

**In vitro assessment of entomopathogenic fungi *Isaria*, *Lecanicillium* species against
Coconut black beetle**

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Abstract

Coconut black beetle, *Oryctes rhinoceros* is a serious pest of coconut in Sri Lanka and this is one of most damaging insects to palms in Asia. There is no any method as biological control agent except *Baculovirus oryctes* to control the beetle population. Nowadays, control methods revolve around treatment based on mechanical, cultural, chemical methods. Mechanical and cultural methods are not such an effective methods. Extensive and inappropriate use of this chemical method can cause serious problems in the environment. Use of Entomopathogenic fungi is an effective and environmentally favorable for the control of pest. The objective of this research was to evaluate the efficacy of entomopathogenic fungi, *Isaria fumosorosea*, *Lecanicillium lecanii* on black beetle. Efficacy of the entomopathogenic fungi *Isaria fumosorosea*, *Lecanicillium lecanii* was determined by the mortality of black beetle after application of spore counted conidial solution of *Isaria fumosorosea*, *Lecanicillium lecanii* on coconut black beetle. Confirmative test was done for the insect cadavers to confirm the causal agent of death. Most effective fungi against coconut black beetle (*Oryctes rhinoceros*) was *Isaria fumosorosea* which caused 66.67% mortality at 9.42×10^9 spores/ml within 13 days after treatment. The Entomopathogenic fungi namely, *Isaria fumosorosea* and *Lecanicillium lecanii* have the potential to control the black beetle. Further experiments to be done to check the mortality of black beetle with different spore concentration of Entomopathogenic fungi, *Isariafumosorosea* and *Lecanicillium lecanii* *in vitro* as well as field.

Key words – *Isariafumosorosea*, *Lecanicillium lecanii*, *Oryctes rhinoceros*, infectivity, *in vitro*