Indian Journal of Applied Entomology **25**(1) : 43–45 (2011)

BIO–EFFICACY OF PYRIDALYL 10 EC AGAINST THRIPS, *SCIRTOTHRIPS DORSALIS* HOOD ON CHILLI (*CAPSICUM ANNUM* L.)

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ABSTRACT

The experiment on bioefficacy of pyridalyl 10 EC at 75,100,125 and 150 g ai/ha in comparison with spinosad 45 SC and fipronil 5 SC each at 50 gai/ha and untreated check against thrips (*Scirtothrips dorsalis*) was conducted at A.R.S. Durgapura during 2008 and 2009. All treatments were significantly superior over untreated check. Minimum thrips population (1.32 to 2.42 and 1.16 to 2.22) were recorded in treatment Pyridalyl 10 EC at 150 g ai/ha during 2008 and 2009, respectively but were at par with all test insecticides. Similarly maximum yield 72.0 and 69.27 g/ha obtained during 2008 and 2009, respectively was higher in Pyridalyl 10 EC of 50 g ai/ha but at par with all test insecticides.

Key words: Thrips, *Scirtothrips dorsalis*, pyridalyl 10 EC, spinosad, fipronil

Chilli (*Capsicum annuum* L.) is a tropical and sub–tropical crop grown all over India. It is an important cash crop in India, earning valuable foreign exchange for the country. India is the largest producer of Chillies in the world, accounting for over 45% of the total area under chillies cultivation. Though, India ranks first in the world with reference to area and production of chilli, however, the average productivity is very low in comparison to other countries. In Rajasthan it is grown in about 0.35 lac hectare. The total chillies production of state is 48698 tonnes with the productivity of 1376 kg (Anonymous, 2004) which is quite low. The achievable yields are more than double. Among the constraints in chilli cultivation, the attack of several insect pests at different crop stages is of utmost concern. The pest spectrum of chilli is complex with more than 293 insect and mite species debilitating the crop in the field as well as in storage (Anonymous, 1987).

Among them thrips (*Scirtothrips dorsalis* Hood) is an important pest which affects the crop throughout its life period starting from nursery. However, no critical information on schedule based sprayes of new molecules is available. Therefore, efforts have been made in the present study to evaluate the efficacy of Pyridalyl 10%EC against chilli thrips and its bio safety to the natural enemies.

MATERIALS AND METHODS

The field trials were conducted at Agricultural Research Station, Durgapura, Jaipur (Rajasthan) during *Kharif*, 2008 and *Kharif*, 2009. To evaluate the bio–efficacy of Pyridalyl 10% EC at 75, 100, 125 and 150 g.a.i./ha in comparison with Spinosad 45% SC and Fipronil 5% SC each at 50 g.a.i./ha and untreated check. The experiments were laid out in R.B.D. with seven treatments and three replications. The popular chilli variety "Wonder green" was raised in seed beds and 30 days old seedlings were transplanted in the field. Experimental trial was conducted by following all standard and recommended packages of practices such as tillage, spacing, irrigation and disease control for cultivation of the crop. The treatments were sprayed three times at an interval of 15 days. The population of thrips was recorded at pre–treatment, 3, 7 and 10 days after each spray from 3 leaves (upper, middle and bottom) of ten randomly selected plants per plot. The data were analyzed statistically for their significance.

RESULTS AND DISSCUSSION

The data obtained on thrips population before application of insecticides (Table 1) showed that it was uniform in all the treatments during both the seasons. The two years data revealed that during *Kharif*, 2008 at three days after spraying, Pyridalyl 10% EC @ 150 g ai/ha recorded a minimum population of 1.32 thrips per leaf which was at par with Pyridalyl 10%EC @ 125 g ai/ha (1.52 thrips/leaf) and Pyridalyl 10%EC @ 100 g ai/ha (1.66 thrips/leaf). This was followed by Spinosad 45%SC @ 50 g.a.i./ha with 2.64 thrips/leaf at 3 days after spray. Pyridalyl 10%EC @ 75 g.a.i./ha and Fipronil 5%SC @ 50 g.a.i./ha was recorded 3.90 and 4.22 thrips per leaf, respectively at 3 days after spray. Similar trend of reduction was noticed at 7 and 10 days after spraying with slight increase in thrips population. Untreated control was recorded 15.46 thrips per leaf at 10 days after spray, which was significantly inferior to all insecticidal treatments.

