Title Biocontrol of grey mould by *Ulocladium atrum* applied at different flower and fruit stages of strawberry

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Abstract

Grey mould is an important disease ofstrawberries resulting from flower and fruitinfection by *Botrytis cinerea* Pers. Thesaprophytic fungus *Ulocladium atrum*Preuss is a promising biological controlagent for control of *B. cinerea* instrawberry and other crops. The objective ofthis research was to determine the efficacy of *U. atrum* to control grey mould by asingle application of a spore suspension (2 $\times 10^6$ conidia/ml) at different flowerand fruit development stages. Four experimentswere carried out in 1999, two under natural andtwo under enhanced inoculum levels of *B.cinerea*. In each experiment, flowers and youngfruits in six distinct stages of developmentwere sprayed with either water or *U.atrum* suspension. *U. atrum* suppressed*B. cinerea* sporulation on petals by 15 to54%. One to four days after spraying, *U.atrum* was present on less than 30% of stamensand did not affect the incidence of *B.cinerea* on these flower parts. The efficacy ofthe *U. atrum* sprays in controlling greymould was low to moderate, and resulted onaverage in a reduction of 21% in diseaseincidence on ripe fruits. Low control efficacywas probably due to poor coverage with orcolonisation of stamens by *U. atrum*spores, and a relatively low level ofsuppression of the colonisation of flower partsby *B. cinerea*. Significant reductions ofgrey mould in comparison to the control (p £ 0.10; on average 41% reduction) werefound most frequently when the antagonist wasintroduced at late flowering or early fruitstages. Therefore, these are the most suitablestages to apply *U. atrum*. Further studiesare needed to improve the spray coverage andpersistence of *U. atrum* inoculum.