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Effect of Foliar Spray of Fungicide and Weedicide on Nodule Number, Shoot and Root Length *Vicia Faba Linn.*

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Abstract: *The effect of foliar spray of all the three concentrations viz 50ppm, 100ppm and 200ppm inhibited the number of nodule significantly whereas these concentrations promoted the shoot and root length maximum inhibition in nodule number and promotion in the length of shoot and root was observed in 200ppm..*

Keywords: Foliar application; Fungicide and Weedicide; Nodule number; Shoot and root length

I. INTRODUCTION

The effect of foliar application of fungicide and weedicide on nodulation and growth of leguminous plants have so far been studied by a few workers Hofer (1958), Sugavanam and Udaivan (1994) and Singh and Agarwal (1995) reported that fungicide depressed nodulation, Dogra et al. (1998) reported the effect of bavistin on the growth and nodulation of some pulses under jammu soil condition. Kapsa(1998) investigated the formation of root system and nodulation process in pea (*Pisumsativum L.*) treated with fungicides and antibiotics. Jain and Gupta (1999) studied the effect of fungicide on nodulation of *Vignamungo L. Hepper* and reported that higher concentrations had adverse effect on nodulation. Pudeko and Madrazak (2004) observed the influence of fungicide (Funaben-T) on nodulation of soyabean *Glycine mux* (L.) Merr. in the field conditions. The present study is designed to study the effect of foliar spray of fungicide (Zinthane-M-45) and weedicide (Atrazine) on nodule number, shoot and root length of *ViciafabaLinn.*

II. MATERIALS AND METHODS

Seeds variety was surface sterilized with 0.1% aqueous HgCl2 solution and shown in small sterilized earthenware pots and precaution was taken to prevent contamination of soil with *Rhizobium* until inoculation. Six days after, the 10 seedlings of equal size were selected and retained in each pot. Before spraying, the pot were inoculated with equal amount of a homogenous suspension of strain of *Rhizobium,* isolated from effective (pink) nodules and grown on the yeast extract mannitol agar medium for each chemical.

Three concentration of fungicide (zinthane-M-45) and weedicide (atrazine) viz 50ppm, 100ppm and 200ppm were prepared in sterilized distilled water. Two spraying were made, first when plants were 15 days old for two consecutive days and the second seven days after the first spraying. Control plants were sprayed with sterilized distilled water. Home spray atomizer was used as sprayer. Soil contamination of solution was prevented by covering the soil surface with sterilized cotton. Solution was sprayed at rate of 10 ml. per plant. Fifteen days after the second spraying, plants were uprooted carefully and nodule number, shoot and root length were recorded. Data were subjected to t-test.

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III. RESULTS AND DISCUSSION

Table – 1 Effect of foliar spray of Zinthane-M-45 (fungicide) on nodule number, shoot and root length.

Treatment	Concentration (ppm)	Mean number of nodules	Value of 't'	Mean shoot length (cm.)	Value of 't'	Mean root length (cm.)	Value of 't;
Zinthane M - 45	C	27	-	16.01	-	23.91	-
	50	28.2	0.34	18.73	2.26*	26.59	1.00
	100	19	3.91**	16.5	0.52	22.01	1.29
	200	16	3.83**	15.61	0.50	20.63	1.44

Table – 2 Effect of foliar spray of Atrazine (weedicide) on nodule number, shoot and root length.

Treatment	Concentration (ppm)	Mean of nodules number	Value of 't'	Mean shoot length (cm.)	Value of 't'	Mean root length (cm.)	Value of 't'
Atrazine	c	30	-	14.38	-	16.97	-
	50	32	1.40	15.35	0.95	22.31	1.85
	100	28	1.84	13.73	0.53	18.55	1.06
	200	25	3.75**	13.11	1.41	18.14	1.22

C = Control

***Significant at 5% level**

****Significant at 1% level**

In the case of fungicide treated plants it has been found that concentration of 50 ppm insignificantly increased the number of nodule while the 100 ppm and 200 ppm significant decreases in the number of nodules were noted. Maximum decreases was noted at 200 ppm (Table -1).

All the concentrations of fungicide shoot length increase significantly at 50 ppm while 100 ppm and 200 ppm concentrations have no effect. All the three concentrations have no significant effect on root length.(Table -1)

The present finding is in accordance with the observation of Sugavanam and Udaiyan (1994) who reported that fungicide in higher concentrations reduced the nodule number.

Few Workers have studied the effect of foliar spray of Atrazine (weedicide) on nodulation. Bharadwaj(1970) and Gupta (1971) reported that lower concentrations of weedicides promoted nodulation while at higher concentrations the number of nodule decreased.

In the present study, effect of foliar application of Atrazine on nodulation and growth of plants at concentrations of 50 ppm; 100 ppm and 200 ppm; was studied. The number of nodule was more than control but there was no significant difference at 50 ppm concentration. Significant decrease in the nodule number was noted only at 200 ppm concentrations. (Table-2)

Shoot length increased at 50 ppm concentration while 100 ppm and 200 ppm concentrations have no significant effect. All the three concentrations promoted the root length but there was no significant increase in root length was observed.

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