

Title Effect of yeast antagonist in combination with hot water dips on postharvest Rhizopus rot of strawberries

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### Abstract

The potential of using an antagonistic yeast alone or in combination with short hot water dips (at 55 °C for 30 s) for the control of postharvest Rhizopus rot and natural infections of strawberries, and its effects on postharvest quality of fruit was investigated. *Cryptococcus laurentii* was effective in controlling Rhizopus rot of strawberries. The concentrations of antagonist had significant effects on biocontrol effectiveness: the higher the concentrations of the antagonist, the lower the disease incidence. Rapid colonization of the yeast in wounds was observed during the first 2 days at 20 °C, and then the populations stabilized for the remaining storage period. On strawberry wounds kept at 4 °C, the increase in population density of *C. laurentii* was lower than at 20 °C, but continued over 20 days after application of the antagonist until it reached a high level. In the experiment to evaluate the effect of hot water dips and yeast antagonist on decay development in artificially inoculated fruits, hot water dips and antagonist yeast, as stand-alone treatments, were capable of reducing the percentage of infected wounds from 96.7% to 65% and 63.3%, respectively. However, in fruit treated with combination of hot water dips and *C. laurentii*, the percentage of infected wounds was only 43.3%. Incidence of natural decay on treated fruits were similar to that of inoculated fruit. None of the treatments did impair quality parameters of fruit. Thus, the combination of *C. laurentii* and short hot water dips could be an alternative to chemicals for the control of postharvest Rhizopus rot on strawberries.