

***In-vitro* Assessment of Entomopathogenic Fungi *Isaria fumosorosea* and *Lecanicillium lecanii* Against Coconut Black Beetle**

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Coconut black beetle, *Oryctes rhinoceros* is a serious pest of coconut in Sri Lanka and this is one of among the most devastating insect pest of palms in Asia. Overuse and misuse of insecticides to control this pest causes problems in the environment, while, adopting cultural and mechanical measures are reported to be ineffective. Use of entomopathogenic fungi is an effective and environmental-friendly method of controlling insect pests, however, information is limited on the biological control of adult beetles of *O. rhinoceros* in Sri Lanka. Therefore, this study was conducted to evaluate the efficacy of entomopathogenic fungi, *Isaria fumosorosea* and *Lecanicillium lecanii* on *O. rhinoceros*. The adult *O. rhinoceros* were collected from farmer fields in Palai area of Jaffna District and were brought to the laboratory. The beetles were kept in rearing cages consisting goat dung, sugar cane and split banana stems as bedding substrates. Upper side of the cage was covered with a muslin cloth. The beetles were fed with pieces of sugarcane twice a day. The *O. rhinoceros* beetles were inoculated using spore solutions of two entomopathogenic fungal species, *I. fumosorosea* and *L. lecanii* at the concentrations of 16.7×10^9 spores/ml and 9.4×10^9 spores/ml, respectively. The dead insects were tested to confirm the development of mycosis. The cumulative mortality of beetles were significantly higher ($P > 0.05$) in *I. fumosorosea* (66.6 %) than that of *L. lecanii* (22.2 %) after 13 days of treatment. The dead insects were examined and the development of mycosis was observed. *Isaria fumosorosea* can be considered as a potential biocontrol agent for *O. rhinoceros* at the rate of 9.4×10^9 spores/ml, however, further investigations are necessary at different spore concentrations in the laboratory and field level.

Key words: *Isaria fumosorosea*, *Lecanicillium lecanii*, Black beetle, Bio-control, *in-vitro*