

Title Drying Kinetics of Thai Chilli cv. Huarau, cv. Jinda and cv. Super Hot
Author Wiriya Phomkong, Kamolmasch Dasook, Surangrath Thammarak, Apinya Ekpong
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Abstract

The most important chilies in northeastern part of Thailand, particularly the southern region, are cv. Huarau, cv. Jinda and cv. Super Hot. These cultivars were selected to study drying phenomena, in order to improve the chilli drying process drying. The pilot scale of a cabinet dryer was used at 50, 60 and 70 °C, 2.7±0.83 m/s air velocity and 37- 60%RH. The constant period did not exist, only a falling rate period was observed for chilies drying in three cultivars. The semi-empirical models predicting drying rate of chilies were obtained by fitting with the experimental data using nonlinear least squares analysis. Page's model represents the drying phenomenon of three cultivars with the highest value of R^2 and lowest value of SEE. The constant values (k) of page's model correlated to drying temperatures in the Arrhenius equation. Meanwhile, the relationship between n parameter and drying temperature was a second-order polynomial equation. Moisture diffusivities of chilli during drying were also obtained using the solution of the equation from Fick's second law for a cylindrical shape. The slope method was conducted to calculate constant values compared with the regular regime method. The correlation of moisture diffusivity and drying temperature was described as the Arrhenius equation. The constant values were obtained using a nonlinear least-square analysis.