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Comparative study of effectiveness of *Eichhornia, Acorus* & *Ipomoea* against Coleopteran pest in mixed ratio

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Abstract- Leaf powder of *Eichhornia, Acorus* & *Ipomoea* was mixed in different ratio. After treatment with leaf powder at different concentration on adult mortality against *R.dominica* infesting rice and *C.maculatus* infesting gram. Five pairs of fleshly emerged adult of *R.dominica* (Fab) *& C. maculatus* (Fab) were released separately in each of experimental replication. The weight taken for each experiment was 100gm of rice and gram respectively. All experiment were setup at same temperature and relative humidity 60-70%. Six does of plant pesticides were used for such treatment & result showed quicker mortality in different percentage that depends upon dose & durations.

Keywords : ***Eichhornia crassipes, Ipomoea carnea, Acorus calamus, Rhizopertha dominica, Callosobruchus maculatus,* petroleum ether extract.**

INTRODUCTION

Recent year have seen a rapid advancement in the field of storage of food grains. However their is lack of common storage practice even in a given agricultural area, comprehensive principle to storage practice have to be developed, keeping a view on its ecofriendly nature and human health.

A lot of work has been done on the insect infestation in different food grains but the little or not work has been found about effectiveness of *Eichhornia*, *Ipomoea* and *Acorus* were used as pesticide. In present time Indian have fallen serious victim from pesticidal poisoning, in India there are two law to regulate 'prevention of food alternation act 1954 and insecticidal act 1968'. It has appreciably contributed towards improving general economical condition. However there is growing awareness among planner, manufacturer and researchers about introducing newer and safer method of pest and greater pest speciality in order to keep ecological balance from pollution hazard and fulfill the concept of sustainable development.

The present work is being undertaken to examine the effectiveness of *Eichhornia,Ipomoea* and *Acorus* against two most common pests like *R.dominica* and *C.maculatus* and find the ideal plant products to check loss of grains through mortality of attacking pests.

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Statistical analysis was done for variability of result obtained through various parameters. Thus ratio of variation is the proportional variation in a set of two given series. The measure of proportional variation made to serve about effectiveness of plant product. This variance measured by finding the average of square of each Items of series of variable bears to mean.

After analysis of statistical, graphical and tabular approach, in graphical and tabular approach the variation. In percentage mortality considered and slightly differ from statistical approach. The mortality ratio is defined as the ratio of insects dead out of total number of insect during experiment period.

MATERIALS & METHODS

1.Eichhornia crassipes 2 *Ipomoea carnea* 3 *Acorus calamus* 4 *Rhizopertha dominica* 5 *Callobruchus maculates* 6 rice 7 gram

A. Procurement of plant products, food grains and insects, leaves of plant *Eichhornia, Ipomoea* and *Acorus* were taken and dried in sun light then grinding into powder by mixer machine mixed form in different ratio 2E: 1I:2A and 1E: 2I:1A. After verification both grain were kept in incubator to check moisture at temp. 30 to 40°C

B. Treatment- six doses (0.5gm. 1gm.1.5gm. 2gm. 2.5gm and 3gm) of plant product treated on adult population of both pests in mixed form in different ratio.

C. Analysis- Calculation of mean of mortality percentage of pests by following formula:-

Mean =

$\sum x \div N$

Where $\sum x$ =sum of variations

N=no. of total variant

Now. comparative statistical analysis of total mean after treatment with mixture of leaf powder *Eichhornia*, *Ipomoea* and *Acorus* on adult mortality of *R.dominica* and *C.maculatus*.

A In ratio 2E:1I:2A

Treatment	Against *R.dominica* infesting rice(A)		Against *C.maculatus* Infesting gram (B)		Difference (M)
	Mean $\overline{X}$	Rank	Mean $\overline{X}$	Rank	
0.5gm	51.80	5	50.40	6	1.40
1.0gm	60.12	4	58.20	5	1.92
1.5gm	66.40	3	69.60	4	-3.20
2.0gm	84.60	2	74.80	3	9.80
2.5gm	95.00	1	90.33	2	4.67
3.0gm	95.00	1	93.00	1	2.00

Total mean of A = 452.92/6=75.49
Total mean of B =436.33/6=72.72
Total mean of differences (M) = 16.59/6=2.76

B In ratio 1E :2I :1A

Treatment	Against R.Dominica infecting rice(A)		Against R.Dominica infecting rice(A)		Difference (M)
	Mean $\overline{X}$	Rank	Mean $\overline{X}$	Rank	
0.5gm	22.60	6	18.00	6	4.60
1.0gm	29.80	5	30.40	5	-0.60
1.5gm	38.40	4	37.20	4	1.20
2.0gm	59.60	3	53.60	3	6.00
2.5gm	69.20	2	66.40	2	2.80
3.0gm	79.20	1	78.40	1	0.80

Total mean of A =298.80/6=49.80
Total Mean of B=284.00/6=47.33
Total Mean of Difference(M) =14.80/6=2.47

RESULT

According to above table, the ranking of mean clearly shows highest mean shows highest mortality rate while minimum mean shows least mortality rate of insects. It is also clear that compare of rank mean shows *C.maculatus* is slightly less mortality than *R.dominica* it is also clear from above table that conc. of *Eichhornia* and *Acorus* is more effective than *Ipomoea.*

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