Title Efficiency of modified atmosphere in the firmness maintenance, mass loss control and pectin solubilization in apple cuItivar 'Eva' during the post harvest storage

Author Camila Argenta Fante, Luiz Carlos de Oliveira Lima, Vivian Aguiar Paiva

Citation Abstracts of 7th International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.

Keywords MAP; apple

Abstract

The fruits conditions and the post harvest conservation methods are based in the wish of keeping the quality and to satisfy the aim of maximizing fruit post harvest life. The modified atmosphere method allows the reduction of fruit respiratory rate, maturation, moisture loss, between other factors. The apple cultivar "Eva" presents low necessity of cold weather periods, it is able to yield high quality, sweet and balanced acidity fruits. The objective of this study was to verify the efficiency of different plastic films in apple fruits firmness conservation, mass loss control and pectin solubilization during the post harvest storage period. The fruits of cultivar "Eva" was yielded in the year of 2009 in Brazil, it was sanitized and splitted in four groups to the experiment assembly. A randomized experimental design (4x3) was set with four treatments. A 14 μM low density polyethylene film, a 70 μM high density polyethylene film, a 20 μM polypropylene film and the control group without plastic film in three evaluation periods (45, 135, 225 storage days) with five repetition per treatment. After the plastic film involvement the fruits were stored in cold chamber (0.5 ±0.5°C). One of the main fruit quality attributes, the fruit firmness showed along storage period that the treatments submitted to the modified atmosphere presented similar performance while the control group, without plastic film, presented the biggest firmness loss more evident from the second evaluation time. Regarding the mass loss, the control treatment presented the biggest mass loss from the day 135th until the end of the experimental period. It is possible to observe a decrement tendency in the total pectin content along the experimental period. The control treatment was similar to polypropylene film in the first two experimental periods of evaluation. To pectin solubility it is verified an increase solubility percentage along the experimental periods of evaluation in all treatments. The 70 μM high density polyethylene film conserved the apple fruits with the lower pectin solubility content from the second period of experimental evaluation. The 70 μM high density polyethylene film presented the best results, presenting the most firm fruits with minor mass loss and pectin solubility.