

## EFFECT OF FOLIAR SPRAYS OF INDOLE ACETIC ACID ON NODULE NUMBER, SHOOT AND ROOT LENGTH OF *GLYCINE MAX* (L.) MERRILL

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Foliar application of all the three concentrations viz 50 ppm, 100 ppm and 200 ppm 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 200 ppm.

**Keywords :** Foliar application; I.A.A.; Nodule number; Shoot and root length.

The effect of foliar application of Indole-acetic acid on nodulation and growth of leguminous plants have so far been studied by a few workers<sup>1-4</sup>. These workers have reported that the foliage application of Indole-acetic acid in higher concentrations to leguminous plants is toxic to nodulation. Present study is designed to study the effect of foliar spray of Indole-acetic acid on nodule number, shoot and root length of *Glycine max* (L.) Merrill.

Seeds variety PK-416 were surface sterilized with 0.1 percent aqueous HgCl<sub>2</sub> solution and sown in small earthenware pots containing equal amounts of double sterilized soil and precaution was taken to prevent contamination of soil with *Rhizobium* until inoculation. Six days after the sowing, 10 seedlings of equal size were selected and retained in each pot and the rest were removed.

Before spraying, the pots were inoculated with equal amounts of a homogenous suspension of an appropriate strain of *Rhizobium*. Latter was isolated from the effective (Pink) nodules and was grown on the yeast extract mannitol agar medium. Three concentrations of indole-acetic acid viz., 50 ppm, 100 ppm and 200 ppm were

prepared for the study. Two sprayings were made, first when plants become 15 days old for two consecutive days and the second six days after the first spraying. Control plants were sprayed with sterilized distilled water. Home spray atomizer was used as sprayer. Soil contamination of solutions was prevented by covering the soil surface with sterilized cotton. Solutions were sprayed at the rate of 10 ml. per plant. Sixteen days after the second spraying, nodule number, shoot and root length were recorded. Data were subjected to 't' test.

All the three concentrations viz., 50 ppm, 100 ppm and 200 ppm of indole-acetic acid inhibited the number of nodule whereas the same concentrations promoted the shoot and root length. Maximum inhibition in the number of nodule and promotion in shoot and root length was noted at 200 ppm concentration (Table 1).

The present findings, so far as higher concentrations are concerned, are in accordance with the observations of Baswaid and Ali<sup>3</sup>, Babu<sup>4</sup> and Jain and Gupta<sup>5</sup> who reported that the increasing concentration of Indole-acetic acid and Gibberellic acid

**Table 1.** Effect of foliar spray of I.A.A. on nodule number, shoot and root length.

Treatment	Concentrations (ppm)	Mean Number of nodules	Value of 't'	Mean of Shoot length (cm)	Value of 't'	Mean of root length (cm)	Value of 't'
I.A.A.	Control	23	—	27.60	—	28.40	—
	50	19.9	3.71**	27.87	0.40	29.59	1.19
	100	16.5	6.72**	29.60	3.39**	32.11	3.93**
	200	13.7	11.60**	32.95	6.45**	35.83	7.27**

\* Significant at 5% level – 2.101

\*\* Significant at 1% level – 2.878

inhibited the nodule number and nodule volume whereas these hormones promoted the shoot and root length of plants. Galston reported that the use of Gibberellic acid to leguminous plants is harmful for nodulation.

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