

ON THE CONTROL OF CARDAMOM THRIPS (*SCIOTHRIPS CARDAMOMI*) RAMK.) USING INSECTICIDES

Cardamom thrips, *Sciothrips cardamomi* Ramk. (Thripidae, Thysanoptera) is the major insect pest of cardamom (*Elettaria Cardamomum*). Scheduled application of insecticides is the only effective control measure against the pest.

Nambiar *et al.* (1975) recommended quinalphos, PAP and dimethoate as 0.1% sprays against the pest. Wilson *et al.* (1977) found that leptophos, monocrotophos, phosalone, formothion, phenthoate and dimethoate as 0.02% spray were effective in reducing thrips infestation on cardamom capsules.

In order to evaluate some of the newer insecticides both in the form of dust and spray, two field experiments were conducted at the Cardamom Research Station, Pampadumpara during 1977-79. Insecticide dusts were included since dusting is a common practice followed for thrips control. Insecticides in the form of spray were used at concentrations ranging from 0.03% to 0.2%. The replicated field trials were laid out using ten plants each per plot. Nine insecticides were used as spray formulations and eight insecticides as dust. The experiments were continued for two years.

Application of insecticides was done at monthly intervals from April to December. In the case of dusts, 10 g each of the insecticide was applied per plant without considering the active ingredient content. The insecticides used as spray were used at two concentrations viz., 0.03% and 0.05% except in the case of BHC which was used at 0.1 and 0.2% concentration. Five hundred ml of

Table 1

Mean percentage of thrips infestation on cardamom capsules from plants treated with insecticidal dusts

Insecticides	Capsule infestation %				Mean %
	1977-78		1978-79		
Control		37.59 (38.37)	57.65 (59.41)	48.60 (44.58)	
Carbaryl	5% _{fa}	7.51 (15.50)	16.9 (24.99)	12.90 (21.16)	
BHC	10%	12.31 (21.07)	48.1 (44.37)	28.20 (32.53)	
Quinaiphos	1.5%	5.05 (13.78)	7.3 (15.53)	6.30 (14.93)	
Phosalone	4%	12.51 (21.64)	23.5 (26.42)	15.03 (23.60)	
Malathion	10%	10.16 (18.62)	30.2 (36.49)	20.01 (26.79)	
Toxaphene	5%	20.16 (24.42)	15.8 (23.97)	18.50 (25.10)	
Phenthoate	2%	10.50 (19.02)	37.4 (35.70)	27.10 (30.52)	
Methyl parathion	2%	7.38 (15.75)	30.9 (33.60)	15.80 (23.38)	
CD (0.05)				8.78	

Figures in parenthesis are angular transformations of percentages

Table 2
Relative efficiency of insecticidal sprays against the cardamom thrips
Sciothrips cardamomi

Name of the treatment	Infestation on capsules				Mean		
	1977-78		1978-79		Percent- age	Angular trans- formed	
	Percent- age	Angular trans- formed	Percent- age	Angular trans- formed			
Control		56.30	48.15	97.08	80.71	70.6	62.78
Quinalphos	0.03%	9.92	18.10	6.70	17.45	8.8	17.57
Quinalphos	0.05%	4.67	12.66	16.50	23.45	9.8	18.46
Malathion	0.03%	29.04	31.37	20.30	27.66	25.3	30.27
Malathion	0.05%	16.85	24.05	18.20	26.13	17.55	24.91
Fenthion	0.03%	6.76	15.85	9.50	17.27	7.72	18.26
Fenthion	0.05%	4.90	12.22	5.30	13.69	5.10	12.12
Endosulfan	0.03%	48.12	42.67	60.50	55.62	53.34	47.00
Endosulfan	0.05%	53.22	46.93	69.70	57.33	59.15	50.01
Methyl parathion	0.03%	21.21	25.03	32.60	34.66	28.80	30.16
Methyl parathion	0.05%	13.60	21.29	13.10	20.80	13.43	21.51
BHC	0.10%	40.51	33.26	86.50	68.15	62.15	53.43
BHC	0.20%	26.84	30.96	44.50	42.34	36.47	36.78
Fenitrothion	0.03%	19.20	26.40	21.06	26.76	20.28	27.01
Fenitrothion	0.05%	9.03	16.38	9.70	19.28	9.47	17.78
Phenthoate	0.03%	10.35	19.26	10.50	18.78	9.80	18.98
Phenthoate	0.05%	12.81	20.95	5.20	10.79	9.98	16.63
Phosalone	0.03%	14.71	21.14	17.20	32.17	20.94	27.00
Phosalone	0.05%	18.81	25.04	12.40	19.76	16.74	24.10
CD (0.05)							10.42

