

Title Induction of H₂O₂-metabolizing enzymes and total protein synthesis by antagonistic yeast and salicylic acid in harvested sweet cherry fruit

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Citation Postharvest Biology and Technology, Volume 39, Issue 3 , March 2006, Pages 314-320

Keyword Antagonistic yeast; Induced resistance; Postharvest disease; Salicylic acid; Sweet cherry

Abstract

The immersion of sweet cherry fruit in *Pichia membranefaciens* at a concentration of 5×10^7 cells ml⁻¹ or in salicylic acid (SA) at 0.5 mM for 10 min reduced the incidence of decay and lesion size caused by *Penicillium expansum*. Without pathogen inoculation, peroxidase (POD) activity was enhanced in yeast-treated fruit, but activities of catalase (CAT) and superoxide dismutase (SOD) showed a decrease in the same fruit. SA-treatment significantly inhibited CAT activity, but stimulated SOD and POD activities. After inoculation with *P. expansum*, CAT activity decreased and SOD activity increased in both yeast- and SA-treated fruit. No obvious difference was found in POD activity between treatments and water control. Treatments with yeast and SA changed the expression of POD isozymes. In addition, yeast and SA treatment increased total protein content of sweet cherry and up-regulated 33 and 47 kDa protein bands shown by SDS-PAGE. These results indicated that yeast- and SA-treatments induced synthesis of anti-oxidant enzymes and specific proteins, which may play a role in the resistance against postharvest blue mold.