



BIO EFFICACY OF HEXYTHIAZOX 5.45 EC AGAINST YELLOW MITE, *POLYPHAGOTARSONEMUS LATUS* IN CHILLI

O.P. AMETA AND U.S. SHARMA

Department of Entomology, R.C.A. MPUAT, Udaipur

ABSTRACT

The experiment on bio–efficacy of Hexythiazox 5.45 EC at 300 and 500 ml/ha along with check Maiden 5.45 EC at 300 and 500ml/ha over control in chilli was conducted during Kharif, 2010. at R.C.A., Udaipur Two sprays of Hexythiazox 5.45 EC at 500 ml/ha, caused highest reduction with a mean of 69.19, 71.02, 78.04, 75.14 and 71.23, 75.12, 83.69 and 91.16 per cent reduction at 3, 7, 10, and 14 days after first and second spray, respectively. It was at par to two sprays of Maiden 5.45 EC per cent which caused 74.70 and 89.88 per cent reduction in mite population at 14 days after first and second spray, respectively. Two sprays Hexythiazox 5.45 EC and Maiden5.45 EC each at 300 ml/ha were next in order of effectiveness and found at par to each other.

Key words: yellow or broad mite, Hexythiazox 5.45EC, reduction

The yellow or broad mite, *Polyphagotarsonemus latus* is an important pest of a variety of crops including Chili (Liu *et al.*, 1991). The mite causes disease in chili known as “Murda disease”. Oily blackish spots appear on underside of leaves, which later turn reddish and extend to entire leaf surface turning it bronzy. The edges of leaves become crinkled. The disease spread readily to entire field. The acaricide so recommended are applied at heavy dose which may cause adverse effects. Hence there is a need to evaluate newer acaricide which is effective at lower dose against this mite. Therefore, a newer acaricide, Hexythiazox 5.45EC was evaluated against, *Polyphagotarsonemus latus* in chili.

MATERIALS AND METHODS

The experiment on bio–efficacy of Hexythiazox 5.45 at 300 and 500 ml/ha along with check Maiden 5.45 EC at 300 and 500ml/ha over control in chilli was conducted in randomized block design with four replications at R.C.A., Udaipur during Kharif, 2010. Chilli was transplanted on 25 July 2010. The observation on the population of mite was recorded on five randomly tagged plants on three leaves on top part and two leaves on middle parts of the plants (5 leaves/plant). The observation on population of mites was recorded one day before and 3, 7, 10 and 14 days after treatments.

The data so obtained on the population of mite was summed up and converted to total population per 5 plants. The mean reduction in population of mite was worked out for each treatment separately at 3, 7, 10 and 14 days after treatments.

The effect of Hexythiazox 5.45 EC @ 300 and , 500 ml/ ha along with other treatments on natural enemies was studied by counting the population of common predatory fauna *viz.*; population of grub and adults of *Coccinella* spp. and *Chrysoperla* spp. at regular interval in each replication. The population was presented as population per plant.

The marketable yield of green chilli was recorded at the time of harvesting/picking for each treatment separately and yield per hectare was calculated

RESULTS AND DISCUSSION

The data recorded on the bio–efficacy of Hexythiazox 5.45 EC against mite in terms of mean reduction in their population in chili during Kharif, 2010 at 3, 7, 10 and, 14 days after two sprays have been presented in Table 1. The data revealed that all the treatments were found significantly superior to control. Two sprays of Hexythiazox 5.45 EC at 500 ml/ha, caused highest reduction with a mean of 69.19, 71.02, 78.04, 75.14 and 71.23, 75.12, 83.69 and 91.16 per cent reduction at 3, 7, 10, and 14 days after first and second spray, respectively. It was followed by and at par to two sprays of Maiden 5.45 EC at 500 ml/ha which caused 74.70 and 89.88 per cent reduction in mite population at 14 days after first and second spray, respectively. It was found significantly superior to the remaining treatments.

Two sprays Hexythiazox 5.45 EC and Maiden5.45 EC each at 300 ml/ha were next in order of effectiveness and found at par to each other which caused 65.24 and 72.45; 62.60 and 70.55 per cent reduction in mite population at 14

Table 1. Efficacy of Hexythiazox 5.45 EC against mite infesting chilli during Kharif 2010

