عنوان مقاله:

Mathematical Models of Drying Pomegranate Arils in Vacuum and Microwave Dryers

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خلاصه مقاله:

Drying behavior of two types of pomegranates as well as the effect of drying conditions on moisture loss trend and on effective diffusion coefficient of arils are discussed in this article. Also, an appropriate mathematical drying model as well as the activation energy of sweet and sour pomegranate arils, dried in vacuum and microwave driers are pursued and presented. Results of regression analysis of the studied models indicated that Midili and Page models exhibit the best fit to the data obtained for vacuum and microwave drying, respectively. Effective diffusion coefficient of pomegranate arils was estimated in the ranges of ۰.۷۴×۱۰-۱۰ to ۵۲.۵×۱۰-۱۰ m۲ s-۱ and ۳.۴۳×۱۰-۱۰ to ۳۲.۰۵×۱۰-۱۰ m۲ s-۱ for vacuum and microwave driers, respectively. Activation energy figures for the vacuum drier were ۵۲.۲۷ and ۵۲.۸۳ kJ while for microwave drier they were ۱۷.۲۲ and ۲۳.۸۳ kJ for the cases of sweet and sour variety pomegranates, respectively.

کلمات کلیدی:

Drying model, Microwave drier, Pomegranate aril, Vacuum drier