Title Biological control of *Penicillium italicum* of Citrus and *Botrytis cinerea* of Grape by Strain 34–9 of *Kloeckera apiculata*

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Abstract

The biological control capability of strain 34-9 of *Kloeckera apiculata* against *Penicillium italium* (Wehmer), postharvest rot of citrus fruits and *Botrytis cinerea*, postharvest rot of grape fruits was studied in vitro and in vivo. Strain 34-9 of *K. apiculata* at 3×10^8 CFU (colony-forming unit)/ml of washed cells provided complete control of 3×10^5 spores/ml of *P. italium* and *B. cinerea* during storage at 25 °C for 6 d. Antagonist population increased 40, 195 times in citrus fruit wound site and grape fruit wound site at 25 °C for 3 d, respectively, then the population stabilized for the remaining storage period. Cell-free culture filtrate, supernatant fluid and sterilized solution of strain 34-9 of *K. apiculata* had no antagonist against *P. italium* of citrus and *B. cinerea* of grape. These results showed that competition for nutrient, not antibiotic production, played a major role in the biological control capability of strain 34-9 of *K. apiculata* against *P. italium* of citrus and *B. cinerea* of grape.