Entomon 1990 Vol. 15 No. 1 & 2 pp. 137 to 138

BRIEF COMMUNICATION

FIELD EVALUATION OF INSECTICIDES FOR THE CONTROL OF LEAF GALL THRIPS (*LIOTHRIPS KARNYI* BAGNALL) ON BLACK PEPPER[1]

S. DEVASAHAYAM
National Research Centre for Spices, Marikunnu, Calicut, Kerala, India 673 012

(*Received* 10 *March* 1989)

Field evaluation of six insecticides at Wynad (Kerala) for the control of leaf gall thrips (*Liothrips karnyi* Bagnall) on black pepper (*Piper nigrum* L.) indicated that sprays of 0.05 percent monocrotophos and dimethoate were effective in controlling the pest infestation when applied as the new flushes emerge.

(*Key words* : black pepper, *Piper nigrum* L., leaf gall thrips, *Liothrips karnyi* Bagnall, insecticidal control)

Leaf gall thrips (*Liothrips karnyi* Bangall) (Thysanoptera: Phlaeothripidae) is an important pest of black pepper (*Piper nigrum* L.) in Kerala especially at higher altitudes and also in nurseries. The feeding activity of the pest induces the formation of marginal leaf galls and also causes reduction in size, crinkling and malformation of the infested leaves. In a preliminary trial, monocrotophos 0.02 percent was the most effective against the pest followed by dimethoate 0.03 percent (NAIR & CHRISTUDAS, 1976). Fenvalerate and methamidophos (2 g ai per vine) were also reported to be effective against the pest (VIVEKANANDAN *et al.*, 1981). Trials were undertaken to evaluate the efficacy of six insecticides for the control of the leaf gall thrips at Wynad (Kerala) where the infestation of the pest was usually high (DEVASAHAYAM, unpublished) and the results are reported here.

The trials were laid out at Kuppadi (Wynad District, Kerala) in a six year old black pepper plantation (cv. 'Karimunda'). The insecticides chosen included endosulfan, quinalphos, dimethoate, monocrotophos and phosphamidon each at a concentration of 0.05 percent and malathion at 0.1 percent. These were selected based on studies on their residual toxicity conducted under green house conditions and reported earlier (DEVASAHAYAM, 1989). A Randomised Block Design was adopted with a plot size of three vines per treatment each replicated three times. The insecticides were sprayed with a rocker sprayer to run off level during July coinciding with the emergence of new flushes. An untreated control was also maintained without spray. The percentage of leaves infested by the pest under various treatments was determined 15 and 30 days after treatment. The trials were conducted for three years consecutively and the data were subjected to pooled analysis.

The relative efficacy of the six insecticides evaluated against leaf gall thrips is presented in Table 1. The percentage of infested leaves was significantly less in all the treatments as compared to untreated control both at 15 and 30 days after treatment. At the end of 15 days after treatment dimethoate was significantly superior to phosphamidon, malathion and quinalphos and was on par with monocrotophos and endosulfan. Plots treated with dimethoate had the lowest percentage of infested leaves (3.2) followed by

TABLE 1. Effect of insecticides on the control of leaf gall thrips on black pepper (combined analysis of three years data).

Insecticide and dosage (percent ai)	Mean percentage of infested leaves			
	15 dat		30 dat	
endosulfan 0.05	5.6	(13.68)	20.6	(27.01)
malathion 0.1	9.4	(17.91)	21.1	(27.35)
quinalphos 0.05	9.9	(18.37)	22.7	(28.48)
dimethoate 0.05	3.2	(10.38)	16.8	(24.20)
monocrotophos 0.05	4.1	(11.66)	12.0	(20.27)
phosphamidon 0.05	9.3	(17.73)	21.3	(27.52)
Control	24.2	(29.50)	26.4	(30.95)
CD at 5% level	4.02		2.22	

Figures in parentheses are transformed values. dat = days after treatment.

those treated with monocrotophos (4.1). At the end of 30 days after treatment nonocrotophos was significantly superior to all the treatments. Plots treated with monocrotophos had the lowest percentage of infested leaves (12.0) followed by those treated with dimethoate (16.8).

The results of the trials indicated that spraying of monocrotophos or dimethoate at 0.05% percent could be recommended for the control of leaf gall thrips on black pepper. The first spray is to be given during June/July coinciding with the emergence of new flushes. A second spray may be given after 25–30 days in case the infestation persists. Since the flushing period in grown up vines is generally restricted to June-July in Kerala, two sprays during this period would be adequate.

ACKNOWLEDGEMENTS

The author is thankful to Sri JOSE ABRAHAM for statistical analysis of the data and also to the Wildlife Warden, Wynad Wildlife Sanctuary for permitting him to undertake the trials in their plantation.

