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**Biological control of *Botrytis cinerea* on kiwifruit**

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## ABSTRACT

Screening for potential antagonists was carried out on plant parts of kiwifruit (*Actinidia deliciosa* var. *delicosa* [A.Chev]. Lang & Ferguson, cv. Hayward) taken from kiwifruit orchards in four collections.

A range of microorganisms have shown potential activity against *Botrytis cinerea* Persoon. ex Fries, on Potato dextrose agar (PDA) petri dish at various temperatures, including 0°C.

The antagonism was also tested on different media with different pH for antibiosis or mycoparasitism action.

It was found that temperature had a much greater effect on growth and activity of the antagonists than did pH.

Three isolates (FB3, FF9, FO30) which showed good biocontrol activity were tested for ability to inhibit spore germination and germ tube elongation of *B.cinerea* on 2.5% vegetable juices (V.8) medium discs. One of these isolates (FO30: *Fusarium merismoides*) showed such ability.

These isolates were selected for a trial on kiwifruit.

Stem end rot was partially controlled under storage condition when the pathogen (*B.cinerea*) and the antagonist were inoculated simultaneously.

Harvested fruit were inoculated with different inoculum levels and subjected to different curing periods.

The inoculum level of *Fusarium merismoides* isolate FO30 showed a significant affect on the percentage of soft rot caused by *B.cinerea*, and reduced disease incidence on kiwifruit by 17-21% after 13 weeks storage at 0°C.

The curing period did not have any significant effect on the percentage of soft rot except when the fruit was cured for 2 days at ambient temperatures, inoculated, and left 2 further days at ambient temperatures before storage at 0°C.

Further work is required to investigate enhancement of biocontrol of *B.cinerea* on kiwifruit by manipulation of the curing period.

Several microscopic stains including Chlorazol black, Lactophenol cotton blue and phloxine gave good staining of the spores and mycelium of *B.cinerea* and antagonists on 5% V.8 medium and kiwifruit tissue.

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## LIST OF ABBREVIATIONS

A.PDA	= Potato dextrose agar amended with antibiotic
B	= <i>Botrytis</i>
CMA	= Corn meal agar
CP1	= Curing period one
In	= Isolate overgrown by <i>Botrytis</i>
In.1	= Inoculum level one
KFJ	= Kiwifruit juice
MA	= Malt extract agar
MEA	= Malt extract agar
$\mu$ l	= Microlitre
$\mu$ m	= Micrometre
NA	= Nutrient agar
PDA	= Potato dextrose agar
S	= <i>Botrytis</i> overgrown commencing
SDW	= Sterile distilled water
SDWT	= Sterile distilled water amended with tween 20
UV	= Ultraviolet
V.8	= Juice of eight different vegetables

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