

Title            Improving quality and safety of fresh fruits and vegetables after harvest by the use of biocontrol agents and natural materials

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Citation        ISHS Acta Horticulturae 709: 45-52. 2006.

Keywords      post harvest; fresh fruit and vegetables; yeast and bacteria antagonists

### **Abstract**

World trends are moving towards reduced pesticide use in fresh fruit and vegetables. Along with this trend, several physical and biological means have been evaluated as safer alternatives for the use of chemical fungicides. The use of microbial antagonists for the control of postharvest diseases received special attention, and has been extensively investigated. Most of the reported yeast and bacteria antagonists were naturally occurring on fruit surfaces. Microbial biocontrol agents of postharvest diseases have been criticized mainly for not providing as consistent or broad-spectrum control as synthetic fungicides. The “first generation” of biological controls for postharvest spoilage relied on the use of single antagonists. Perhaps it is unrealistic for us to expect disease control comparable to synthetic fungicides by the use of single antagonists. It can be expected that enhancing efficacy of biocontrol agents of postharvest diseases to an acceptable level will utilize a combination of different biological and physical means. As we learn more about the fundamental basis underlying the protective effect of microbial antagonists, bioactive compounds, and induced resistance, more effective methods of formulating, applying and combining complementary biological approaches for additive and/or synergistic effects will emerge. So far the results obtained with the different combinations of biological chemical and physical means demonstrate the potential of this multifaceted approach as a viable alternative to synthetic fungicides.