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## Mathematical modeling and thin layer drying kinetics of Bamboo Slices on convective tray drying at varying temperature

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This study investigated the thin layer drying characteristics of bamboo slices in a convective tray dryer with three different temperatures viz., 55, 65 and 75°C and fit the experimental data to four drying models to identify the best fit model and drying temperature. The drying rate curves of slices typically demonstrate a smooth diffusion controlled drying behaviour. The drying rate at the beginning of the process was generally lower at 55°C with a marked difference between it and the other temperatures. The difference between moisture ratios increased gradually at the commencement of drying and the time required for reaching equilibrium moisture content decreased with increasing temperature. The average value of coefficient of determination (r<sup>2</sup>) and RMSE revealed values varied between 0.94- 0.99 and 0.014- 0.073 respectively. Page and logarithmic models obtained the highest r<sup>2</sup> and least RMSE at all temperatures and better reflected the drying mechanism of bamboo slices than exponential model. Rehydration ratio elevated when salt solution used for rehydration and the weight gain was more irrespective of temperature. Superior rehydration was noticed when the slices were dried at 65 °C and it was relatively poor at 75°C and 55°C. Products dried at 65°C recorded highest scores for visual appearance and colour at the end of drying.

## Biography

P. Suresh Kumar is a Senior scientist (Fruit Science), presently working at National Institute of Abiotic Stress Management, Baramati, Pune, Maharashtra. He obtained his PhD at IARI, New Delhi. He has been awarded JRF and SRF for his PG and PhD from ICAR and IARI respectively. He secured first rank in ARS examination for fruit science held by ASRB, New Delhi. He is a member of several scientific societies and referee to reputed food and Horticulture journals. He has handled CSS Technology Mission for Horticulture Development in NE states, NAIP Projects on livelihood improvement via establishment of low cost polyhouse, 5 different NHB projects for holistic development of Horticulture in Arunachal Pradesh and various ICAR sponsored institute projects including processing in Bamboo, germplasm conservation of cirus etc. Currently, his research interest is on identifying effect of abiotic stressors on quality of horticultural produces including antioxidants, flavanoids, phytochemicals and studying the shelf life. He has published about 35 research papers of national and international repute, 20 popular articles and 4 review articles. He edited souvenir, written many book chapters and published four book, six technical bulletins, 20 seminar abstracts, 5 extended summaries to his credit.

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