

Control of Oil Content of Fried Zucchini Slices by Partial Predrying and Process Optimization

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Abstract : Main concern about deep-fat-fried food materials is their high final oil contents absorbed during frying process and/or after cooling period, since diet including high content of oil is accepted unhealthy by consumers. Different methods have been evaluated to decrease oil content of fried food stuffs. One promising method is partially drying of food material before frying. In the present study it was aimed to control and decrease the final oil content of zucchini slices by means of partial drying and to optimize process conditions. Conventional oven drying was used to decrease moisture content of zucchini slices at a certain extent. Process performance in terms of oil uptake was evaluated by comparing oil content of predried and then fried zucchini slices with those determined for directly fried ones. For predrying and frying processes, oven temperature and weight loss and frying oil temperature and time pairs were controlled variables, respectively. Zucchini slices were also directly fried for sensory evaluations revealing preferred properties of final product in terms of surface color, moisture content, texture and taste. These properties of directly fried zucchini slices taking the highest score at the end of sensory evaluation were determined and used as targets in optimization procedure. Response surface methodology was used for process optimization. The properties, determined after sensory evaluation, were selected as targets; meanwhile oil content was aimed to be minimized. Results indicated that final oil content of zucchini slices could be reduced from 58% to 46% by controlling conditions of predrying and frying processes. As a result, it was suggested that predrying could be one choose to reduce oil content of fried zucchini slices for health diet. This project (113R015) has been supported by TUBITAK.

Keywords : health process, optimization, response surface methodology, oil uptake, conventional oven

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