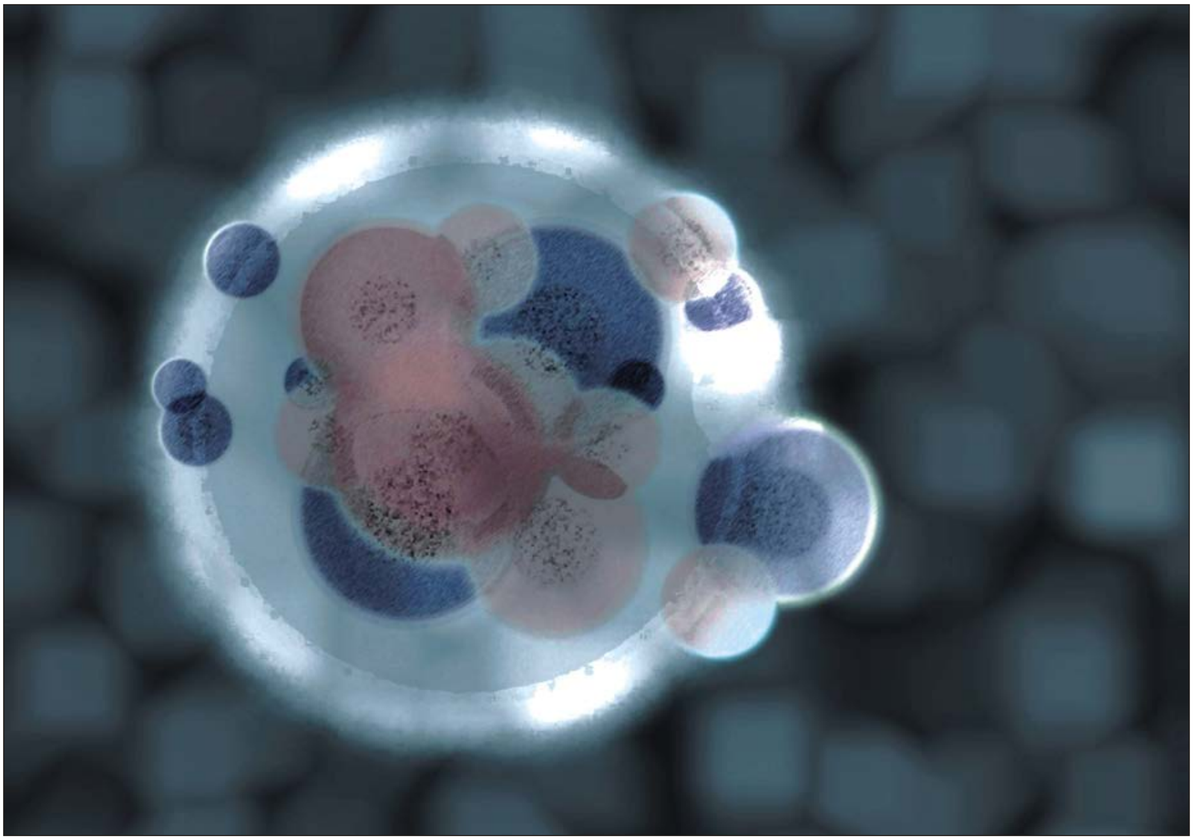

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Non-traditional Insecticides: A New Approach for the Control of Okra Jassid

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Abstract: Experiment was laid out for evaluating one traditional insecticide (monocrotophos) and four non-traditional insecticides (decarafluron, *Bacillus thuringiensis*, monocrotophos + surfactant and chlorfenapyr) against okra jassid *Amrasca biguttula biguttula* (Ishida). All the test insecticides were found to be effective in controlling okra jassid. However, on numerical basis, the lowest mean value of jassid population (3.75 individuals per leaf) was observed in the test area treated with (monocrotophos + surfactant).

Key words: Non-traditional insecticides, control, okra jassid

Introduction

Okra is an important summer vegetable crop. Several pests attack on the crop (Ewete, 1978). Among these, jassid (*Amrasca biguttula biguttula*) is the most important one. It destroys the crop in multi ways i.e. by sucking the cell sap of the plants and by transmitting the virus to the crops. The only quick solution to control the pest is the use of insecticides, which should be non-traditional, as traditional insecticides have failed to achieve their target. Several authors did previous studies on these lines. Singh and Singh (1991) reported that dimathoate at 500 g a.i./ha with cypermethrin at 50 g a.i./ha gave better control of *Amrasca biguttula biguttula*. Mordue and Blackwell (1993) referred *Azadirachta indica* as a strong antifeedent, insect growth regulator and as an elicitor of reproductive effects. Sabitha *et al.* (1994) assessed the relative toxicity of different insecticides including monocrotophos, quainalphos and endosulfon against population of *Amrasca biguttula biguttula* (Ishida) and found carbaryl to be more toxic. Patel *et al.* (1997) found that endosulfan was the most effective against the pests of okra. So focusing all the factors and importance of the crop, the present attempt has been planned to study the effectiveness and comparison of traditional and non-traditional insecticides on okra.

