

DRYING KINETICS AND INFLUENCE ON THE CHEMICAL CHARACTERISTICS OF DEHYDRATED OKRA (*ABELMOSCHUSESCULENTUS*) USING CABINET DRYER

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ABSTRACT

This study investigated the drying kinetics and effects of drying on the chemical properties of okra (*Abelmoschus esculentus*) using cabinet dryer. Fresh okra was sorted, cleaned and sliced into 2.0 mm thickness with FUTA Slicer. They were spread in a thin layer in a cabinet dryer and dried at varying temperatures of 40, 50 and 60°C until constant weights were obtained. The resulting dried okra slices were milled into grit for further analyses. Each sample was analyzed for proximate composition, mineral content, viscosity, anti-nutrients and antioxidants. The drying data were fitted into eight models to predict a suitable one. Results obtained showed that protein content followed a decreasing order for samples dried at 40 °C (24.54%), 50 °C (21.20%) and 60 °C (17.28%). The crude fibre content of dried okra samples increased significantly at ($p < 0.05$) as shown by okra sample dried at 40°C (15.17%), samples dried at 50°C was (12.86%), while that dried at 60°C had (11.72%). It was also observed that the sample dried at the temperature of 40°C had the highest values of the entire minerals analyzed. The viscosity of okra samples dried at varying temperatures with different particle sizes were significantly different at ($p < 0.05$). The sample with a very fine particle size had the highest mucilage retention property. Tannin and flavonoid contents of the okra samples were not significantly different from one another. β -carotene content of the dried okra grits was decreasing with increasing temperature. The vitamin C content of the okra reduced significantly at ($p < 0.05$) from 0.26% to 0.02%. The samples dried at 60°C had the least vitamin C content of (0.02%). It was concluded that drying of okra at 40 °C was better to retain its nutritional qualities and Modified Page model was found most suitable to describe the drying patterns within the temperature range under study.

Keywords: Okra, Drying, Models, Antioxidants, Mucilage.