

Title Firmness and color characteristics of jalapeno pepper impregnated with isotonic solution
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Abstract

Jalapeno pepper exhibits relatively high porous structure. These pore spaces can be filled by applying vacuum to the pepper while immersed in a solution of desired composition. Vacuum impregnation (VI) process allows convenient compositional changes but also may result in texture and color modifications. The purpose of this study was to evaluate the color and texture characteristics of whole jalapeno pepper impregnated with isotonic solution under vacuum conditions. Freshly harvested jalapeno peppers were vacuum impregnated (VI). Vacuum chambers contained 9% peppers and 91% isotonic solution (IS) of sodium chloride ($a_w=0.972$) by weight. A Box-Behnken design was used to conduct impregnation experiments at different vacuum levels, vacuum application times, and relaxation times. Impregnated samples were tested for firmness by puncture test (TA-TX2) and color (Color Gard System 05). It was found that vacuum pressure and relaxation time had significant effect on the firmness ($p \leq 0.05$). Analysis of variance showed good correlation of the quadratic model with the experimental variables ($R=0.72$). Experimental variables did not have significant effect on color parameters (a , b , L , and ΔE). Knowledge of changes in color and texture occurring during VI will enable us to compare the effect of hypertonic solution.