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PJBS

ISSN 1028-8880

**Pakistan
Journal of Biological Sciences**

ANSI*net*

Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Efficacy of Different Insecticides Against Cotton Whitefly (*Bemesia tabaci*)

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Abstract

Whitefly (*Bemesia tabaci* G.) population in treated plots was observed significantly lower than the untreated control. Among four insecticides diafenthioron (Polo 500 SC) @ 250 grams per hectare active ingredient was found the best one that gave 76 percent mortality of Whitefly population. The endosulfan (Thiodan 35EC) @ 875 grams active ingredient per hectare was closely following the diafenthioron with 72 percent mortality.

Introduction

Cotton (*Gossypium hirsutum* G.) belongs to Malvaceae family. It has been used as a fiber in spinning and weaving for over 5,000 years. It grows in height approximately 0.75 to 1.25 meters. Its use started in India, later spread in China, central Asia then in Sicily, Spain and Africa. Its growing period is typically 150-180 days from planting to harvest. The cotton plant prefers long hot summer with low humidity and long hours of sunshine. Seed is planted in the months of May and June in Pakistan.

Cotton is much susceptible to insect pests. The yield losses to cotton may reach 50 percent (Naqvi, 1976). Mound (1965) observed that a severe infestation of Whitefly (*Bemesia tabaci*) on cotton (~35 larvae per leaf) cause a 50 per cent reduction in yield. The main damage caused is the stickiness on cotton lint due to honey-dew excretions. Whitefly is most important pest of cotton crop because it plays an important role in transmission of leaf curl virus of cotton (Kirkpathick, 1931).

Whitefly has known as major threat and limiting factor to cotton production in Pakistan. Many cotton grower's complaint that *Bemesia tabaci* is not being controlled by most of the insecticides approved and registered. So, keeping in view all these problems present research work was conducted to sort out some insecticides which could be effective against cotton Whitefly.

Materials and Methods

The experiment was laid out in cotton crop at its early growth stages in experimental area of University College of Agriculture Multan. The experimental area was divided into 20 plots each measuring 12 meters in length and 10.5 meters in width. The crop was sown as row to row distance 0.75 meter and plant to plant distance 22 cm.

Four insecticides out of those commonly used against sucking insect pest complex in cotton crop were selected to test against cotton whitefly (*Bemesia tabaci*) viz.

T1 = methamedophos @ 1500 grams a.i. per hectare (Grip 60 SL)

T2 = endosulphan @ 875 grams a.i. per hectare (Thiodan 35 EC)

T3 = diafenthioran @ 250 grams a.i. per hectare (Polo 500 SC)

T4 = monochrotophose @ 500 grams a.i. per hectare (Apadrin 40 WSC).

T5 = Control. (water sprayed)

The all five treatments were replicated four times in randomized complete block design. The crop in each treatment was sprayed four times during the season at an interval of 18 days. The knapsack hand sprayer was used for insecticide applications.

Population of whitefly (*Bemesia tabaci* G.) was counted from an upper, middle and lower leaf on each of the 20 plots selected randomly in a plot. The data was recorded before spray as well as after 24 hours and 48 hours of spray. Mortality percentage of whitefly for each plot was worked out. The data was analysed by Fisher's method.

Results and Discussion

The mortality percentage of whitefly (*Bemesia tabaci*) was much higher for all insecticide treated plots when compared with water sprayed check T5. Qayyum Ahmad (1989) reported similar results for Fenom-N, Aldrin, D, Baythroid-TM and Polytrin-C against sucking insect

Table 1: Mortality Percentage of whitefly (*Bemesia tabaci*) against each insecticide.

Treatment	Insecticides	% Mortality
T1	Methamidophos 60 SL	60 b
T2	Endosulfan 35 EC	72 a
T3	Diafenthioran 500 EC	76 a
T4	Monochrotophos 40WSC	62 b
T5	Control (water sprayed)	10 c

The data in Table 1 showed that both of diafenthioran and endosulfan had given best control of whitefly when compared with monochrotophos was least effective. Our results confirm the findings of Abdel-deffide (1987) and are in contrast to the results of Dharpure *et al.* (1989) who reported monochrotophos better than endosulfan.

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