

Title Postharvest application of hot water, fungicide and waxing on the shelf life of Valencia and local oranges of Siavarz

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Abstract

Sweet orange is one of the most important horticultural fruits in Iran. Postharvest losses of sweet orange may reach more than 30 percent. Postharvest application of hot water, fungicide and waxing were evaluated for effectiveness in extending shelf life of Valencia and local oranges of Siavarz (*Citrus sinensis* L. Osbeck), grown under subtropical climatic conditions in Khuzestan, Iran was examined. Each orange cultivar was harvested at the optimum time and divided into groups for different postharvest treatments. Treatments included, heat treatment (hot water dip 52°C for 3 min and water 25°C for 3 min). TBZ fungicide (2g/liter no fungicide), wax and a combination of these treatments. All fruit were stored at 6±1°C and 85-90% humidity (RH) for 3 months. At intervals samples were removed for physical and chemical analysis including, weight loss, juice content, titratable acid, vitamin C, soluble acid and incidence of decay were recorded. Applying hot water, wax and TBZ fungicide minimized postharvest decay, in particular. *Penicillium* molds. Application of this treatment on the Siavarz cultivar reduced decay to 2% compared to 27% in controls. Application of wax significantly reduced losses of fruit weight, ascorbic acid content and firmness of fruit. Hot water treatment significantly slowed fruit weight loss and softening, reduced ascorbic acid content. During cold storage titratable acidity (TA%) and vitamin C concentration decreased in oranges while total soluble solids (TSS) significantly increased.