Title Effect of chitin on the antagonistic activity of *Cryptococcus laurentii* against *Penicillium expansum* in pear fruit

Author Ting Yu, Lianping Wang, Yun Yin, Yixi Wang and Xiaodong Zheng

Citation International Journal of Food Microbiology, Volume 122, Issues 1-2, 29 February 2008, Pages 44-48

Keywords Biocontrol; Blue mold; Chitin; *Cryptococcus laurentii*; Pear; *Penicillium expansum*; Postharvest

Abstract

This study was designed to evaluate the impact of chitin on the antagonistic activity of *Cryptococcus laurentii* against the postharvest blue mold rot caused by *Penicillium expansum* in pear fruit. The results showed that the antagonistic activity of *C. laurentii* obtained from the culture media of nutrient yeast dextrose broth (NYDB) amended with chitin at 0.5–1.0% was improved greatly compared with the case that without chitin. The addition of chitin to NYDB did not influence the growth of *C. laurentii,* however, its population was found to increase rapidly thereafter in pear fruit wounds compared to that harvested from NYDB without chitin. Moreover, the cell-free filtrate of the chitin-supplement culture media in which the yeast was incubated for 24 h emerged a direct antifungal activity against *P. expansum* in pear fruit wounds, with the associated high level of chitinase activity. These results suggested that the use of chitin may be an effective method to induce the antagonistic activity of *C. laurentii*. To our knowledge, this is the first report regarding the chitin could enhance the efficacy of postharvest biocontrol yeasts.