

Atcharaphon Prasoetphon 2010: Efficacy Test of Entomopathogenic Fungi for *Thrips palmi* Karny Control on Orchid. Master of Science (Entomology), Major Field: Entomology, Department of Entomology. Thesis Advisor: Professor Tipvadee Attathom, Ph.D. 99 pages.

Four local isolates of entomopathogenic fungi namely: *Paecilomyces fumosoroseus*, *Metarhizium anisopliae*, *Beauveria bassiana* and *Hirsutella thompsonii* were bioassayed to determine their efficacy against cotton thrips, *Thrips palmi* Karny, the most destructive insect pest of orchid in Thailand and percent mortality obtained were 74.44, 35.55, 25.55 and 6.66% respectively. The highest effective fungus against *T. palmi* was *P. fumosoloseus* with the LC_{50} value of 1.63×10^6 spores/ml.

Spray applications in orchid plantation were performed to compare the efficacy of *P. fumosoroseus* with chemical insecticides, chlopyrifos combined with cypermetrin which were currently used for thrips control on orchid. There were no significant difference between using *P. fumosoroseus* at 10^9 spores/ml, chlopyrifos and cypermetrin and *P. fumosoroseus* at 10^9 spores/ml in alternate with chlopyrifos and cypermetrin. The results suggested that the fungus *P. fumosoroseus* can be used to replace or in alternate with chemical insecticides for the control of thrips, *T. palmi* on orchid.

Effect of chemical fungicides and insecticides commonly used in orchid plantation on growth and development of *P. fumosoroseus* was investigated using poisoned food technique. The results indicated that plant fungicides, carbendazim and mancozeb at supplier recommended dose strongly inhibited growth of *P. fumosoroseus*, eventhough the fungicide-contaminated media were kept for 6 days prior fungal inoculation. The three chemical insecticides used in this study, abamectin, chlopyrifos and cypermetrin at supplier recommended doses had little effect on growth of *P. fumosoroseus*. In those insecticide-contaminated media kept for 6 days prior inoculation, the fungus *P. fumosoroseus* grew and developed normally as it was cultured on PDA medium.

The results suggested that plant fungicides and chemical insecticides can be used in orchid plantation in combination with the fungus, *P. fumosoroseus*. However, it is recommended that *P. fumosoroseus* spray application should be made 6 days and at least 2 weeks apart from the chemical insecticide and plant fungicide spray applications, respectively in order to avoid inhibitory effect on the efficacy of *P. fumosoroseus* for the control of *T. palmi* on orchid.

Student's signature

Thesis Advisor's signature