Efficacy of antagonistic yeasts to control brown rot of nectarines and effect on the fruit microbiome

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Brown rot is one of the most important diseases affecting stone fruit. In this work, we selected some antagonistic yeasts by evaluating their efficacy to control brown rot caused by *Monilinia fructicola* on stored nectarines. Moreover, the effect of the treatments on the fruit quality and microbiome was assessed. A screening trial was set up by treating inoculated fruits with 14 yeast strains. The most effective (MS, *Metschnikowia pulcherrima*, AP47 *Metschnikowia fructicola*, FR4A, *Aureobasidium pullulans*) were subsequently tested in a semi-commercial trial. All treatments showed a significant rot reduction after storage and shelf-life. Moreover, at the end of the storage the efficacy of MS strain was comparable to that of the chemical treatment, making the antagonist as competitive as fungicides. All the tested BCAs did not affect fruit firmness, total soluble solids and titratable acidity. Microbiome analysis showed a good proliferation of the yeasts on the treated fruit both at epiphytic and endophytic level, together with a reduction of *Monilinia* spp. Moreover, the abundance of some other fungal genera was found to be modified. Results obtained showed that treatments with antagonistic yeasts represents a promising tool for disease management, while maintaining fruit quality.

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