

SURVIVAL OF *BEAUVERIA CALEDONICA* SPORES IN NOVEL BIOPOLYMER-BASED FORMULATIONS FOR CONTROL OF THE BARK BEETLE *HYLASTES ATER* (COLEOPTERA: SCOLYTIDAE)

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Hylastes ater was first recorded in New Zealand in 1929 and is now established in all exotic pine plantations. During maturation feeding adults damage and may kill young pine seedlings, which can significantly impact regenerative plantings. The insect-pathogenic fungus *Beauveria caledonica* is frequently isolated from individual beetles and frass collected from breeding populations of *H. ater* in *Pinus radiata* stumps and is being evaluated as a biological control agent for this and other bark beetles. As part of this investigation, novel formulations are being developed for delivery of fungal inoculum to the target insect. Survival of inoculum in a formulation is obviously critical for it to be functionally effective, and studies have been done to assess the suitability of different materials for this purpose. Data are presented on survival of *B. caledonica* conidia in gel, biopolymer-coated rice, and biopolymer-clay formulations.

SURVIVAL OF *BEAUVERIA BASSIANA*, A POTENTIAL BIOCONTROL AGENT FOR INSECT PESTS IN KIWIFRUIT ORCHARD SOILS

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The entomopathogenic fungus *Beauveria bassiana* is being examined as a biocontrol agent against Fuller's rose weevil (*Naupactus cervinus*) in kiwifruit orchards. Larvae of the pest live in the soil and are susceptible to strains of the fungus. Survival of *B. bassiana* was assessed after application to kiwifruit orchard soil maintained at 15°C in the laboratory. After an initial decline of approximately 65%, *B. bassiana* populations remained stable for at least 3 months. To test persistence under orchard conditions, the fungus was cultured and prepared as a granular formulation. In trial 1, surface application of granules was compared with soil incorporation. In trial 2, granules were applied to the soil surface in three orchards. Persistence was assessed by isolation of fungi from soil samples on selective media. The applied fungus established on all sites, with populations being significantly greater than in untreated plots. There was no significant difference between surface applied and soil incorporated treatments. The applied strain could be detected in the soil for more than 6 months after application. This study indicates that *B. bassiana*, applied as granules, can survive in orchard soils for several months, and suggests potential for biocontrol of soil-dwelling insects.