A NEW MOLECULE, CYAZPYR 10% OD AGAINST THRIPS AND WHITEFLY IN POMEGRANATE

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ABSTRACT

The field experiment was conducted to study the efficacy of new molecule Cyazpyr in comparison to Imidacloprid and Spinosad against thrips (Scrithrips dorsalis) and whitefly (Siphoninus phillyreae) infesting pomegranate cv. Bhagwa, at Arid Zone Fruit Research Project, Departemnt of Horticulture, MPKV, Rahuri during 2011. A new chemistry Anthranilic diamide group, cyazpyr 10% OD was evaluated at 45, 60, 75 and 90 g a. i. /ha. in comparison with spinosad 45% SC at 75 g a. i./ha and imidacloprid 17.8 % SL at 50 g a. i ./ha. Among the tested dose of cyazpyre 10% OD, the treatment dose of cyazpyr at 90 g a. i./ha provided significant control of thrips and whiteflies as against rest of the treatments. Significant differences were noticed in registering least survival of thrips and whiteflies population. The treatment of cyzapyr 10% OD at 75 g a.i./ha was also found better and it gave at par results with cyzapyr 10% OD at 75 g a.i./ha, also considered for the control of thrips and whitefly population.

Keywords: pomegranate, molecule, cyzpyr, thrips, whitefly, pest management

INTRODUCTION

Pomegranate (*Punica granatum* L.) belongs to family puniceae, is a native of Iran and one of the favorite table fruits of tropical and subtropical regions. Its nutritional value and health benefits, demand in International market for good quality pomegranate, this has widened the scope for production and trade. India ranks first in area (0.13 million ha) and production (1.14 million tonnes) of pomegranate. In India, Maharashtra ranks first (0.092 million ha) contributing 70% of the total area under pomegranate (Anonymous, 2008). Such important fruit crop is attacked by several insect and non-insect pests as well as diseases. About 47 insect species are known to attack are reported from India (Mote *et al*., 1992). However, the major key pests observed during different fruiting season of various pomegranate areas are thrips and whitefly. Looking to the constraints in pomegranate cultivation or management, knowledge of pests, pesticide resistance, resurgence, residues and various management strategies is must so as to adopt the management effectively. Keeping in view to above constraints, newly synthesis molecule from amide group cyazpyre 10% OD was undertaken to study the effectiveness of new molecule against thrips and whitefly of pomegranate.

MATERIAL AND METHODS

Field experiment was conducted at AICRP on Arid Zone Fruit Project, Department of Horticulture, Mahatme Phule Krishi Vidyapeeeth, Rahuri during 2011 in Randomized Block Design with three replications. The experiment was carried out

on eight years old age of cv. Bhagwa orchard of pomegranate grown with spacing of 15' x 10' was taken for evaluation. Each insecticide treatment was applied two times at an interval of 10 days (when the sufficient population of thrips was noticed) with the help of high volume knapsack sprayer by using 1000 liters of water per hectare. The treatments comprising of insecticides, were cyazpyre 10%OD at 45, 60, 75 and 90 g a.i/ha, spinosad 45% SC at 75 g a. i./ha and imidacloprid 17.8% SL at 50 g a.i./ha in comparison with water spray as untreated control. The observations on survival population of thrips and whiteflies (both nymphs and adults) per five twigs/ shoot were taken on 0 days as pre-count, 3, 7 and 10 days after each spray as post count. Mean survival population of thrips and whiteflies (nymphs and adults) per twigs per shoot was worked out in various treatments on 3, 7 and 10 days and subjected to statistical analysis.

RESULTS AND DISCUSSION

The data presented in Table 1 indicated that all the insecticide treatment were found effective against thrips and whiteflies as compared to control. The treatment of cyzapyre 10% OD at 90 g a. i./ha were found most effective against thrips and whiteflies showed significant reduction in the population of thrips and whiteflies. Among the treatment doses of cyzapyre 10% OD @ 45 to 90 g a.i./ha, the treatment dose of 90 g a..i./ha was found significantly effective in minimizing thrips least population and recorded 0.42 and 0.32 thrips/twigs/shoot after 7 and 10 days after spray, respectively, which was also found on par with treatment of cyzapyre 10% at 75 g a .i./ha in minimizing thrips population survival.

