

DRYING KINETICS OF MICROWAVE PRE-TREATED TRAY DRYING OF TOMATO

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ABSTRACT

This study was conducted to evaluate the drying kinetics of microwave pre-treated tomato slices. Microwave power levels 750 W, 1000 W and 1250 W and exposure time at 10, 20 and 30 min were considered as process variables. The thickness of the tomato slices was taken as 5 mm and tray dryer temperature was maintained at 60 °C. Drying kinetics study showed that drying curve followed a falling rate period throughout the process of drying. There was 45-50% reduction in the drying time for the slowest and the fastest experimental process compare to the control method. The Two-Term model was appropriate to predicting the moisture ratio with high R² and low RMSE value, 0.997, 0.0121, respectively. The moisture diffusivity and activation energy was 1.97×10⁻⁶ m²/s and 44.99 kJ / mol respectively.

KEYWORDS: Microwave, Tray Drying, Two-Term Model, Activation Energy, Moisture Diffusivity

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