

Abstract:

Arazá (*Eugenia stipitata*) fruit, harvested in mature-green stage, were treated with calcium chloride solutions (0, 0.36 and 0.72 mol·L⁻¹) at two temperatures (4 or 15 °C). Fruit were subsequently stored in air at 12 °C and 90% relative humidity for 1 or 2 weeks followed by (or not) an additional shelf-life period (3 days at 20 °C, 70% relative humidity) to simulate shelf-life period. Shriveling increased during storage and the shelf-life period with no noticeable differences among treatments. Both calcium chloride treatments increased surface injuries but did not delay fruit softening, while control fruit did not develop surface injuries after storage or the shelf-life period. The calcium concentration within the epidermal tissue increased at higher temperature or dip concentration, ranging from 1.25 μmol·kg⁻¹ in control fruit to 2 to 5-fold more in fruit dipped with calcium chloride. Both calcium treatments, particularly 0.36 mol·L⁻¹ calcium chloride at 4 °C, delayed ripening changes at 12 °C as indicated by the better retention of sugars (mainly sucrose and fructose) and organic acids (malate and succinate). Anthracnose, and to a lesser extent, other signs of decay were exacerbated by calcium chloride treatments at 4 °C. Ascorbic acid decreased during the storage and upon transferring to simulated shelf-life periods by 25%, but to a lesser extent in fruit treated with dips at 15 °C. The retention of malate and succinate levels was also greater in dips at 15 °C. In summary, calcium chloride treatments cannot be recommended because of surface injuries that were not alleviated by low temperature dips. However, low temperature calcium chloride dips far below 0.36 mol·L⁻¹ could be a promising treatment for retaining overall internal fruit quality and modulating calcium absorption by the fruit.