

Title Effects of chitosan navel orange fruit quality and disease resistance
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Abstract

In order to learn how chitosan affects quality and disease resistance of navel orange fruit (*Citrus sinensis* L. Osbeck cv. Newhall) after harvest, navel orange fruit were treated with 2%(w/v) chitosan for 1 min and some were inoculated with *Penicillium italicum*. Then, the fruit were stored at 20°C and 85-95% RH. The results indicated that the disease incidence and the lesion diameter in/on the chitosan-treated fruit were 80.7% and 93.0% lower than that in/on control fruit in the 16th day of the incubation. Postharvest decay incidence of navel orange fruit was also reduced by treatment with 2% chitosan in the 21th or 35 day of the storage. The study further showed that 2% chitosan treatment enhanced the soluble protein content, total phenolic and flavonoid level of navel orange fruit, which may be involved in the enhancement of disease resistance in navel orange fruit. Treating navel orange fruit with 2% chitosan effectively slowed the decline in the content of ascorbic acid (AsA), water titratable acidity (TA) and total soluble solids (TSS) of navel orange fruit. However, 2% chitosan had little effect on fruit firmness during storage. In conclusion, 2% chitosan treatment could delay the quality deterioration and enhance the disease resistance of navel orange fruit during postharvest storage.