

Title Detection of enzymatic activity and partial sequence of a chitinase gene in *Metschnikowia pulcherrima* strain MACH1 used as post-harvest biocontrol agent

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Citation European Journal of Plant Pathology, 123, Number 2, 183-193, 2009

Keywords *Botrytis cinerea*; Cell wall preparations; Chitinases; *Metschnikowia pulcherrima*; PCR; Post-harvest biocontrol

Abstract

Two antagonistic yeast strains *Metschnikowia pulcherrima* MACH1 and *Rhodotorula* sp. PW34 were tested for their efficacy against *Botrytis cinerea* in vitro and in vivo on apples. *Metschnikowia pulcherrima* strain MACH1 showed higher inhibition of *B. cinerea* compared to the strain PW34 in vitro on potato dextrose broth. Further, yeast strain MACH1 showed higher efficacy in reducing grey mould on apples compared to PW34 and the untreated control. In addition, partially purified extracellular proteins from strain MACH1 showed an inhibition to *B. cinerea* in vitro. The antagonistic yeast strains were tested for their efficacy to produce chitinases in different liquid media, including apple juice, amended with or without cell wall preparations (CWP) of *B. cinerea*. The study showed a higher production of chitinases from *M. pulcherrima* strain MACH1 when compared to PW34. Interestingly, the strain MACH1 secreted higher chitinases in the presence of cell wall fractions of *B. cinerea*. For this reason, the chitinase gene of strain MACH1 was amplified using PCR reactions and the nucleotide sequence data showed high homology to chitinases of other yeast strains. The results of the current study show that *M. pulcherrima* strain MACH1 has the ability to secrete chitinases in different liquid media including apple juice, and the enzyme could be involved in the post-harvest biological control of *B. cinerea*.

<http://www.springerlink.com/content/c75m56510q74qp50/fulltext.pdf>