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EFFECT OF FOLIAR SPRAYS OF GIBBERELLIC ACID ON NODULE NUMBER SHOOT AND ROOT LENGTH OF *PHASEOLUS ACONITIFOLIUS*

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ABSTRACT

The effect of foliar spray of gibberellic acid on nodule number, shoot and root length was studied. Gibberellic acid inhibited the number of nodules at all the three concentrations. Maximum inhibition in the number of nodule was noted at 100 ppm concentration whereas the shoot and root length showed better growth

Figure : 00 References : 10 Tables : 01

KEY WORDS : Foliar spray, Gibberellic acid, Nodulation, *Phaseolus*

Introduction

The effect of foliar application of gibberellic acid on nodulation of leguminous plants has been studied by a few workers[3-6,8] who reported that phytohormone had adverse effect on nodulation in *Pisum sativam*. Gibberellins and indole acetic acid have adverse effect on nodulation in *Phaseolus vulgaris*[1]. Growth regulator promoted the vegetative growth of plant but inhibited the number of nodules in leguminous plant[9]. Effect of the foliar application of gibberellic acid on nodulation in *Vicia faba* had direct inhibitory effect of nodulation[2].

Material and Methods

Seeds were surface sterilized with 0.1% $Hgcl_2$ aqueous solution and sown in small autoclave sterilized earthen pots and precaution was taken to prevent contamination of soil with *Rhizabium* until inoculation. Six days after, 10 seedlings of equal size were selected and retained in each pot. Before spraying, the pots were inoculated with equal amount of homogenous suspension of a strain of *Rhizobium,* isolated form effective (pink) nodules.

Three concentrations of each chemical (25 ppm, 50 ppm and 100 ppm) were prepared in sterilized distilled water, two sprays were given first when plants were 15 days old for two consecutive days and the second, 10 days after the first sprays. Control plants were sprayed with sterilized distilled water. Home spray atomizer was used as spray covering the soil surface with sterilized cotton prevented soil contamination of solution. Solutions were sprayed at the rate of 10 ml per plant. Eighteen days after the second spray, plants were uprooted carefully and nodule number, shoot and root length were recorded. Data were subjected to 't' test.

Results and Discussion

The application of gibberellic acid to the foliose of some leguminous plants reduced nodulation[5] and gibberellic acid had adverse effect on nodulation in leguminous plants[6]. There was adverse effect of growth regulators on nodulation of *Cajanus cajan* and adverse effect of foliar application of gibberellic acid on nodulation in *Trigonella foenum graecum* Linn. Studies on the effect of growth hormones on nodulation reported that the higher concentration inhibited the number of nodules in leguminous plants[2,8,9].

In present study, the effect of gibberellic acid on the growth and nodulation of plant at concentrations of 25ppm, 50ppm, 100ppm was studies. 50, 100 ppm concentrations results indicated that gibberellic acid application accelerated shoot and root length significantly.

The present findings are in accordance with the earlier observations who reported that gibberellic acid had adverse effect on nodulation in leguminous plants[6,8]. Decrease in the number of nodules and increase in plant growth may be attributed to changes in the metabolic activities of the plant due to foliar spray.

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TABLE - 1 : Effect of foilar spray of growth hormone (Gibberellic acid) on nodule number, shoot and root length of the test plant.

Treatment	Concentration PPM	Mean nodule number	"t" Value	Mean nodule length (cm)	"t" Value	Mean root length (cm)	"t" Value
Gibberellic	C	19.0		9.75		13.05	
Acid	25	17.4	1.31	13.32	6.21**	15.23	3.68**
	50	12.0	5.47**	17.02	10.54**	15.57	3.75**
	100	08.3	8.36**	21.98	15.82**	17.21	4.94**

C = Control,

**** significant at 1% level - 2.878**

*** significant at 5% level - 2.101**

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