REFERENCES

DEVASAHAYAM, S. (1989) Residual toxicity of certain insecticides to leaf gall thrips (*Liothrips karnyi* Bagnall) on black pepper, *Entmon*, **14**, 79–80.

NAIR, M. R. G. K. & S. P. CHRISTUDAS (1976) On the control of *Liothrips karnyi* Bangnall — pepper leaf gall thrips. *Agric. Res. J. Kerala*, **14**, 173–174.

VIVEKANANDAN, P., A. REGUPATHY, B. HABEEBULLAH, M. BALASUBRAMANIAN & I. IRULAPPAN (1981) Dissipation of insecticides in black pepper applied to control leaf gall thrips *Liothrips karnyi* Bagnall. *Indian Spices*, **18** (2–4), 25 & 27–29.

short; stigma obscurely 6-lobed; ovules 6, solitary and pendulous in each loculus (Figures 1 to 4).

Holotype K. R. Keshava Murthy & Party 3711A and *Isotypes* 3711B–C, collected in flowers from evergreen shola forests of Tadiandamol, on 9th March, 1983 at an altitude of about 2000 m are deposited at the Herbarium of the Regional Research Centre, Bangalore (RRCBI).

The authors thank the Deputy Directors of MH, CAL and BSI for permission to work in the herbarium; Drs A. N. Henry, R. S. Raghavan and Karthikeyan of BSI for technical help and suggestions; Dr V. J. Nair for the latin diagnosis.

NEW RECORD OF TWO FLEA BEETLES INFESTING BLACK PEPPER *PIPER NIGRUM* L LEAVES

T. PREM KUMAR and M. R. G. K. NAIR*

Central Plantation Crops Research Institute, Regional Station, Calicut 673 012, India.

** Ambadi, Kowdiar, Trivandrum 695 003, India.*

THE black pepper plant is susceptible to about 20 species of insects[1]. Among the different pests of pepper, the pollu beetle *Longitarsus nigripennis* Mots (Chrysomelidae: Coleoptera) is the most important and destructive, causing damage to leaf buds, tender leaves, mature leaves, tender shoots, spikes and berries[2].

During a survey to ascertain the intensity of damage caused by *L. nigripennis*, two other chrysomelid beetles were found to feed on the leaves of black pepper in certain pepper-growing tracts of Kerala. They were identified as *Lanka* sp and *Hermaeophaga* sp by the Commonwealth Institute of Entomology, London.

Lanka sp

This is a brown flea beetle measuring 1.9 mm in length and 1.5 mm in width. The adult beetle has the hind femur thick and adapted for jumping. This beetle was first observed in Lakkidi in Wynad District, Kerala. The beetles prefer tender leaves and congregate on the leaves and feed on the bulk tissues resulting in the formation of many holes on the lamina. The beetles also scrape the green matter from the under-surface of leaves leaving a thin layer of epidermis which breaks off after some time resulting in number of holes on the lamina.

Hermaeophaga sp

This beetle is smaller than *Lanka* sp and measures 1.6 mm in length and 1.2 mm in width and is shining black in colour. The hind femur is thickened in *Hermaeophaga* sp also. This species was present in Trivandrum and Kottayam Districts of Kerala. Unlike *Lanka* sp these beetles prefer mature leaves. They remain on the underside of the leaf in heavily shaded gardens and feed on the surface tissues as irregular patches.

The damage to the pepper berries by the beetles is yet to be ascertained.

This paper forms part of the Ph.D. thesis submitted to the Kerala Agricultural University, Trichur by TPK. The authors thank the Director, Commonwealth Institute of Entomology, London for identifying the insects.

16 June 1986

1. Pillai, G. B., In: *Proceedings of the National Seminar on Pepper*, (eds) M. K. Nair and M. Haridasan, Central Plantation Crops Research Institute, Kasaragod, Kerala, 1978, p. 15.
2. Prem Kumar, T., *Ecology and control of pepper pollu beetle Longitarsus nigripennis Mots (Chrysomelidae: Coleoptera)*, Ph.D. thesis submitted to the Kerala Agricultural University, Trichur, 1981, p. 168.

INFLUENCE OF ORGANIC VOLATILE COMPOUNDS ON THE GROWTH OF CERTAIN KERATINOPHILIC FUNGI

B. GEETHA SINGH* and S. C. AGRAWAL

Department of Botany, Dr. H. S. Gaur Vishwavidyalaya, Sagar 470 003, India.

** Department of Botany, St. John's College, Agra 282 002, India.*

EXISTENCE of organic volatile compounds and their effect upon the soil microorganisms was first demonstrated by Cholodny[1]. Some workers have reported[2,3] the growth stimulation in soil-inhabiting fungi and bacteria by gaseous products emanated from higher plants. Recent years have seen the demonstration of the inhibitory effect of volatiles liberated by soil fungi on the growth of other microbes growing in its vicinity[4–6]. These organic volatile substances are also known to play an