Title Screening of plant epiphytic yeasts for biocontrol of bacterialfruit blotch (*Acidovorax avenae* subsp. *citrulli*) of hami melon

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Abstract

Bacterialfruit blotch (BFB) caused by *Acidovorax avenae* subsp. *citrulli* (Aac) is a serious disease of hami melon (*Cucumis melo* var. *saccharinus*) in Northern China. A study was conducted to screen plant epiphytic yeasts for use as biocontrol agents of BFB. Results showed that 24 out of 463 yeast strains isolated from leaves or flowers of plants collected from three provinces in China were antibiotic against Aac on agar medium and eight antagonistic yeast strains including strain 0732-1 formed inhibition zones larger than 18 mm in diameter. Spray application of strain 0732-1 isolated from watermelon grown in Xinjiang was effective in reducing incidence and severity of disease caused by Aac on leaves of hami melon. Treatment of hami melon seeds with cell-free cultural filtrates of the yeast strain 0732-1 resulted in a significant reduction in severity of seedling blight caused by seedborne Aac, and the efficacy was not significantly different ($P > 0.05$) from that of chemical seed treatments including streptomycin sulfate (0.1%, w/v) and hydrochloric acid (2%, v/v). Based on morphological and physiological characteristics and analysis of the DNA sequence of the internal transcribed spacer of ribosomal DNA, the yeast strain 0732-1 was identified as *Pichia anomala* Kurtzman. This study suggests that the yeast strain 0732-1 is an agent with potential for biocontrol of BFB of hami melon caused by Aac.