

Title Isolation and *in vivo* screening of yeast and *Bacillus* antagonists for the control of *Penicillium digitatum* of citrus fruit

Author Abraha O. Abraham, Mark D. Laing and John P. Bower

Citation Biological Control, Volume 53, Issue 1, April 2010, Pages 32-38

Keywords Yeast; *Bacillus*; *Penicillium digitatum*; Antagonism; Citrus fruit

Abstract

A total of 60 yeast and 92 *Bacillus* isolates were isolated from the fruit surface of papaya and several varieties of citrus from various orchards in South Africa, and screened for antagonism to *Penicillium digitatum*. Ten yeast and 10 *Bacillus* isolates reduced the surface area of visible *P. digitatum* growth $\geq 50\%$, when applied 3 h before inoculation with the pathogen. Two yeast isolates (B13 and Grape), when applied 48 h prior to inoculation with *P. digitatum*, prevented decay of navel oranges and lemons, and $\leq 5\%$ incidence on Valencia oranges, compared with an untreated control that had $\geq 50\%$ incidence of infection. The application of isolates to lemons and Valencia oranges did not produce a curative action against *P. digitatum* when applied 3 h postinfection. The yeast isolates B13 and Grape were superior to all the *Bacillus* isolates, and provided excellent control of *P. digitatum*, when applied to citrus fruit prior to artificial inoculation by *P. digitatum*.