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EVALUATION OF SOME NEWER INSECTICIDES AS SEED DRESSER AGAINST MUSTARD APHID, *LIPAPHIS ERYSIMI* (KALTENBACH)

Mustard contributes nearly 30 per cent of the total oil seed production in the country. Among various insect pests of mustard crop in India, aphid *Lipaphis erysimi* (Kaltenbach) is most harmful and is a major limiting factor for the production of mustard (Bakhetia, 1986, Prasad and Phadke, 1984). To combat this sucking pest, the mustard growers in India depend heavily on synthetic insecticides as foliar application. Foliar application of synthetic insecticides is inconvenient to use, costlier, pollute the environment and are harmful to beneficial insects. In present investigation, two new insecticides belonging to neonicotinoid group, namely imidacloprid 70 WS and acetamiprid 20 SP were evaluated as seed dresser against mustard aphid. Seed treatment is comparatively convenient to use, cheaper and less harmful to environment.

Trials were conducted at Agricultural Research Station, Durgapura, Jaipur in the years; 2001–02 and 2002–03 to test imidacloprid 70 WS and acetamiprid 20 SP as seed dresser against mustard aphids. The doses tested were 7, 8 & 9 g/kg seed for each insecticide. Two sprays of methyl demeton 35 EC @ 1.0 lit/ha (first at the time of 20 per cent aphid infestation and second after 20 days of first spray) was taken as standard check. An untreated check was also kept. The mustard seeds were dressed with the chemical two hours before sowing. A sticky material supplied with the 5g packing of imidacloprid was used for proper dressing. The trials were laid out in randomized block design with 3 replications. Per cent plant infestation (single colony on the plant) was observed up to harvest. Grain yield was recorded after harvest.

The results obtained from field evaluation of imidacloprid 70 WS and acetamiprid 20 SP as seed dresser and methyl demeton 25 EC as spray (as standard check) against mustard aphids are presented in the table. The data on per cent infested plants showed that least number (3.33%) were recorded in imidacloprid 70 WS @ 9 g/kg seed treated plots which was statistically at par with the infestation recorded in plots treated with imidacloprid @ 8g/kg seed (6.0% infested plants) and the plots sprayed with methyl demeton 25 EC @ 1.0 lit/ha (2.67% infested plants). The seeds treated with imidacloprid @ 7 g/kg seed also showed very promising results with 8.83 per cent infested plants. Another insecticide, acetamiprid 20 SP treated plots also showed its effectiveness at each tested doses *viz.* 7, 8 and 9 g/kg seed with 22.00, 18.00 and 14.84 per cent infested plants respectively as compared to untreated check (71%). The data on grain yield showed that maximum yield (18.33 q/ha) was recorded in imidacloprid @ 9 g/kg seed treated plots which was at par with methyl demeton @ 1.0 lit/ha (17.59 q/ha) followed with 17.25, 14.84 and 11.0 q/ha in imidacloprid 8 and 7 g/kg seed and acetamiprid 9g/kg seed respectively. The grain yield recorded in treatments acetamiprid 7 and 8 g/kg seed were 8.29 and 9.50 q/ha respectively as compared to 5.13 q/ha in untreated check. Imidacloprid @ 9 g/kg seed gave highest net return of Rs. 25995 as compared to Rs. 23920, Rs. 23880, Rs. 19105, Rs. 11560, Rs. 8580 and Rs. 6180 respectively in methyl demeton @ 1.0 lit/ha (standard check), imidacloprid @ 8 g/kg seed, imidacloprid 7 g/kg seed, acetamiprid @ 9 g/kg seed, acetamiprid 8 g/kg seed

Table 1. Evaluation of some newer insecticides as seed dresser against mustard aphids

S.No.	Treatments	Dose	Pooled (Rabi 2001–02 and 2002–03		
			Per cent infested plants	Grain yield (q/ha)	Net return (Rs.)
1.	Imidacloprid 70 WS	7 g/kg seed	8.83 (17.26)	14.84	19105
2.	Imidacloprid 70 WS	8 g/kg seed	6.00 (14.08)	17.25	23880
3.	Imidacloprid 70 WS	9 g/kg seed	3.33 (10.32)	18.33	25995
4.	Acetamiprid 20 SP	7 g/kg seed	22.00 (28.20)	8.29	6180
5.	Acetamiprid 20 SP	8 g/kg seed	18.00 (25.05)	9.50	8580
6.	Acetamiprid 20 SP	9 g/kg seed	14.84 (22.28)	11.00	11560
7.	Methyl demeton 25 EC	1.0 lit/ha	2.67 (0.36)	17.59	23920
8.	Untreated check	–	73.17 (58.89)	5.13	–
	S.Em±		1.69	1.98	
	CD at 5%		5.68	6.63	

Value in parenthesis showed angular transformed.

and acetamiprid @ 7 g/kg seed. The present findings are in conformity with the earlier report of Kumar (1999) who also studied efficacy of imidacloprid against mustard aphid, *Lipaphis erysimi* (Kaltenbach) as seed dressing and found effective control of aphids with significant increase in grain yield. Imidacloprid has been found effective when applied as seed treatment against pest complex of oat, wheat, barley, sorghum, cotton, sugerbeet, chilli, okra and brinjal (Gourmet *et al.*, 1996; Mote *et al.*, 1995; Jarande and Dethe, 1994; Rike *et al.*, 1993; Almand and Mullins, 1991 and Dewar and Read, 1990).

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