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RESEARCH PAPER

Drying kinetics and modeling of onion slices in two stage drying

■ NAMITA J. PATIL*, J.P. PANDEY AND S.K. GARG

Department of Post Harvest Process and Food Engineering, College of Technology, G. B. Pant University of Agricultural and Technology, Pantnagar, UDHAM SINGH NAGAR (UTTARAKHAND) INDIA (Email: namita.patil16@gmail.com)

*Author for Correspondence

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SUMMARY :

The drying kinetics of onion slices were studied in a tray dryer. Response surface methodology (RSM) was used for designing the experiments with Incomplete Composite Block (Box-Behnken) Design. The independent parameters were drying temperature (70, 80 and 90^{0}C) during first stage, cut-off time (30, 50 and 70 min) and tempering period (0, 20 and 40 min).Temperature of second stage was kept constant at 60^{0}C. Empirical models namely Page's, exponential and logarithmic model were fitted to experimental drying data. The study indicates that drying time decreased with increase in temperature and cut-off time. Drying of onion slices took place in falling rate period only. The Page model of first stage and exponential model of second stage described the drying behaviour of onion slices well.

KEY WORDS : Onion slices, Two- stage drying, Drying kinetics, RSM, Mathematical modeling

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