With regards to the whitefly, the treatment cyzapyr 10% OD @ 75 and 90 g a. i./ha were found significantly superior in reducing in the population of whitefly ***(****Siphoninus phillyreae)*, both adults and nymphs population as against control. The treatment of cyzapyre 10% OD @ 90 g a.i./ha was found most effective and recorded least whitefly i.e. 0.23 to 0.11 whiteflies/ twigs /shoot after 3 and 10 days after spray, which is also found at par with dose of 75 g a. i./ha in minimizing the whiteflies population.

Looking to literature regarding the new chemistry molecule against pest of pomegranate is scanty. In past several workers reported the insecticide carbaryl 50 WP at 0.2%, Dimethoate 20EC, Phenthoate at 0.05 %, thiomethaxam and imidacloprid and various botanicals effective against thrips and whiteflies (Ananda *et al*., 2009; Anonymous, 2010).

CONCLUSION

Among the tested dose of cyazpyre 10% OD, the treatment dose of cyazpyr at 90 g a. i./ha provided significant control of thrips and whiteflies as against rest of the treatments. Significant differences were noticed in registering least survival of thrips and whiteflies population.

REFERENCES

Anonymous. (2008). Annual Report. NRCP, Solapur (M.S.) India, pp.3-4

Anonymous. (2010). Effect of some insecticide, neem and entomogenous fungi against pomegranate thrips. Research Review Committee Report of AICRP on Arid Zone Fruit for the year 2010-11. pp. 15-22.

Ananda, A.; Kotikal,Y. K. and Balikan R. A. (2009). Management practice for major sucking pest of pomegranate. *Karnataka J. Agric. Sci.,* **22:** 790-795.

Mote, U. N.; Ajri, D. S. and Tambe A. B. (1992), Annotated list of pest infesting pomegranate in central Maharashtra. *Maharshtra J. Horti.,* **6**(1): 96 – 98.

Table 1: Bio-efficacy of Cyzapyre 10 % OD for the management of sucking pest.

Treatments	Dosage (g a.i/ha)	Pre-count of Thrips / 15cm Twigs	Average Number of Thrips/ Twigs/Shoot (Av. of two sprays)			Per Cent Scaring Fruit Damage due to Thrips	Pre- count of Whiteflies / 15cm Twigs	Average Number of Whiteflies / Twigs / Shoot (Av. of two sprays)		
			3 DAS	7 DAS	10 DAS			3 DAS	7 DAS	10 DAS
T_1 = Cyzapyre 10% OD	45	2.90	1.88	0.68	0.66	12.51	2.11	0.59	0.51	1.22
T_2 = Cyzapyre 10% OD	60	2.94	1.30	0.60	0.50	11.76	2.00	0.59	0.53	1.15
T_3 = Cyzapyre 10% OD	75	2.79	1.36	0.48	0.41	8.50	1.98	0.30	0.21	0.14
T_4 = Cyzapyre 10% OD	90	2.85	1.15	0.42	0.32	8.17	2.51	0.23	0.20	0.11
T_5 = Spinosad 45% SC	75	2.52	2.55	1.92	2.07	11.92	2.09	1.65	2.46	3.06
T_6 = Imidacloprid 17.8SL	50	3.13	1.67	0.64	0.68	22.92	2.17	3.04	3.82	4.24
T_7 = Untreated Check	-	3.18	3.11	3.54	3.73	31.84	2.30	4.05	5.12	5.65
S.Em±		0.13	0.07	0.08	0.07	0.42	0.14	0.09	0.07	0.16
CD at 5%		NS	0.21	0.22	0.20	1.20	NS	0.26	0.22	0.47

Where, DAS = Days after spray

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