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The effect of different methods of adding chitosan and cooking temperature on the qualitative and sensory characteristics of silver carp burgers (*Hypophthalmichthys molitrix*)

A.R. Alishahi[*1], D. Beyki[2], S.M. Ojagh[1] and H. Mirsadeghi[3]

[1]Associate Prof., Dept. of Seafood Processing, Faculty of Fisheries and Environmental Sciences, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran,
[2]Ph.D. Student., Dept. of Seafood Processing, Faculty of Fisheries and Environmental Sciences, Sari University of Agricultural Sciences and Natural Resources, Sari, Iran,
[3]Ph.D., Dept. of Seafood Processing, Faculty of Fisheries and Environmental Sciences, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran
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Abstract

Heat is a common physical technique for cooking meat foods, which changes the structure of protein, texture, and quality of storage capacity such as juicy, color and odor due to temperature, cooking time and type of food. Knowing the right cooking time and additive type is very important in maintaining the quality of food products. In the present study, the effect of different methods of addition of acid soluble chitosan 1% (additive, immersion, additive + immersion) and cooking time on qualitative and sensory properties of silver carp burger was evaluated. Moisture, fat, protein and pH values were evaluated in the processing laboratory of Gorgan University of Agricultural Sciences and Natural Resources and sensory analysis was performed by trained panelists. Tukey test was used to compare the mean. The results showed that moisture and protein content decreased significantly with increasing cooking time ($P<0.05$) In addition, chitosan had a favorable effect on the qualitative characteristics of the product after cooking, so that in most samples containing chitosan, the quality of the product was better than the control group. Chitosan had no significant effect on color index and overall acceptance ($P<0.05$). Chitosan in additive form improved the texture compared to the control group, other methods of adding chitosan and the taste of the product at the time of cooking for 5 minutes was not significantly different from the control group ($P<0.05$) but this difference was significant at the time of cooking for 10 minutes ($P<0.05$). In the present study, the qualitative and sensory properties of fish burgers were evaluated by deep frying method. The results showed that increasing cooking time reduces the qualitative and sensory properties of the burger. The use of acid soluble chitosan 1% had a significant effect on the qualitative characteristics of fried burgers compared to the control group and also prevented the loss of sensory properties of the product. Additive method had more favorable conditions as compared with the one method. Therefore, the use of chitosan in meat products, especially fish and aquatic products, can be introduced to the public as a healthy additive.

Keywords: Chitosan, Deep Frying, Fish burger

*Corresponding author: seafood1144@yahoo.com