

EFFECTS OF PRETREATMENT, DRYING TEMPERATURE AND SLICES THICKNESS TO THE QUALITY AND MODELING OF THE DRYING CURVES OF GARLIC

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Summary

Dried granulated garlic is considered a way to store garlic and it can be used conveniently for subsequent food processing. The dehydrated granulated garlic still offers a number of health benefits and it is a popular addition to dry soups mixes, sauces, food preparations, vegetable mixes, stuffing mixes and fast foods. The present work has been carried out with the effect of garlic pretreatment (2÷3 mm cut thickness) with sodium metabisulfite (50÷100 ppm) for 3÷7 minutes on quality of dried garlic. The effect of air temperature (60-80°C) on moisture content of garlic slices in hot air dryer was studied experimentally and four common drying models were developed base on data obtained. After drying, garlic slices are broken into pieces (granulated). Thiosulfinate content and antioxidant activity (DPPH%) were analyzed at the end of the drying period. The results showed that there were significantly differences in the content of thiosulfinate and radical scavenging activity DPPH of dehydrated granulated garlic that were processed at different conditions ($P < 0.05$). The high quality of dehydrated granulated garlic (thickness slices of 2 mm) was obtained as pretreatment by sodium metabisulphite 75 ppm in 5 minutes and drying at 70°C (thiosulfinate content of 17.30 $\mu\text{mol/}$ dry weight and radical scavenging activity DPPH of 60.32%) as compared to other samples. Drying temperature was the most effective parameter in the drying rate. Among the models, Page model was the best to explain the drying of garlic slices ($R^2 > 0.9$).

Keywords: DPPH, drying curve model, garlic, temperature, thickness slices, thiosulfinate.