

Title Combined effect of curing followed by acetic acid vapour treatments improves postharvest control of *Penicillium digitatum* on mandarins

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Abstract

In recent years several alternatives to the chemical control of postharvest decay have been examined but satisfactory levels of control, with a single system, have not been achieved yet. In the present study the results of an integrated postharvest approach are reported. Early and late harvested hybrid mandarin fruit "Fremont" and "Fairchild", inoculated with *Penicillium digitatum* (Pers.:Fr.) Saccardo, were cured at 36 °C for 36 h with 95% RH and then fumigated with 0, 5, 15, 25, 50, 75 and 100 µL/L of acetic acid (AAC) vapours for 15 min. Following the treatments, fruit was stored at 20 °C and 80% RH to simulate a marketing period, and after 2 weeks the decay incidence and the visual appearance were evaluated. Curing or fumigations performed alone reduced decay with respect to untreated fruit, but the best control was achieved with combined treatments. For early harvested fruit the lowest decay percentage was obtained by using 75 µL/L with 8.3% and 2.1% of rots for "Fremont" and "Fairchild", respectively, whereas for late harvested fruit the highest efficacy was observed using 50 µL/L (1.4% and 6.6%). Rind damage as pitting was observed only if fruit was treated with AAC alone at 100 µL/L.