

Title Combination of hot water, *Bacillus subtilis* CPA-8 and sodium bicarbonate treatments to control postharvest brown rot on peaches and nectarines

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Abstract

The aim of this study was to evaluate the effect of hot water (HW), antagonists and sodium bicarbonate (SBC) treatments applied separately or in combination to control *Monilinia* spp. during the postharvest storage of stone fruit. Firstly, we investigated the effect of HW temperatures (55–70°C) and exposure times (20–60 s), seven antagonists at two concentrations (10^7 or 10^8 cfu ml⁻¹) and four SBC concentrations (1–4%). The selected treatments for brown rot control without affecting fruit quality were HW at 60°C for 40 s, SBC at 2% for 40 s and the antagonist CPA-8 (*Bacillus subtilis* species complex) at 10^7 cfu ml⁻¹. The combinations of these treatments were evaluated in three varieties of peaches and nectarines artificially inoculated with *M. laxa*. When fruit were incubated for 5 d at 20°C, a significant additional effect to control *M. laxa* was detected with the combination of HW followed by antagonist CPA-8. Only 8% of the fruit treated with this combination were infected, compared to 84%, 52% or 24% among the control, CPA-8, and HW treatments, respectively. However, the other combinations tested did not show a significant improvement in effectiveness to control brown rot in comparison with applying the treatments separately. When fruit were incubated for 21 d at 0°C plus 5 d at 20°C, the significant differences between separated or combined treatments were reduced and generally the incidence of brown rot was higher than when fruit were incubated for 5 d at 20°C. Similar results were observed testing fruit with natural inoculum.

<http://www.springerlink.com/content/41600005n2732h85/fulltext.pdf>