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Full Length Research Paper

The efficacy of two isolates of *Metarhizium anisopliae* (Metschin) Sorokin (Deuteromycotina: Hyphomycetes) against the adults of the black maize beetle *Heteronychus licas* Klug (Coleoptera: Scarabidae) under laboratory conditions

Makaka, Caston

Department of Biological Sciences, Midlands State University, Bag 9055. Gweru, Zimbabwe. E-mail: makakac@msu.ac.zw, cmakaka@yahoo.com.
 Tel: 263 054260490 ext 340. Fax: 263 054 60708.

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Abstract

The efficacies of two isolates of *M. anisopliae* were evaluated against black maize beetle *Heteronychus licas* in the laboratory at 15 and 28°C and relative humidity of 55 - 70% at the University of Zimbabwe in 2000. The beetles were exposed to the fungus that was suspended either in oil and in water at concentrations ranging from 1.4×10^4 - 1.4×10^8 conidia/ml. Mortality was observed in all concentrations and mortality increased with increase in conidia concentration. Fungal infection reduced feeding activity in beetles with most deaths occurring on the soil surface. Conidia concentration, isolate, type of medium, the interaction between temperature and medium and the interaction between isolate and medium had marked effects on beetle mortality ($p < 0.05$). The oil formulations were in general more effective than the water formulations. The most potent treatment at 15°C was the oil suspension of isolate IMI098376 ($LC_{50} = 4.47 \times 10^4$ conidia/ml) with an LT_{50} at the lowest concentration (1.4×10^4 conidia/ml) of 13.3 weeks and earliest mortality at highest and lowest concentration occurring in 3 and 4 weeks, respectively. At 28°C the most potent treatment was the oil formulation of IMI098376 ($LC_{50} = 3.10 \times 10^4$

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conidia/ml) with an LT_{50} at the lowest concentration of 13.3 weeks and the earliest mortality at highest and lowest concentration occurring in 4 and 5 weeks, respectively. Field trails using the oil formulations are recommended.

Key words: Formulation, media, mortality, potent, efficacy, lethal concentration, biocontrol.

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