

Effect of Three Frying Methods on the Physiochemical and Nutritional Properties of Fish cutlet

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Outline

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2. Optimizing Air-frying Process Conditions for the Development of Healthy Fish Snack Using Response Surface Methodology under Correlated Observations
3. Application of Deep, Vacuum, and Air Frying Methods to Fry Chub Mackerel (*Scomber japonicus*)
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Abstract

Fish have variety nutrients, and it is good for human health. Frying is an ancient method of processing food, and there are several different frying types to get healthier food, such as air frying and vacuum frying. The aim of the study is to optimized the condition of the three frying methods, and the physicochemical properties of the optimized condition products would be analyzed. The process conditions were optimized using response surface methodology (RSM). The optimum temperature—time combination for air-frying condition was found to be 180 °C and 12 min, respectively. The fish cutlet was low fat content, better protein content and color, comparable texture profile and sensory acceptability when compared to deep fried fish cutlet samples. Vacuum frying process under low oxidation pressure, so that we also want to evaluated the physiochemical and nutritional characteristics of deep fried, vacuum fried, and air fried chub mackerel. Mackerel is one of the most consumed fish worldwide because of its high nutritional value. The physiochemical and nutritional characteristics, including volatile basic nitrogen (VBN), thiobarbituric acid-reactive substances (TBARS), pH, overall acceptance, proximate, fatty acid, and amino acids of fried mackerel were investigated. The RSM showed that the optimum temperature and frying time for deep, vacuum, and air frying were 165 °C for 3 min, 95 °C for 7 min, and 160 °C for 15 min, respectively. Vacuum frying showed the lowest increase in VBN, TBARS, and pH, and significantly ($p < 0.05$) differed from the others. These findings suggest that vacuum frying is the best frying method which has less lipid oxidation and can maintain nutrition. The results of these studies could be applied in the fisheries industry to produce the best fried fish cutlet and preserve its high nutritive value.

Reference

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