

Optimization of Blanching Conditions Prior to Deep Fat Frying of Yam Slices

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Abstract

The effect of low-temperature blanching and frying time at a frying temperature of 170°C on moisture and oil contents, breaking force and colour of yam chips was investigated using response surface methodology to establish the optimum blanching conditions and frying time. A central composite rotatable design was used to study the effects of variation in levels of blanching temperature (60–80°C), blanching time (1–5 min) and frying time (2–6 min) on quality attributes of yam chips. The effect of blanching temperature and frying time was more significant than the time of blanching on the quality attributes. The response variables were fitted to predictive models applying multiple linear regressions. Statistical analysis with response surface regression showed that moisture content, oil content, breaking force and L* (lightness) parameter were significantly ($P < 0.05$) correlated with blanching temperature and time and frying time. However, the regression equation showed a poor fit for a* and b* respectively. The optimum conditions were a blanching temperature of 70–75°C, blanching time of 4–5 min while frying for about 5 min.