

Effect Of Dimethoate Pesticides On Chlorophylls Protein Of Vicia Faba L

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Introduction

Pesticides are chemical substances used to kill or control pests to the grower or farm, pests could include insects and mites that damage Crops. disease of plants caused by fungi, bacteria and viruses, nematodes, snail and slugs, rodents that feed on grain, young plants and bark of fruit trees and birds that eat their weight every day in young plant seedling and grain from fields and feed lots as well as from storage (Ware. 1978)

Vicia faba L. is an important Crop of India. it is also cultivated as rotational crop to increase fertility of soil by fixation of atmospheric nitrogen. This paper reports the observation on field scale studies carried out to see the effect of Application of dimethoate pesticides on chlorophyll and protein content of Vicia faba L.

Study

Pesticides have played a Significant Role in modern Agriculture. The discriminate use of agrochemicals appears to be unavoidable in the foreseeable future in the agriculture. Extensive work has been carried out in India on pesticides residue in variety of foods but there are several aspects of pesticides research other than residues which are of equal concern to us, one of them is pesticide-plant relationship which involves the study physiological. This area offers a tremendous opportunity for fruitful research.

The present study is a systematic investigation of various concentration of dimethoate on Vicia faba L. in Relation to seed germination, seedling growth protein, chlorophyll contents in leaves. The seeds of Vicia faba L. Var. (local) were purchased from Vijay seeds store Authorized dealer of certified seeds, Muzaffarnagar and Dimethoate from Rallies India Ltd. Dimethoate is an organo phosphate chemically designated-o-o-Dimethyl S (N-methyl Carbamylmethyl) Phosphorodithioate Laboratory and field experiment were conducted in botany department, D.A.V. College, Muzaffarnagar meteorological data for experiment period were collected from U.P. council of sugarcane research station, Muzaffarnagar. For field study the crop of Vicia faba L. was grown in pots at botanical garden. D.A.V. College, Muzaffarnagar. Dimethoate were used in four concentration viz 0.01%, 0.15%, 0.25% and 1.00% for seedling studies the seeds were treated in these concentration for 24 hrs. Control with distilled water was raised simultaneously. Pesticides on Vicia faba L. Lack were sprayed fortnightly with the help of sprayer. For seedling studies the treated and control seeds were kept for germination in sterilized Petri dishes, seed germination in lowest concentration of the crops was inhibited by the Dimethoate which stimulated the seed germination.

Table 1: Effect of Pesticides on Chlorophyll 'a' Contents (mg/g dry wt.) in Leaves of Vicia Faba L

Treatment	I		Vicia faba L	
		II	III	
Control	0.00%	9.67 0.16	10.49±0.19	8.78± 0.04
Dimethoate	0.01%	10.19+0.09	11.99±0.11	10.75±0.10
	0.15%	8.67±0.11	9.53±0.09	7.76±0.05
	0.25%	7.27+0.09	6.9710.07	5.68±0.10
	1.00%	7.17+0.12	5.8710.10	4.87±0.08

Values are represented as mean ±S.E. (5 observations)

Values are significant at P 0.05 (fishers 't' test).

Table 2: Effect of Pesticides on Chlorophyll 'B' Contents (mg/g dry wt.)in Leaves of Vicia Faba L

Treatment	I		Vicia faba L	
		II	III	
Control	0.00%	5.82±0.06	6.28+0.05	4.85+0.10
Dimethoate	0.01%	6.08±0.06	6.78±0.06	5.50±0.07
	0.15%	5.54±0.05	6.01+0.04	4.51±0.05
	0.25%	4013±0.03	5.03+0.03	3.67±0.03
	1.00%	4.88+0.04	4.88±0.02	3.05+0.02

Values are represented as mean ±S. E (5 observations)

Values are significant at P 0.05 (fishers't' test).

Table 3: Effect of Pesticides on Total Chlorophyll Contents (mg/g dry wt.)in Leaves of Vicia Faba L

Treatment	I		Vicia faba L	
		II	III	
Control	0.00%	15.44±0.12	16.72±0.12	13.58+0.21
Dimethoate	0.01%	16.22+0.14	18.72±0.19	16.20+0.18
	0.15%	14.16±011	15.49±0.13	12.22+0.19
	0.25%	11.35±0.08	11.95±0.12	9.30+0.13
	1.00%	12.2010.12	10.70+0.07	7.8710.11

Values are represented as mean ±S.E (5 observations)

Values are significant at P 0.05 (fishers't' test).

Table 4: Effect of Pesticides on Protein Contents (mg/g dry wt.)in Leaves of Vicia Faba L.

Treatment	I		Vicia faba L	
		II	III	
Control	0.00%	18.98±0.32	25.86±0.33	18.80±0.28
Dimethoate	0.01%	21.17±0.33	28.05±0.26	20.98±0.18
	0.15%	19.86±0.41	25.92±0.48	19.67±0.32
	0.25%	17.61 ± ,45	23.731-23	18.11±0.26
	1.00%	11.80±0.48	14.73±0.18	11.73±0.24

Values are represented as mean ±S. E (5 observations)

Values are significant at P 0.05 (fishers't' test).

Dimethoate in higher concentration (0.15%, 0.25%, 1.00%) inhibited yield parameters of the crops and lowest concentration stimulated the yield of Vicia faba L. dimethoate were more toxic to Vicia faba L. The estimation of chlorophyll, protein was done at three different stages of Phenology i.e. (i) vegetative (ii) flowering (iii) young fruits, it means 30,45 and 60 days after showing of Vicia faba L. crop Chlorophyll contents were found maximum at IInd stage, pesticides in every concentration inhibited chlorophyll 'a', 'b' and total chlorophyll. Dimethoate in lowest concentration stimulated chlorophyll contents but other concentration stimulation was toxic more inhibition or stimulation of chlorophyll 'a' than chlorophyll 'b' was observed. Protein contents were estimated in leaves. In leaves protein was Maximum at IInd stage. Lowest concentration of Dimethoate stimulated in leaves but other concentrations along with every concentration of Dimethoate were toxic. The result was compared with distilled water treated control and analysed at 0.05 level (fisher's't' test).

Conclusion

The following conclusions are drawn from the above stated study in higher concentration of Dimethoate pesticides shown highly inhibition to

- Chlorophyll 'a' and 'b' and total chlorophyll and protein content in Vicia faba L.
- In lower concentration of dimethoate pesticides shown highly promotion of chlorophyll 'a' 'b' and total chlorophyll and protein content in Vicia faba L.
- Last conclusion is that the dimathoate pesticide is more toxic to plant of Vicia faba L. in used every concentration except lowest concentration of pesticides.

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