

Title Pathogen aggressiveness and postharvest biocontrol efficiency in *Pantoea agglomerans*
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Abstract

Pathogen aggressiveness on the host was studied as one of the influencing factors in the variability of the efficiency of biocontrol by *Pantoea agglomerans*. The effect of the relative dose of the pathogen and biocontrol agent (BCA) on efficacy of biocontrol was analyzed in six postharvest pathogens (*Rhizopus stolonifer*, *Botrytis cinerea*, *Penicillium expansum*, *Monilinia laxa*, *Penicillium digitatum* and *Penicillium italicum*), five fruit types (apple, pear, nectarine, strawberry, orange) and two strains of *P. agglomerans*. Median effective dose (ED₅₀) of the pathogens and of the BCAs was estimated by fitting data to a hyperbolic saturation model. The raw data required were either obtained from the literature or generated by the appropriate experiments. The ED₅₀ of the pathogens covered a range from 1 to 475 spores/wound and of the BCA strains ranged from 207 to 30,000 cfu/wound. The efficiency of the *P. agglomerans* strains was estimated as the ratio between the ED₅₀ for the BCA and the pathogen, and ranged from 7 to 25,000 cfu/spore. Low values indicate high efficiencies. A significant inverse relationship was observed between the efficiency of biocontrol and the ED₅₀ of the pathogen on the corresponding host, indicating that the higher the aggressiveness of the pathogen the lower the efficiency of the BCA. It is expected that this relationship can be extended to other postharvest biocontrol-pathogen systems.