

Title Effects of pre-harvest spray of salicylic acid on the quality of sweet orange in cold storage
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Abstract

The postharvest losses in sweet oranges account more than 40% mainly due to chilling injury, decay and postharvest disease. Fungicides and chemicals are mostly used protect the produce against fungus and other different pathogens. Pathogens become resistant and residual effects of these fungicides in food and environment are harmful for human health. Therefore, introduction of new strategies to control the postharvest losses in cold storage as well as in fresh produce are vital. Salicylic acid (SA) is a phenolic compound and an important natural antioxidant, therefore the trees of 'Lane Late' and 'Valencia Late' oranges were sprayed with different concentrations (0, 2, 3, 4, 6, 8, 9 mM) salicylic acid (SA) ten days before harvest. After harvest, the fruit were analysed and stored at 5°C for 93 days to investigate the effects of SA on fruit rot, chilling injury and quality parameters such rind and fruit firmness as well as sugar and organic acid contents. The results showed that pre-harvest spray of SA (8mM or 9mM) reduced fruit rot from 16.93% to 6.06% in 'Lane Late' and 12.78 to 5.12% 'Valencia Late'. Both concentrations were also very effective to minimize the incidence of chilling injury. The textural properties such as rind puncture, rind tensile and fruit firmness forces of SA-treated fruit were also significantly higher than the control. Pre-harvest spray of SA was effective to maintain the SSC%, T A%, individual sugars and organic acids in long term cold storage suggesting anti-senescent effect of SA. Our research suggests that the spray of SA potential to minimize postharvest losses in oranges.