

Acute and Chronic Effect of Biopesticide on Infestation of Whitefly *Bemisia tabaci* (Gennadius) on the Culantro Cultivation

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Abstract : Acute and chronic effects of biopesticide from entomopathogenic nematode (*Steinernema thailandensis* n. sp.), bacteria ISR (*Pseudomonas fluorescens*), wood vinegar and fermented organic substances from plants: neem (*Azadirachta indica*) + citronella grass (*Cymbopogon nardus*) Randle + bitter bush (*Chromolaena odorata* L.) were tested on culantro (*Eryngium foetidum* L.). The biopesticide was investigated for infestation reduction of the major insect pest whitefly (*Bemisia tabaci* (Gennadius)). The experimental plots were located at a farm in Nakhon Sawan Province, Thailand. This study was undertaken during the drought season (late November to May). Effectiveness of the treatment was evaluated in terms of acute and chronic effect. The populations of whitefly were observed and recorded every hour up to 3 hours with insect nets and yellow sticky traps after the treatments were applied for the acute effect. The results showed that bacteria ISR had the highest effectiveness for controlling whitefly infestation on culantro; the whitefly numbers on insect nets were 12.5, 10.0 and 7.5 after 1 hr, 2 hr, and 3 hr, respectively while the whitefly on yellow sticky traps showed 15.0, 10.0 and 10.0 after 1 hr, 2 hr, and 3 hr, respectively. For chronic effect, the whitefly was continuously collected and recorded at weekly intervals; the result showed that treatment of bacteria ISR found the average whitefly numbers only 8.06 and 11.0 on insect nets and sticky traps respectively, followed by treatment of nematode where the average whitefly was 9.87 and 11.43 on the insect nets and sticky traps, respectively. In addition, the minor insect pests were also observed and collected. The biopesticide influenced the reduction number of minor insect pests (red spider mites, beet armyworm, short-horned grasshopper, pygmy locusts, etc.) with only a few found on the culantro cultivation.

Keywords : whitefly (*Bemisia tabaci* Gennadius), culantro (*Eryngium foetidum* L.), acute and chronic effect, entomopathogenic nematode (*Steinernema thailandensis* n. sp.), bacteria ISR (*Pseudomonas fluorescens*)

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