

Title Fate and activity of fungal biocontrol agents (BCAs) on strawberry
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Abstract

Fungal BCAs against grey mould are being used at flowering in strawberries. The objective of an ongoing project is to study the fate and activity of selected BCAs from application until harvest and consumption. The activity of BCAs based on *Trichoderma harzianum* and *Clonostachys rosea* against the grey mould pathogen, *Botrytis cinerea*, was examined on flowers using strains with reporter genes encoding either GFP or DsRed fluorescence. Approximately 70% of both *C. rosea* and *B. cinerea* conidia germinated on flower tissue while only 20% of *T. harzianum* conidia germinated within 24 hours at 20°C. Dual inoculation of the fungi showed that *C. rosea* significantly reduced both *B. cinerea* and *T. harzianum* germination on flowers. In addition, *C. rosea* significantly reduced grey mould symptoms. The fate of BCAs after application to the flowering plants, approximately 10⁴ CFU/flower, was studied in field trials. Quantification of the BCAs on berries developed from inoculated flowers showed that less than 160 CFU/berry of either *T. harzianum* or *C. rosea* were recovered one month later. High density (worst case) inoculation of berries with *T. harzianum* and *C. rosea* showed no increase in CFU density on the berries after four day incubation at 20°C. Sub-samples of these berries will be analysed for presence of microbial metabolites. Data on fate and activity of BCAs on strawberries both pre-harvest and post-harvest will aid risk assessment of BCAs by pointing out the kind of assessment studies needed to ensure safe use of BCAs.