Changes in Textural Properties of Zucchini Slices Under Effects of Partial Predrying and Deep-Fat-Frying

Authors : E. Karacabey, Ş. G. Özçelik, M. S. Turan, C. Baltacıoğlu, E. Küçüköner

Abstract : Changes in textural properties of any food material during processing is significant for further consumer's evaluation and directly affects their decisions. Thus any food material should be considered in terms of textural properties after any process. In the present study zucchini slices were partially predried to control and reduce the product's final oil content. A conventional oven was used for partially dehydration of zucchini slices. Following frying was carried in an industrial fryer having temperature controller. This study was based on the effect of this predrying process on textural properties of fried zucchini slices. Texture profile analysis was performed. Hardness, elasticity, chewiness, cohesiveness were studied texture parameters of fried zucchini slices. Temperature and weight loss were monitored parameters of predrying process, whereas, in frying, oil temperature and process time were controlled. Optimization of two successive processes was done by response surface methodology being one of the common used statistical process optimization tools. Models developed for each texture parameters displayed high success to predict their values as a function of studied processes' conditions. Process optimization was performed according to target values for each property determined for directly fried zucchini slices taking the highest score from sensory evaluation. Results indicated that textural properties of predried and then fried zucchini slices could be controlled by well-established equations. This is thought to be significant for fried stuff related food industry, where controlling of sensorial properties are crucial to lead consumer's perception and texture related ones are leaders. This project (113R015) has been supported by TUBITAK.

Keywords : optimization, response surface methodology, texture profile analysis, conventional oven, modelling
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