The duration of immersion in $CaCl_2$ and refrigeration modify some physical characteristics of lulo (*Solanum quitoense* Lam.) fruit during the postharvest stage

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Abstract

The lulo fruit is widely consumed in Colombia, it presents a climacteric behavior and is highly perishable, limiting fresh consumption or possible industrialization, which creates economic losses for producers, traders and consumers. Therefore, it is necessary to find economic alternatives that preserve lulo fruits longer and maintain quality. Postharvest calcium applications may be effective for longer shelf life and maintain fruit quality. Meanwhile, cooling is the most important technology to slow the deterioration of the fruit. In order to evaluate the effect of different times of immersion in $CaCl_2$ and two storage temperatures on the behavior of some postharvest physical characteristics of lulo fruits, the fruits underwent four immersion times (0, 5, 10 and 15 min) in a solution of $CaCl_2$ with 3% Ca and two storage temperatures (8°C and ambient [18°C]). During storage of the fruits, five weekly measurements of weight loss, firmness and skin color were made. The weight loss showed significant statistical differences. At 15 days of storage (dos), the fruits at room temperature were not suitable for marketing, greater weight loss occurred to control fruits (at room temperature and without calcium) with a value of 12.86%, however, the most effective treatment was immersion of the fruits for 10 min and cooling to 8°C. In fruit firmness, statistical differences during storage were observed. The strongest firmness was achieved with 15 min of immersion and cooling at 8°C. The smallest change in color of the lulo fruit throughout the storage was observed with the 10 min immersion and cooling to 8°C treatment, presenting green coloration even at 29 dos. The fruits without calcium and without cooling showed a less favorable response with the highest color change after 15 dos, In conclusion, less weight loss and color change were observed with immersion for 10 min and refrigeration at 8°C, the same temperature with a 15 min immersion produced the highest fruit firmness.