Table 1. Bio–efficacy of Pyridalyl 10% EC against Chilli thrips and effect on yield during *Kharif*, 2008 and *Kharif*, 2009 (Pooled of three sprays)

S. No.	Treatment	Dose g.a.i./ha	Population of thrips / leaf								Yield (q/ha)	
			Kharif (2008)				*Kharif* (2009)					
			Pre treatment	3 DAS*	7 DAS	10 DAS	Pre treatment	3 DAS	7 DAS	10 DAS	*Kharif* (2008)	*Kharif* (2009)
1	Pyridalyl 10% EC	75	12.86	3.90 (2.10)	5.32 (2.41)	7.60 (2.85)	10.82	4.48 (2.23)	5.84 (2.52)	7.66 (2.86)	57.77	55.37
2	Pyridalyl 10% EC	100	13.06	1.66 (1.47)	1.98 (1.57)	2.86 (1.83)	11.08	1.72 (1.49)	2.34 (1.69)	2.64 (1.77)	70.89	67.35
3	Pyridalyl 10% EC	125	12.76	1.52 (1.42)	1.84 (1.53)	2.58 (1.75)	10.84	1.34 (1.36)	2.12 (1.62)	2.46 (1.72)	71.10	67.83
4	Pyridalyl 10% EC	150	12.92	1.32 (1.35)	1.66 (1.47)	2.42 (1.71)	10.90	1.16 (1.29)	1.86 (1.54)	2.22 (1.65)	72.00	69.27
5	Fipronil 5% SC	50	13.20	4.22 (2.17)	5.96 (2.54)	8.14 (2.94)	11.04	4.82 (2.31)	6.12 (2.57)	8.00 (2.92)	54.89	51.61
6	Spinosad 45% SC	50	12.72	2.64 (1.77)	3.42 (1.98)	4.74 (2.29)	10.96	2.58 (1.75)	3.22 (1.93)	4.08 (2.14)	69.68	66.75
7	Untreated control	—	12.80	13.28 (3.71)	14.16 (3.83)	15.46 (3.99)	10.94	11.78 (3.50)	12.34 (3.58)	13.02 (3.68)	35.76	31.54
	CD 5%		NS**	0.27	0.30	0.31	NS	0.24	0.26	0.26	3.42	2.94

*DAS – Days after spray; **N.S. – Non significant; Figures in parentheses are square root (x + 0.5) transformed values.

During *Kharif*, 2009, the trends were similar to that observed during *Kharif*, 2008 on 3, 7 and 10 days after spraying. Pyridalyl 10%EC @ 150 g.a.i./ha was found to be the best treatment with least thrips population per leaf and it was at par with Pyridalyl 10%EC @ 100 and 125 g.a.i./ha at 3, 7 and 10 days after spray. Srinivas *et al.,* 2007 also reported the effectiveness of Spinosad 45 SC at 45 g ai /ha against thrips after 10 days of spraying. A similar trends in reduction in thrips population was also observed upto 10 days of spraying. Similarly Patel *et al.,* 2006 also reported the effectiveness of difenthiuron 50 WP against thrips at 50 and 60 g ai /ha upto 10 days of sprays. The different treatments in the descending order of efficacy could be arranged as Pyridalyl 10% EC @ 150 g ai/ha > Pyridalyl 10% EC @ 125 g ai/ha > Pyridalyl 10% EC @ 100 g ai/ha > Spinosad 45% SC @ 50 g ai/ha > Pyridalyl 10% EC @ 75 g ai/ha > Fipronil 5 SC @ 50 g ai/ha.

The highest yield, 72.00 and 69.27 q/ha, were recorded in Pyridalyl 10%EC @ 150 g ai/ha during *Kharif,* 2008 and *Kharif*, 2009 respectively was followed by 71.10 and 67.83, 70.89 and 67.35 and 69.68 and 66.75 q/ha in Pyridalyl 10%EC @ 125 g ai/ha, Pyridalyl 10% EC @ 100 g ai/ha and Spinosad 45%SC @ 50 g ai/ha as against 35.76 and 31.54 q/ha in untreated control during *Kharif* 08 and *Kharif* 09 respectively.

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