

Title Color and texture properties of minimally processed mango (*Mangifera indica*) segments by hurdle technology, auto stabilized in glass jars

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Abstract

Classical method of hurdle technology, applied to minimally processed fruits, needs an equilibration time to 3-5 d in tanks containing both fruits and syrup, which is prepared with several chemical substances. Packaging is normally carried out after equilibration finishes. This procedure makes the process very inefficient and increases the production costs. On other hand, processing conditions, specially the formulation of the cover liquid, directly affect several quality aspects of the products, mainly the color and the texture. The purpose of this experiment was to evaluate the color and the texture during the storage of minimally processed mango segments by hurdle technology, auto stabilized in glass jars. The mango segments were blanched and then packaged in glass jars with cover liquid at 90 °C; assayed cover liquids were formulated according to a 2^{6-2} fractional factorial design with the following ingredients (factors): sucrose (A), sodium chloride (B), potassium sorbate (C), ascorbic acid (D), sodium bisulphate (E) and citric acid (F), in addition to water. The products were evaluated to firmness as indicator of texture as well as lightness (L^*), redness (a^*) and yellowness (b^*) for color during 90 d of storage. The experimental results showed that D and E were significant ($P<0.05$) at 90 d of storage for L^* and a^* , in addition to combined effects AE, BC, EF and CD for a^* . Texture was not significantly affected ($P<0.05$). The best cover liquid to maximize L^* was obtained with the following formulation (g/kg); sucrose 300, sodium chloride 1.5, potassium sorbate 0.5, ascorbic acid 0.5, sodium bisulphate 0.45 and citric acid at pH of 3.4. According to the experimental results, the auto stabilization of minimally processed mango segments by hurdle technology, packaged in glass jars with the best cover liquid did not show significant ($P<0.05$) modification of color and texture during 90 d of storage.