



Studies of The Comparative Efficacy of Different Insecticides Against Red Cotton Bug (*Dysdercus Cingulatus Fabricus*) on Okra Plants in Bihar

Amita Ranjan*, Manendra Kumar and Shubham*****

* Department of Zoology, S.N.S.College, Muzaffarpur, Bihar

** University Department of Zoology, B.R.A.Bihar University, Muzaffarpur, Bihar

***Project girls Higher Secondary School, Piprahi, Sheohar, Bihar

Email: mkumar8011@gmail.com

ABSTRACT

Red cotton bug (Dysdercus Cingulatus Fab) is a serious pest of cotton in UP, Bihar, Tamil Nadu, A.P. & Maharashtra. This pest also infests okra, maize, white jute, citrus fruits etc. An insecticidal trial was conducted to determine the efficacy of the different insecticides against red cotton bugs on okra in Muzaffarpur (Bihar). There were nine treatments including control. Insecticides selected were-Dimethoate, Chlorpyrifos, Monocil, Aldrin, BHC, Malathion, Parathion & Systox. On the basis of the results, it was evident that the average highest reduction (74.0%) of the population of the pests was observed under chlorpyrifos treatment followed by 71.8% population reduction under monocil treatment whereas lowest reduction (45.8%) was recorded under the treatment with BHC. The statistical analysis of the data showed no significant difference between chlorpyrifox, Monocil, Dimethoate and Parathion.

Keywords: Red Cotton Bug, *Dysdercus Cingulatus*, Okra, Efficacy, Insecticides, Bihar.

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INTRODUCTION

India is the second largest producer of vegetables (next to China) in world. The annual production of fruits and vegetables in India is about 81.28 million tones and 161.18 million tones respectively. Bihar is one of the largest producer of Vegetables in the Country. The total area under vegetables production in Bihar is currently about 11% of the state's gross sown area. Okra which is also known as "Ladies singer" or "Bhindi" is one of the important vegetable crops in India. It is grown throughout the tropical and subtropical regions and also in the warmer parts of the temperate regions. It is cultivated in 0.35 million ha area with the annual production of 3.5 million tones and productivity of 9.6 tonnes/ha in India. The major Okra producing states in India are Bihar, U.P., Orissa, West Bengal, A.P. & Karnataka. Red Cotton bug *Dysdercus Cingulatus Fab* is the serious pest of cotton in U.P., Bihar, A.P., Tamil Nadu & Maharashtra. This also infests Okra, white jute, maize, teak, citrus fruits etc. Ahmad and Mohammad [1], Venugopal *et al* [11], Kohro and Nagon (2004), Kamble [4], Lot [7], Boopathi *et al.* [2], Verma and Patel [12], Verma *et al* [13] etc reported red cotton bug as a serious insect pest of cotton and many vegetables including okra. In the present investigation, an insecticidal trial was conducted to determine the efficacy of the different insecticides against red cotton bugs on okra in Muzaffarpur (Bihar). There were nine treatments including control. Insecticides selected were - Chlorpyrifos, Aldin, BHC, Malathian, Parathion, Systox, Monocil and Dimethoate. On the basis of the results, it was evident that the average highest reduction (74.0%) of the population of the pests was observed under chlorpyrifox treatment.

MATERIAL AND METHODS

An insecticidal trial was conducted to determine the efficacy of the different insecticides against red cotton bugs. The experiment was conducted in randomized block design having nine treatments including

control. The treatment was replicated five times. The size of the individual plot was 2 × 3 metres and the spacing between plant to plant and row to row were kept 30 cms and 60 cms respectively. The spraying was done with the hand atomizer. Before starting the spray, the initial infestation was recorded. After spraying, the efficacy of different insecticides was recorded at an interval of 1, 5, 10, 15 and 20 days. Ten plants (two from each replicate) were examined and the number of red cotton bugs present was counted. Insecticides included were (1) Chlorpyrifos, (2) Dimethoate, (3) Monocil (4) Pyrethroid, (5) Malathion, (6) Systox, (7) BHC, (8) Aldrin and (9) Control.

RESULTS AND DISCUSSION

The trial consisted nine treatments including control with five replications as described in "Materials and Methods". Data is summarized in table -1 and this is statistically analysed in Table 1(A).

On the basis of the data of the table 1, it is evident that the average highest reduction (74.0%) of the population of pests was observed under Chlorpyrifos treatment (T₂) followed by 71.8% population reduction under monocil treatment (T₃) whereas lowest reduction (45.8%) was recorded under BHC treatment (T₅).

The statistical analysis of the data presented in the table - 1 (A) showed no significant difference between chlorpyrifos, Monocil, Dimethoate and Parathian.

Saradamma [10] and Misabahuddin & Ehteshamuddin [8] reported that synthetic chemical insecticides could efficiently control *Dysdercus*. Knutson and Smith [5] stated that acetate and dimethoate were very effective against plant bugs. According to Quamar and Jamal [9], red cotton bugs might be incidentally controlled when carbamates such as carbaryl or organophosphates such as dimethoate were used. Jawale [3] claimed best results with spraying of malathion 57 Ec and endosulfan 35% EC for control of the cotton stainer.

Table-1: Studies on the comparative efficacy of different insecticides against red cotton bug on Okra plants

Name s the insecticides	1 day after spray		5th day after spray		10th day after spray		15 days after spray		20th day after spray		Average reduction
	Population	Reduction %	Population	Reduction %	Population	Reduction %	Population	Reduction %	Population	Reduction %	
Dimethoate T1	3.18	88.2	5.12	81.1	5.75	88.8	10.12	62.7	20.75	23.7	68.7
Chlorpyrifox T2	3.15	87.5	4.25	85.5	4.85	79.3	5.50	76.5	10.75	41.3	74.0
Monocil T3	3.25	83.9	3.94	80.5	4.12	79.7	4.89	75.7	12.25	39.6	71.8
Aldrin T4	5.16	71.6	5.85	67.9	6.25	66.3	8.95	50.4	12.75	30.1	57.2
BHC T5	7.85	49.3	8.10	47.7	8.75	43.5	7.27	53.0	9.95	35.8	45.8
Malathion T6	4.95	75.5	5.23	72.1	6.96	65.6	9.12	55.2	14.25	29.6	59.6
Parathion T7	4.21	75.9	5.65	67.7	5.32	69.0	6.28	64.1	32.85	61.9	67.7
Systox T8	4.25	71.7	4.94	68.6	5.25	66.6	8.12	48.4	12.25	22.9	55.6
Control T9 (Untreated)	21.50	-	23.50	-	26.25	-	25.50	-	37.34	-	-

Table-1 (A) : Analysis of variance (ANOVA)

SOURCES		D.E.	S.S.	M.S.	F.		
Replication		5	3043.98				
Treatment		8	1275.64	182.23			
Error		40	797.95	28.50	6.39**		
		53	5117.57				
S.E./Plot - 5.34		S.E. for Treatment - 2.38		C.D at 5% 9.79			
Ranking							
T2	T3	T1	T7	T6	T4	T8	T5
61.17	58.56	57.22	55.44	50.70	49.26	48.23	42.64

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