

Title Biocontrol of gray mold decay in peachfruit by integration of antagonistic yeast with salicylic acid and their effects on postharvest quality parameters

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Abstract

The potential of using *Rhodotorula glutinis* alone or in combination with salicylic acid (SA) for the control of postharvest gray mold decay of peachfruit, and their effects on postharvest quality of fruit was investigated. Washed cell suspensions of yeast controlled gray mold better than yeast in culture broth. Treatment of wounds with autoclaved cell cultures or cell-free culture filtrate did not prevent decay. Rapid colonization of the yeast in wounds was observed during the first day at 20 °C, then the populations stabilized for the remaining storage period. Spore germination and germ tube elongation of *Botrytis cinerea* in PDB was controlled by the living cell of *R. glutinis*: the percentage of spore germination of *B. cinerea* incubated with *R. glutinis* was reduced by 69.3% compared with control; similarly, the length of germ tube of *B. cinerea* incubated with *R. glutinis* was reduced by 65.8% compared with control. SA (100 µg/mL) could enhance the biocontrol activity of *R. glutinis* against gray mold decay in peachfruit. The application of SA and *R. glutinis* as stand-alone treatments did not produce significant control efficacy to natural infection of peachfruits. However, *R. glutinis* in combination with SA resulted in low average natural infection incidence in fruit, 16.67%, compared with 46.67% in the water-treated control fruit. SA, the yeast antagonist and the combination of them both had no significant effect on quality parameters after 7 days at 20 °C.