

**Title** The biocontrol of postharvest disease (*Botryodiplodia theobromae*) of guava (*Psidium guajava* L.) by the application of yeast strains

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### Abstract

Antagonistic activity of five yeast strains (*Pichia anomala* Moh 93, *P. anomala* Moh 104, *Pichia guilliermondii* Moh 10, *Lipomyces tetrasporus* Y-115 and *Metschnikowia lunata* Y-1209) was evaluated against dipoldia rot of guava caused by *Botryodiplodia theobromae*. Results revealed that both strains of *P. anomala* were the most effective antagonists against the pathogen *in vitro*. Examination of the direct interaction of yeast–pathogen by SEM showed a tenacious adherence between hyphae of *B. theobromae* and *P. anomala* Moh 93. There was accumulation of extracellular matrices around the hyphae of the pathogen. Eventually the hyphae of *B. theobromae* were totally penetrated and destroyed by the cells of the antagonistic yeast. *In vivo* *P. anomala* Moh 93 and *P. anomala* Moh 104 were responsible for the reduction of the disease by 39.1 and 50.0%, respectively. The production of cellulase and pectinase enzymes was significantly inhibited in guava fruit infected with *B. theobromae* when yeast strains were applied. This study represents a first report dealing with the biocontrol of diopldia rot in guava fruit by the application of yeasts. It strongly recommends the use of specific strains of *P. anomala* as a safe and effective biocontrol agent against the diplodia postharvest rot of guava fruit.