

Toxicity of selected insecticides against nymph of whitefly (*Bemisia tabaci* Gennadius).

ABSTRACT

Bemisia tabaci is one of serious insect pests attacking vegetables and has been difficult to control using conventional insecticides. In the past 10 years, new insecticides have been introduced that provide a diversity of novel modes of action and routes of activity to effectively control whitefly. Consequently, intensive use of insecticides in vegetable cultivation has resulted in reduced susceptibility and develops resistance in agriculture industry. In controlling *B. tabaci* population, insecticides are the common method used by farmers. This study aimed to determine the most effective insecticide against *B. tabaci* by using LC₅₀ value. This study was conducted at the Crop Protection Laboratory, Faculty of Applied Science, Universiti Teknologi MARA Malaysia with the controlled room temperature of 24.33±0.14°C with dark and light ratio of 1:1 (12 hours: 12 hours) is an ideal condition for rearing the insect. The hypothesis of the study is to test if insecticides can control the nymph of whitefly. A total of 50 two-day-old nymphs were treated with insecticides using leaf-dip bioassay procedure. This experiment was replicated three times. The survival rates of the nymphs were analyzed using analysis of variance (ANOVA). Data on toxicity was analyzed by a special Probit Programme-Single Line Analysis based on Finney (1971). There was a significant difference (df=8, F=85.84, P=0.000) in survival rate of nymph of *B. tabaci* to eight insecticides tested. Among the insecticides tested, dimethoate, chlorpyrifos + cypermethrin and diafenthiuron showed significantly higher survival rate of nymph compared to other treatments. When LC₅₀ values were compared for diafenthiuron which is less potent (LC₅₀=2.44), abamectin was found to be 3.44 times more potent than diafenthiuron, followed by esfenvalerate, acetamiprid, profenofos, chlorpyrifos + cypermethrin and dimethoate, and the least potent was deltamethrin. The toxicity of eight insecticides tested against nymphs was in the following orders: abamectin= esfenvalerate acetamiprid= profenofos chlorpyrifos+ cypermethrin dimethoate ±deltamethrin> diafenthiuron respectively. This study implies that a proper application of the insecticide is a key component to a successful control programme of insect pests.

Keyword: Toxicity; Insecticide; Lethal concentration; Relative potency.