

Title AFLP analysis of antagonistic strains of *Metschnikowia pulcherrima* for biological control of postharvest diseases in apple

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Citation Journal of Plant Pathology Volume 90 (2, Supplement) August 2008, Book of Abstract, 9th International Congress of Plant Pathology, August 24-29, 2008 Torino, Italy,. 507 pages.

Keywords apple; *Metschnikowia pulcherrima*; antagonistic

Abstract

Seven strains of the yeast *Metschnikowia pulcherrima*, isolated from the carposphere of apples cv. Golden delicious, showed biocontrol capability against *Botrytis cinerea* and *Penicillium expansum*. PCR-RFLP of the 18S+ITS rDNA was tested as a rapid and easy way to identify yeast species. The efficacy of these strains was compared with that of nineteen other *M. pulcherrima* strains isolated from different sources in different geographical regions. The strains were more effective in the control of *B. cinerea* than of *P. expansum*, after storage for 28 days at 4°C, with a mean reduction of pathogen growth to 30.0% and 49.3% of the control, respectively. *M. pulcherrima* strains of different origin were shown to have antagonistic properties. Strain 3043 isolated from grape must offered the best control of both *B. cinerea* and *P. expansum*. To assess the genetic diversity of *M. pulcherrima*, the RAPD and AFLP techniques were used. With six RAPD primers 33 polymorphic bands were obtained, while 729 polymorphic bands were obtained with six AFLP primer pairs. The genetic distances obtained by AFLP were mapped on a dendrogram. Strains isolated in different locations with high genetic diversity could have similar biocontrol potential. One primer pair, such as McaEaa or McgEat, were highly informative and sufficient to describe the genetic distances among the strains. AFLP fingerprints could be used to develop STS markers specific for strains, to improve identification and monitoring of the biocontrol agent in the environment.