Materials and Methods

The trial was laid out at University of Agriculture, Faisalabad in a Randomized Complete Block Design (RCBD) with six treatments including a control having three repeats each. The spray materials used are given in Table 1.

With the appearance of the jassid population, the spray operation was started. The population of jassid was recorded from three leaves taking alternatively each from top, middle and bottom (Singh and Kaushik, 1990). So a total of 15 leaves were taken per treatment. There were three sprays, each at fortnight interval. The insect pest population was recorded 24 hours before first treatment, then 24, 48, 72 hours, 7 and 14 days after each treatment. At the end of season, the data, however, were presented in the form of mean values and analyzed statistically by applying Analysis of Variance (ANOVA) technique and Duncan's Multiple Range Test (DMRT) after Steel and Torrie (1980). The comparative efficacy of the test insecticides was considered to be an indirect reflection of the jassid population per leaf basis.

Results and Discussion

The mean value for the population of okra jassid *Amrasca biguttula biguttula* (Ishida) in different treatments reveals that all of the test insecticides were found to be effective with significant differences on the basis of overall average but all these treatments differed significantly from check for control of okra jassid *Amrasca biguttula biguttula* (Ishida).

Since the comparative efficacy of different insecticides was considered to be an indirect reflection of the population per leaf$^-$ (Table 2). Thus we can say that all the insecticides are effective and gave good control. On numerical basis, however, lower mean value (5.41) individuals/leaf for the control of okra jassid *Amrasca biguttula biguttula* (Ishida) in T_4 with Agree 50 WP (*Bacillus thuringiensis*) at 500 ml/ac would suggest that this is more toxic to the pest compared with others. However, the highest value among all the insecticides used, was observed in T_1 with Cascade 10 DWC (flufenxouron) at 200 ml/ac having the mean value of 7.98 individuals/leaf, which would reflect its least toxicity.

The present findings deny the results of Sarode and Gabhane (1994) who found that Neem Seed Kernel Extract (NSKE) 5%

Table 1: Details of different treatments and spray material used

Treat.	Trade Name	Common Name	Dose (recommended)	Dose (a.i.)
T_1	Cascade 10DWC	(Flufenoxuron)	at 200 ml/ac	10 ml/ac
T_2	Neem Oil 4%	(*Azadirachta indica* A. Juss.)	at 600 ml/ac	250 ml/ac
T_3	Fastac 5EC	(alphacypermethrin)	at 200 ml/ac	200 ml/ac
T_4	Agree 50WP	(*Bacillus thuringiensis*)	at 500g/ac	200+100 ml/ac
T_5	Fastac+Surfacton			
	(alphacypermethrin+surfactant)	at 200+1000 ml/ac	57.6 ml/ac	
T_6	Control			

Table 2: Comparative efficacy of different traditional and non-traditional insecticides used

Treatments	Jassid Population/leaf			
	1st Spray	2nd Spray	3rd Spray	Overall
T_1	9.13 b	7.87 b	6.87 b	7.98 b
T_2	8.79 b	7.85 b	6.43 bc	7.69 bc
T_3	7.97 b	6.43 d	5.95 bcd	6.78 de
T_4	6.59 c	5.65 e	3.99 e	5.41 f
T_5	8.12 b	6.53 d	5.42 d	6.69 de
T_6	15.42 a	15.13 a	12.09 a	15.00 8a

+3/4 dose of endosulfan (0.045%) gave the best control, Mishra and Singh (1996) who found that deltamethrin (0.0015%), monocrotophos (0.04%), cypermethrin (0.005%) and permethrin (0.01%) were effective in controlling okra jassid and also to the results of Mordue and Blackwell (1993) who referred *Azadirachta indica* as a strong antifeedent, insect growth regulator and as an elicitor of reproductive effects.

Thus traditional and non-traditional insecticides may be applied for the effective control of okra jassid, but non-traditional insecticide (*Bacillus thuringiensis*) at 500 ml/ac proved better.

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