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Optimization of oil uptake of pre-dried and deep-fat-fried carrot slices as a function of process conditions

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O il uptake by food material is the main concern in process and it is crucial to control its amount during process due in part to its adverse health effect on human diet in case of excessive consumption. As a demand in this aspect manufacturers have been tried to decrease oil content of fried food materials using different pretreatments. One of them is partial dehydration of food material before frying. The purpose in this study was to reduce oil uptake of fried carrot slices using partial drying before deep-fat-frying. Two different drying methods were utilized and by this way their effects were examined. Drying trials were performed in a conventional oven and microwave one. For drying by conventional technique, oven temperature and weight loss of food material were independent variables, whereas in microwave oven specified weight loss was the controlled parameter. Frying temperature and time were the variables for pretreatments performed by both techniques. Optimization was aimed to minimize oil uptake of carrot slices after combined pre-drying and frying processes compared to directly deep-fat-fried ones. Model performance indicated high prediction ability of developed equations. Besides of oil uptake, moisture content and surface color were other interested responses in the present study, since moisture content was directly related to oil uptake during frying process and surface color was one of the significant quality indicators. Related equations were also found to be successful to estimate values of interested parameters as a function of studied process variables.

Biography

Erkan Karacabey completed Doctorate in Food Engineering Department of Middle East Technical University in 2016. He has been in Canada for one year as a Visitor Scientist in PARC (Pacific Agricultural Research Center of AAFC. He has publications and projects about Unit Operations in Food Engineering. He has been working as an Assistant Professor in Food Engineering Department of Suleyman Demirel University since 2012.

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