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"Filling gaps and removing traps
for sustainable resource management"

Optimising Conidial Concentration of *Isaria cateniannulata* for Management of Common Cutworm *Spodoptera litura* (Fabricius)

Piyachat Boonyaprapa[1], Chen Bin[2], Patcharin Krutmuang[1]

[1] *Chiang Mai University, Entomology and Plant Pathology, Thailand*
[2] *Yunnan Agricultural University, College of Plant Protection, China*

Abstract

Spodoptera litura (Fabricius) (Lepidoptera:Noctuidae) is a common polyphagous pest infesting several crop species as groundnut, cotton, tomato, cabbage, cauliflower and causing heavy crop losses. To manage this pest in an eco-friendly manner, an experiment was conducted to study effective conidial concentrations of *Isaria cateniannulata* against common cutworm *Spodoptera litula* (Fabricius) larvae. Common cutworm were collected from fields in Kunming province, China. Collected individuals were placed in insect rearing glass tube in laboratory at temperature is 25±1 °C. Six concentrations of conidia (10^3, 10^4, 10^5, 10^6, 10^7 and 10^8 conidia ml^{-1}) along with distilled water as a control were evaluated. Tween 80 was used as adjuvant and the larval populations were dipped in conidial suspensions for 5 seconds. Though all the concentrations tested could infected the larval populations of cutworm, highest mortality of larvae was recorded when larvae were treated with a concentration of 10^8 conidia ml^{-1} of *I. cateniannulata in vitro*. The common cutworm that received 10^7, 10^6, 10^5, 10^4, 10^3 conidia ml^{-1} also showed mortality of the larvae but at a lower level. The mortality of the common cutworm increased with increase in spore concentration and exposure time. The results suggest that *I. cateniannulata* has a potential to be developed into an entomopathogen and further field evaluations and followed by effective formulation development. Furthermore, pest management strategies employing microbial agents offers the environmental advantages. Microbial control of insects is the concerted use of insect-specific pathogens for the biological control of insects. Microbial pesticides have a number of advantages over conventional chemical pesticides. Although the advantages of microbial pesticides are numerous, some of their characteristics are regarded as disadvantages.

Keywords: Cutworm, eco-friendly., Entomopathogens, *Isaria cateniannulata*, *Spodoptera litura* (Fabricius)

Contact Address: Patcharin Krutmuang, Chiangmai University, Entomology and Plant Pathology, 39, 50200 Chiangmai, Thailand, e-mail: patcharink26@gmail.com