

Title Extending shelf life of fresh-cut persimmon 'Rojo Brillante': Effect of anti browning agents and controlled atmosphere storage

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Abstract

The aim of this work was to study the effect of anti browning agents combined with controlled atmosphere storage to improve the quality of fresh-cut persimmon. Persimmons cv. Rojo Brillante were harvested with an external color index (CI) of -0.57 (where, $CI=1000*a/L *b$). After removing fruit astringency by application of high levels of CO₂, samples were cleaned, peeled, and cut in sections. Persimmon pieces were dipped in 1 % ascorbic acid (AA), 1 % citric acid (CA), or in water as control. Fruit samples were then placed in 3 different atmospheres (Atm-A = 21 kPa O₂ + 0.03 kPa CO₂; Atm-D = 5 kPa O₂ + 10 kPa CO₂; Atm-F = 5 kPa O₂) during 9 days at 5 °e. Color (CIE L *a*b*), firmness, weight loss and visual quality were determined during storage. Control samples had lower L * and higher a * values than samples treated with the antioxidants. In untreated control samples, Atm-D was the most effective reducing enzymatic browning; whereas, antioxidant-treated samples stored in Atm-F had lower hue values than those stored in the other atmospheres. In general, the firmness decreased during storage for all the treatments. Samples stored in Atm-A had the highest weight loss. In the visual quality the judges ranked control samples as the most browned under all the storage conditions. Pieces treated with 1 % CA and stored in Atm-A and Atm-D reached the limit of marketability after 7 days of storage, whereas the combination of 1 % CA and Atm-F was evaluated above that limit during the 9 days of storage. Samples treated with 1 % AA and those stored in Atm-D induced some blackening of the tissue, which limited the shelf life of fresh-cut persimmon reducing the limit of commercialization significantly. The results show that atmospheres with low O₂ combined with application of 1 % CA could reduce the enzymatic and non-enzymatic browning and maintain shelf life up to 9 days of storage.