spray fluid was applied on each plant to cover the lower portion of the stem and the entire length of the panicles. Thrips infestation on capsules was estimated by separating the healthy and infested ones from the total produce of a plot and working out the percentage of infestation. Data collected have been tabulated and statistically analysed. The results of analysis of pooled data are presented in Tables 1 and 2. From the statistical analysis of the results, it is found that all the insecticides except BHC 0.1% are effective. But, usually insecticides which do not give protection above 80% are considered not effective. • Among the insecticides used as spray, quinalphos, malathion, fenthion, methyl parathion, fenitrothion, phenthoate and phosalone were found effective in protecting 80% of the capsules against cardamom thrips (*Sciothrips cardamomi*).

Table 3

Insecticides effective against cardamom thrips at 0.05% ai and the percentage of protection

Sl. No.	Insecticide	Percentage of protection
1	Quinalphos	90.20
2	Malathion	82.45
3	Fenthion	94.90
4	Methyl parathion	86.57
5	Fenitrothion	90.53
6	Phenthoate	90.02
7	Phosalone	83.26

Table 4

Insecticides giving effective protection against cardamom thrips at the lower concentration of 0.03% ai and the percentage of protection

Sl. No.	Insecticide	Percentage of protection
1	Quinalphos	91.20
2	Fenthion	92.28
3	Phenthoate	90.20

Table 5

Insecticide dusts effective in protecting more than 80% of cardamom capsules from thrips infestation showing the percentage of protection

Sl. No.	Insecticide	Percentage of protection
1	Carbaryl	81.10
2	Quinalphos	93.70
3	Phosaione	84.97
4	Toxaphene	81.50
5	Methylparathion	84.20

In the studies conducted by Nambiar *et al.* (1975) it was revealed that quinalphos, PAP and dimethoate as 0.1% spray gave effective control of cardamom thrips. From the present study it is found that quinalphos, fenthion and phenthoate are effective at lower concentration of 0.03% ai and malathion, methyl parathion, fenitrothion and phosalone at 0.05% ai.

Since the three insecticides viz., fenthion, quinalphos and phenthoate are effective in giving the same rate of protection i.e., more than 80% at the low concentration of 0.03% ai also, they can be considered more suitable than the others viz., malathion, methyl parathion, fenitrothion and phosalone which give satisfactory protection at the concentration of 0.05% ai only.

Among the insecticide dusts tried, carbaryl, quinalphos, phosalone, toxaphene and methyl parathion are found effective in protecting 80% of the cardamom capsules from thrips infestation.

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സംഗ്രഹം

പാമ്പാടുംപാറ ഏലം ഗവേഷണ കേന്ദ്രത്തിൽ വിവിധ കീടനാശിനികൾ ഉപയോഗിച്ച് പരീക്ഷണങ്ങൾ നടത്തിയതിൽ നിന്നും, കാർബാറിൽ (സെവിൻ) ക്വിനാൽഫോസ് (ഏക്കാലക്സ്), ഫോസലോൺ (സോളോൺ), ടോക്സാഫിൻ (ടോക്സാഫിൻ) മീതൈൽ പാരാത്തയോൺ (ഫോളിഡോൾ) എന്നീ പൊടി രൂപത്തിലുള്ള കീടനാശിനികളും, ക്വിനാൽഫോസ് (ഏക്കാലക്സ്), ഫെന്തോയേറ്റ് (ലെബാസിഡ്), ഫെന്തോമേറ്റ് (ഫെൻഡോൾ), മാലാത്തയോൺ (മാലാത്തയോൺ), മീതൈൽ പാരാത്തയോൺ (മെറ്റാസിഡ്), ഫെനിക്സോത്തയോൺ (ഫെനിക്സോത്തയോൺ), ഫോസലോൺ (സോളോൺ) എന്നീ ദ്രാവക രൂപത്തിലുള്ള കീടനാശിനികളും ഏലപ്പേൻ roTosi^ന്തണത്തിന് ഫലപ്രദമാണെന്നു കണ്ടു.

Cardamom Research Station
Pampadumpara, Kerala

D. Joseph

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