Effect of different frying techniques on the sensory properties and lipidomic characteristics of surimi-based product

Chin, Peng Shih Yun 金彭士芸

2020/12/9

Outline

1. Introduction
2. Protective role of vacuum vs. atmospheric frying on PUFA balance and lipid oxidation
3. Effect of air-frying conditions on the quality attributes and lipidomic characteristics of surimi during processing
4. Conclusion

Abstract

Frying can be essentially considered as the process of dehydration which involves heat and mass transfer simultaneously resulting in a series of physical and chemical changes in foods. The aim of the first study was to study the effect of vacuum versus conventional frying on fish patties by the analysis of oxidative parameters and their impact on the organoleptic properties. Vacuum frying significantly prevented degradation of EPA and DHA resulted in higher polyene ratio values than with conventional frying and maintained a lower ω6/ω3 fatty acid ratio in samples while no significant differences with conventional frying in total oil content were observed. The use of vacuum frying also reduced formation of peroxides and showed higher lightness and lower a* and b* values, which can be associated to lower non-enzymatic browning levels. The second study is to evaluate the effect of operating conditions (temperature and time) of air-frying and conventional frying on the quality attributes and lipidomic characteristics of fried surimi. The results indicated that air-frying showed lower values both a* and b*. The moisture content was also comparatively higher. Besides, the oily of aldehydes in air fried surimi were less significant. The lipidomic property of fried surimi was also explored. Comparing with air frying, the saturated species increased obviously during conventional frying process. Conclusively, compared with conventional fried surimi, vacuum frying and air frying can be considered as a healthy technique for preparing attractive fried food.