Saprophytic microorganisms with potential for biological control of *Botrytis cinerea* on Geraldton waxflower flowers

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Abstract

Saprophytic bacteria, yeasts and filamentous fungi were isolated from Geraldton waxflower flowers and screened to identify potential antagonism towards *Botrytis cinerea*. Isolates from other sources (e.g. avocado) were also tested. Isolates were initially screened *in vitro* for inhibition of *B. cinerea* conidial germination, germ tube elongation and mycelial growth. The most antagonistic bacteria, yeasts and fungi were selected for further testing on detached waxflower flowers. Conidia of the pathogen were mixed with conidia or cells of the selected antagonists, co-inoculated onto waxflower flowers, and the flowers were sealed in glass jars and incubated at 20˚C. The number of days required for the pathogen to cause flower abscission was determined. The most antagonistic bacterial isolate, *Pseudomonas* sp. 677, significantly reduced conidial germination and retarded germ tube elongation of *B. cinerea*. None of the yeast or fungal isolates tested was found to significantly reduce conidial germination or retard germ tube elongation, but several significantly inhibited growth of *B. cinerea*. *Fusarium* sp., *Epicoccum* sp. and *Trichoderma* spp. were the most antagonistic of these isolates. Of the isolates tested on waxflower, *Pseudomonas* sp. 677 was highly antagonistic towards *B. cinerea* and delayed waxflower abscission by about 3 days. *Trichoderma harzianum* also significantly delayed flower abscission. However, as with most of the fungal antagonists used, inoculation of waxflower flowers with this isolate resulted in unsightly mycelial growth.

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