S. No.	Treatments	Formulation dosage ml/ha	PTP of mite/five plants	Mean reduction/increase (+) (%) in mite population, days after spray												Marketable yield q/ha
				First spray						Second spray						
				3	7	10	14	3	7	10	14					
1	Hexythiazox 5.45 EC @15 g.a.i./ha	300	46.50*	50.48 (59.55)	51.87 (61.90)	54.95 (67.04)	53.87 (65.24)	52.50 (62.96)	52.82 (63.50)	56.96 (70.26)	58.37 (72.45)	196.90				
2	Hexythiazox 5.45 EC @25 g.a.i./ha	500	48.50	56.28 (69.19)	57.50 (71.02)	62.06 (78.04)	60.09 (75.14)	57.57 (71.23)	60.10 (75.12)	66.12 (83.60)	72.93 (91.16)	236.20				
3	Maiden5.45EC @15 g.a.i./ha	300	48.75	49.41 (57.69)	50.62 (59.78)	53.73 (65.02)	52.28 (62.60)	51.11 (60.61)	52.46 (62.90)	55.68 (68.20)	57.15 (70.55)	198.50				
4	Maiden5.45EC @25 g.a.i./ha	500	49.25	55.75 (68.33)	56.54 (69.86)	61.19 (76.76)	59.81 (74.70)	56.39 (69.34)	58.73 (73.06)	64.18 (81.03)	71.64 (89.88)	231.12				
5	Untreated control	-	47.75	+15.18	+31.41	+53.93	+73.83	+103.14	+137.17	+176.44	201.04	149.10				
	S. Em. ±			0.72	0.69	0.79	0.78	0.84	0.76	0.90	1.54	2.69				
	C.D. at 5%			2.24	2.13	2.47	2.40	2.63	2.38	2.82	4.81	8.37				

* Mean of four replications; ** Values in parenthesis are retransformed per cent value; PTP Pre treatment population; + Percent increase in mite population over pretreatment population.

Table 2. Effect of Hexythiazox 5.45 EC on marketable yield of chilli and natural enemies

S. No.	Treatments	Formulation dosage ml/ha	Natural enemies population/plant				Marketable yield q/ha
			<i>Coccinella</i> spp.		<i>Chrysoperla</i> spp.		
			Grubs	Adults	Grubs	Adults	
1.	Hexythiazox 5.45 EC @15 g.a.i./ha	300	0.23 (0.85)	0.34 (0.92)	0.21 (0.84)	0.29 (0.89)	196.90
2.	Hexythiazox 5.45 EC @25 g.a.i./ha	500	0.24 (0.86)	0.32 (0.91)	0.22 (0.85)	0.27 (0.88)	236.20
3.	Maiden5.45EC @15 g.a.i./ha	300	0.23 (0.85)	0.33 (0.92)	0.21 (0.84)	0.27 (0.88)	198.50
4.	Maiden 5.45EC @25 g.a.i./ha	500	0.21 (0.84)	0.34 (0.92)	0.21 (0.84)	0.31 (0.90)	231.12
5.	Untreated control	–	0.25 (0.87)	0.36 (0.93)	0.23 (0.86)	0.33 (0.91)	149.10
S.Em			0.012	0.014	0.013	0.011	2.69
C.D. at 5%			NS	NS	NS	NS	8.37

days after first and second spray, respectively.

The data recorded on the population of common predators viz., *Coccinella* spp and *Chrysoperla* spp. in different treatments during Kharif, 2010 have been presented in Table 2. The data indicates that there was no significant difference in the populations of common predators in different treatments of Hexythiazox 5.45 EC at 300, 500 ml/ha along with standard check Maiden 5.45 EC at 300 and 500 ml/ha and untreated control, which shows that Hexythiazox 5.45 EC did not cause adverse effects on the common natural enemies.

All the treatments yielded significantly higher than the untreated control. The highest marketable yield with a mean of 236.20 q/ha was in case of Hexythiazox 5.45 EC at 500 ml/ha. It was found significantly superior to all other treatments except Maiden 5.45 EC at 500 ml/ha which was at par the above treatment with a mean marketable yield 231.12 q/ha Hexythiazox 5.45 EC at 300 ml/ha Maiden 5.45 EC at 300 ml/ha were next in order of effectiveness and were at par to each other with mean yield of 198.50 and

196.90 q/ha as against 149.10q/ha in untreated check (Table 2).

The effectiveness of a newer acaricide Spiromesifen 240 SC (Ameta *et al*, 2005). Propargite 57EC (Jayarani *et al*,(2007a) and of newer molecules (Srinivasa *et al* ., 2007b) have been reported against yellow chilli mite .

REFERENCE

- Ameta .O.P. Ashok Kumar and Sharma, K.C.2005 .Evaluation of Oberon 240Sc against Yellow mite, *Polyphagotarsonemus latus* is infesting chilli .*Indian Journal of Applied Entomology* **19** : 5–7.
- Jayarani, S., Bhaskaran, E.V., Pretheep Kumar, P. , Kavitha, J and Ramaraju, K 2007a. Evaluation of propargite 57Ec against chilli mite, *Polyphagotarsonemus latus*(Banks). *Journal of Acarology* **17**:87–89
- Liu, T. S., Wang W. J. and Wang, Y. S. 1991. *Plant Protection Bulletin*. Taipei.**33**:344–353.
- Srinivasa, N., Onkarappa, S. and Mallik, B. 2007b.Field efficacy of newer molecules against chilli mite, *Polyphagotarsonemus latus*(Banks). *Journal of Acarology* **17**:90–91.