

Title Differential gene expression during the pathogenic interaction between *Pichia fermentans* and peach fruit

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Abstract

A biofilm-forming strain of *Pichia fermentans* was found to be a very strong antagonist against brown rot and grey mold in artificially wounded apple fruit when co-inoculated with either *Monilinia fruticola* or *Botrytis cinerea*, respectively. The same strain of yeast, however, was an aggressive pathogen when inoculated on peach fruit, causing rot of fruit tissues, even in the absence of other pathogens. Optical and scanning electron microscopy showed that *P. fermentans* produces only yeast-like shaped cells during colonization of apple tissue, while exhibiting pseudohyphal growth on peach tissue. A rapid subtractive hybridization approach (RaSH) was used to identify differentially expressed genes in the pathogenic form of *P. fermentans* by comparing the cDNA of *P. fermentans* sampled after 24 hours growth on apple with the cDNA of the same strain grown 24 hours on peach fruit. A total of 450 clones were analysed by a reverse Northern Blotting technique, yielding some fragments which were significantly expressed on peach but less on apple tissue. These sequences were compared to the available genome sequences of another dimorphic yeast, *Candida albicans*, and homologous genes were identified. The relationship between these genes, dimorphism, and pathogenicity will be discussed.