

Title Physico-chemical characteristics of apple (*Malus Domestica*) during storage under modified atmosphere

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Abstract

Atmosphere modification is a conservation technique used to extend postharvest life and maintain the quality of vegetables, which aims to create an optimal atmosphere inside the package, adequate for the product and not able of causing any injury to it. The apple (*Malus domestica*) cultivar Eva is cultivated in southeastern micro-regions and northeastern of Brazil and is characterized by its low requirement for cold periods and high quality fruits. Thus, this study was conducted to evaluate total soluble solids (TSS), titratable acidity (TA) and colour (L^* and h°) of Eva apple fruits stored under different packaging films. Apple fruits were harvested and selected according to their appearance and absence of injuries and rot. The experiment was composed by four treatments; low density polyethylene film, high density polyethylene film, polypropylene film and unpackaged (control), conducted at 0.5 ± 0.5 °C, and analyzed at three different times, 45, 135 and 225 days after storage (DAS). TSS levels for unpackaged fruits were similar to those found in the other treatments except at 225 DAS, while the treatments submitted to modified atmosphere showed lower levels of TSS, probably due to their use in the respiratory process for metabolism maintenance. TA levels were not significantly different among treatments throughout the experiment. Fruit colour varied between packaged and unpackaged fruits, where lower values of L^* variable were observed at 135 and 225 DAS. As for hue angle (h°), it was found that at 135 DAS, control fruits and fruits packaged with low density polyethylene film displayed a slightly yellow colour, present in a lesser extent in fruits of the other treatments. At 225 DAS, control fruits showed the closest colour to yellow. Therefore, it could be concluded that Eva apple fruits could be stored under modified atmosphere for up to seven months.