

Effects of chitosan coating with putrescine on bioactive compounds and quality of strawberry cv. San Andreas during cold storage

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Abstract

The effect of postharvest treatment of Putrescine (PUT) alone or in combination with chitosan on maintaining quality of strawberry cv. San Andreas during cold storage was investigated. The treated strawberry fruits were examined for weight loss, soluble solids content, titratable acidity, ascorbic acid contents, total anthocyanins, total phenolic contents, antioxidant content, decay incidence and sensory analysis throughout the 15 storage days at 1 °C and 90–95% relative humidity. Fruit coated with chitosan and chitosan + PUT coatings showed significant delays in the change of weight loss and decay percentage as compared to uncoated fruit. Although alone PUT application was effective in the early days of storage, it was not as effective as coating treatments towards the end of storage. The addition of Putrescine into the chitosan coating solution had a positive effect on maintaining higher concentrations of total anthocyanins, total phenolic and antioxidant content, which decreased in control fruit due to over-ripening and senescence processes. Likewise, sensory analysis results also showed the effectiveness of chitosan + PUT treatment by retaining the quality of strawberry. These findings suggest that the chitosan + PUT coatings are useful for extending the shelf-life and maintaining quality of strawberry fruit at 1 °C.