Examination of the Effect of Spirulina platensis Microalgae on Drying Kinetics and the Color Change of Kiwifruit Pastille

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Abstract

In this study, the effects of various concentrations of Spirulina platensis microalgae were investigated on drying kinetics and the color of kiwi pastille. Spirulina platensis was applied to the samples at three concentrations of 0, 0.5 and 1% and the samples were dried at 70, 80 and 90°C. Eight models of the entire drying thin layer models were fitted into the moisture ratios obtained during experiments. Coefficient of determination (R²), Chi-square (X²) and Root Mean Squared Error (RMSE) were used in order to choose the superlative model. Different concentrations of Spirulina platensis had no effect on drying process. As time increased, a* showed ascending trends whereas L* showed descending trend and these color changes were relatively more intensive at high temperatures. Among the fitted mathematical models, the Midli was selected as the best one with R² of 0.9942.

Keywords: color parameter, drying kinetics, modeling, kiwi pastille, Spirulina platensis