

Entomopathogenic fungi-driven integrated management of insect pests

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ABSTRACT:

Entomopathogenic fungi are worldwide in their distribution with distinct temperate and tropics regions. However, the diversity of entomopathogenic fungi is higher in the tropics. Thailand is a tropical country, with its climatic variation between the north and south, has a high biological diversity. Entomopathogenic fungi are important as natural control agents of many insect pests. Several local isolates of entomopathogenic fungi in Thailand were collected. The majority of the collections of entomopathogenic fungi belong to the Ascomycota, which consist of Cordycipitaceae, Ophiocordycipitaceae and the Clavicipitaceae. In order to enrich of entomopathogenic fungi from Thailand as biological control agents and to use them successfully to control insect pest, it was necessary to assess their efficiency through key criteria for selection of biological control agents.

A major difficulty in development of entomopathogenic fungi as biological control agents is their relatively short persistence on leaf surfaces. Host and conidia may meet in two different ways, direct contacted, when conidia were sprayed upon the insect host or indirect contacted when hatching or molting settle on conidia presented on leaf surface from earlier treatment. Hence, long persistence of conidia on leaf surfaces was important for effective control.

The entomopathogenic fungi that controlled pests in several economically important global crops were as *Myzus persicae* (Sulzer) *Macrosiphum euphorbiae* Thomas, *Frankliniella occidentalis* (Pergande), *Thrips tabaci* Lindeman and *Bactocera dorsalis* (Hendel), *Xyluetes ceramicus*. In addition, these fungi have been proved to have possibilities for biocontrol of whitefly, flea beetle, diamondback moth, cabbage Looper, cabbage webworm, bug, mealy bug, brown plant hopper, bean weevil, rice weevil, Coffee Berry Borer *Hypothenemus hampei*. There are currently used in the integrated pest management program for sustainable control of insect pests in organic farming.