measured. According to the results, the chitosan film containing extract and FPH with a concentration of 2% showed the highest antibacterial and antioxidant activity. Fillets were prepared in five groups: control, chitosan film 2%, chitosan film 2% containing optimum algae extract, chitosan film 2% containing optimum hydrolyzed protein, and chitosan film 2% containing optimum protein hydrolysates + optimum algae extract, packed and stored in a refrigerator (4°C). Then, chemical (pH, PV, TBA, TVB-N) and microbial parameters (TVC and PTC) were measured over 16 days. The results of the chemical and microbial parameters of the samples showed that the lowest values for PV, TBA, pH, and TVB-N were observed in all treatments, such as the chitosan film 2% containing protein hydrolysates 1% + algae extract 1% treatment during refrigerated storage. The TBA value of the chitosan film 2% containing protein hydrolysates 1% + algae extract 1% treatment was at an acceptable level at the end of storage. The TVB-N value was below the acceptable level. Thus, the addition of *C. sinuosa* algae extract and FPH to the chitosan film, such as an edible film, improved the quality of the silver carp fillet during storage.

Keywords: *Colpomenia sinuosa* algae extract, protein hydrolysates, silver carp, DPPH



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Effects of chitosan film containing *Colpomenia sinuosa* extract and hydrolyzed protein of *Clupeonella cultriventris* on the quality of *Hypophthalmichthys molitrix* fillet during refrigerated

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