

Title Effect of chitosan applied as coating on 'Oronules' mandarins
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Abstract

In the present study a commercial solution of chitosan was applied to 'Oronules' mandarins to investigate its effect when applied as a coating at different solids content (0.6, 1.2 and 1.8%). Additionally, one group of mandarins was coated with a commercial wax, and another group remained uncoated. Mandarins were stored at 5°C for up to 30 d followed by 7 d at 20°C simulating retail conditions. All coatings restricted gas exchange and modified the internal atmosphere of the fruit compared to uncoated mandarins, with a greater effect at higher chitosan concentration. Chitosan-coated mandarins at higher solids content had the highest internal CO₂ content and the highest ethanol content. Even though chitosan applied at 0.6% increased the internal level of CO₂ of the mandarins, this coating did not increase the amount of ethanol compared to uncoated mandarins. Chitosan application did not decrease mass loss of mandarins during storage, whereas the commercial wax decreased mass loss compared to uncoated control fruit. The internal quality of mandarins was not affected by coating application. All coatings increased the gloss of the fruit. In order to improve the water barrier properties of the chitosan coating, it would be necessary to add hydrophobic components to the formulation.