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Phytotonic effect of different insecticides/botanicals on green gram

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Green gram (Mung bean), *Vigna radiata* (Linn.) Wilczek is one of the most important pulse crops grown in different states of India like Andhra Pradesh, Maharashtra, Orissa, Rajasthan, Gujarat, Madhya Pradesh, Punjab and Uttar Pradesh. The chemical insecticides besides controlling the target pests also induce direct or indirect effect on growth and development of crop plants. Earlier, Thirumala Rao *et al.* (1964) reported increase vegetative growth of brinjal and okra plants treated with DDT.

The present investigations were conducted at the Research farm, College of Agriculture, Swami Keshwanad Rajasthan Agricultural University, Bikaner during *kharif* season, 2014 to enlighten the phytotonic effect of different insecticides/botanicals on green gram. The experiment was laid out in simple randomized block design with ten treatments each replicated thrice. The seeds of green gram (variety, RMG-62) were sown in the field on 14th July during *Kharif*, 2014 in the plots measuring 3.0 x 2.7 m^2 keeping 30 and 10 cm row to row and plant to plant distance, respectively.

There were 10 treatments including control (untreated), *viz.*, imidacloprid 0.005 per cent, thiamethoxam 0.025 per cent, dimethoate 0.03 per cent, lambda cyhalothrin 0.008 per cent, acephate 0.037 per cent, profenophos 0.05 per cent, azadirachtin 5ml/l, NSKE (Neem seed kernel extract) 5.0 per cent and neem oil 5ml/l. The insecticides/botanicals were applied when sufficient population of jassid, whitefly and thrips built up on the plants. The crop was sprayed for the first time on 1st September by using a foot sprayer and second spray was done three weeks after first application. The spray solution used for spraying the crop was 600 l ha^{-1}. To record the observations on phytotonic effect of the different treatments, number of leaves, number of pods per plant and plant height 10 days after second application of the treatments were recorded.

The phytotonic effect of insecticides/botanicals on green gram was assessed on the basis of plant height, number of trifoliate leaves and number of pods per plant as shown in Table-1 and Figure-1. The maximum mean plant height (38.30 cm), number of trifoliate leaves per plant (18.20) and number of pods per plant (31.00) was recorded in the treatment of imidacloprid followed by thiamethoxam and dimethoate which resulted mean plant height of 38.00, 37.90 cm, number of trifoliate leaves 17.60, 17.20 and number of pods per plant 31.00, 30.00; both the treatments were found at par with each other. Minimum plant height was recorded in control (31.70 cm) followed by neem oil (32.90) azadirachtin (33.60) and NSKE (34.00 cm); all these treatments were found at par with each other. The number of trifoliate leaves per plant were also minimum in control (12.10) followed by by neem oil (13.30) azadirachtin (13.90) and NSKE (14.10 cm) which differed non-significantly. The minimum number of pods per plant was recorded in control (23.00) followed by neem oil (24.00) azadirachtin (25.00) and NSKE (25.00 cm), in which last two were found at par with each other (Table 1). Since the present investigations are new and no work has been done on these aspects so the present results could not be discussed here.

Reference:

Thirumala, Rao U., Nagaraja, Rao K.R. and Abraham, E.V. (1964). Systemic chemicals and their influence on crop yields. *Science and Culture* **19**: 502-503

Figure 1: Phytotonic effect of insecticides/botanicals on green gram.

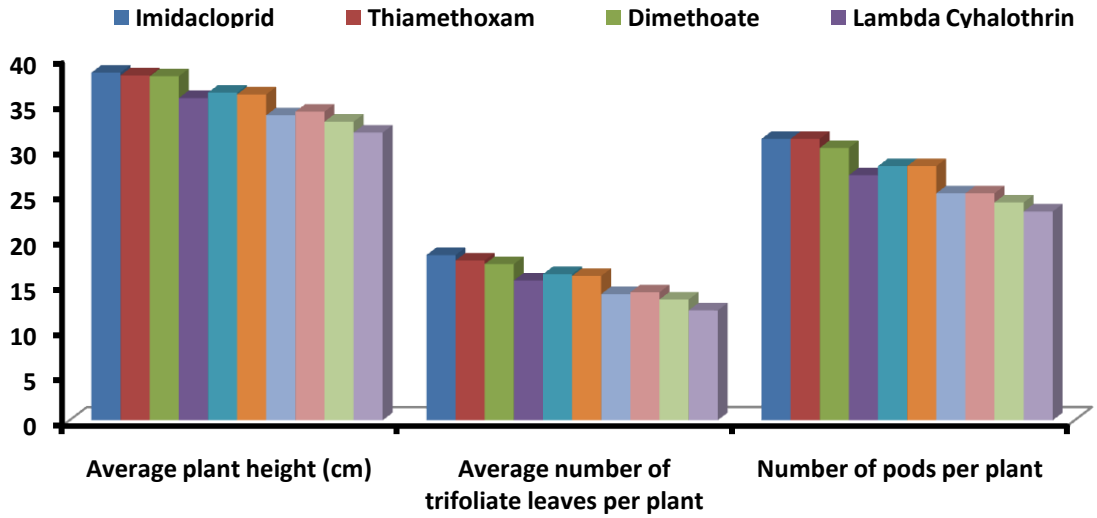

Table-1: Phytotonic effect of insecticides/botanicals on green gram

S. No.	Treatments	Formulations	Concentration (%) / Dose (ml/l)	Average plant height (cm)	Average number of trifoliate leaves per plant	Number of pods per plant
1.	Imidacloprid	17.8SL	0.005	38.30	18.20	31.00
2.	Thiamethoxam	25WG	0.025	38.00	17.60	31.00
3.	Dimethoate	30 EC	0.03	37.90	17.20	30.00
4.	Lambda Cyhalothrin	5 EC	0.008	35.50	15.40	27.00
5.	Acephate	75 SP	0.037	36.10	16.10	28.00
6.	Profenophos	50 EC	0.05	35.90	15.90	28.00
7.	Azadirachtin	0.03 EC	5ml/l	33.60	13.90	25.00
8.	NSKE	-	5	34.00	14.10	25.00
9.	Neem oil	-	5ml/l	32.90	13.30	24.00
10.	Control	-	-	31.70	12.10	23.00
	S.Em±			0.41	0.21	0.30
	CD (0.05%)			1.22	0.63	0.88