

عنوان مقاله:

An application of image analysis to dehydration of osmosed pumpkin by hot air drying

محل انتشار:

چهارمین کنفرانس ماشین بینایی و پردازش تصویر (سال: 1385)

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خلاصه مقاله:

Pumpkin are traditionally dried with solar dryers or hot air dryers, which decrease product quality. To improve the quality of dehydrated pumpkins, the technique of osmotic dehydration followed by hot air drying has been tested in recent years. The objectives of this study were to investigate the effect of osmotic dehydration as a pretreatment before hot air drying. A computer vision system (CVS) was applied to study the color changes during drying. Pumpkin cubes were soaked in 50 %w/w sorbitol and sucrose solutions at 50°C for up to 6 hours followed by hot air drying at 60°C and air velocity 1 m/s. A CVS was used for color evaluation during which the color image was converted to L/a/b values. Parameters related to shape (area, perimeter, energy) decreased during drying time. Parameters related to the texture of the image and calculated from the color co-ordinates represented well the complexity and non-homogeneity of the visual appearance of samples. The color changes of dried samples were evaluated with total color change (ΔE^*), which was fitted to $\Delta E^* = a_0 + a_1(t) a_2$. The "b" and L values were decreased, but the a values were increased in pumpkin samples during hybrid osmotic-air drying respectively. Hot air dried samples pretreated with sorbitol had higher L values compared to the hot air along drying while that pretreated with sucrose exhibited lower L values. The ΔE^* values increased during drying in a sequence of ΔE^* sucrose solution < ΔE^* sorbitol solution < ΔE^* sucrose+hot-air < ΔE^* sorbitol + hot-air

کلمات کلیدی:

Pumpkin; Image processing; Image analysis

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