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RESPONSE OF SOYABEAN (*GLYCINE MAX*) TO EXOGENOUS APPLICATION OF GROWTH HORMONES

Mukundraj B. Patil* and V. S.Chatage

*Late Ramesh Warpudkar Arts, Commerce and Science college, Sonpeth, Dist. Parbhani (MS) INDIA
Kai. Rashika Mahavidyalaya Deoni, Dist. Latur (MS) INDIA

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Present investigation highlights effect of IAA and GA_3 on morphological and yield parameters of Soybean. For this purpose 10, 20, 30, 40 and 50 ppm solutions of GA_3 and IAA were prepared. Eleven plots of 1 m x 1 m size were prepared and soybean (cv. JS-335) seeds were sown in these plots. Spraying of growth hormones was carried out early in the morning, 30 and 40 days after sowing. Plant Height and root length was measured, while. Number of leaves, Number branches and number of pods were counted. At harvest, 100 seeds were randomly selected from each plot and weighed. After harvesting, the yield of grains per plot was calculated as Kg / ha. The data were statistically analyzed following Mungikar (2003).

Table 1. Influence of growth hormones on Morphological parameters and yield of Soyabean.

Treatment	Height of plant (cm)	Length of Root (cm)	Number of leaves	Number of branches	Size of seeds (seeds/25ml)	Number of pods	100 seeds weight (gm)	Yield (kg/ hectare)
Control	50.5	12.3	26.0	6.3	168.0	49	12.2	1980.0
GA 10ppm	54.7**	18.7**	32.0**	7.0	166.0	51.3*	13.2*	2010.0
GA 20PPM	54.8**	13.0	34.0**	8.3**	161.0**	49.9	13.3**	2030.0
GA 30PPM	51.3	16.7**	46.0**	9.3**	158.0**	54.7**	14.8**	2160.0**
GA 40PPM	51.1	10.0**	28.0	10.7**	155.0**	55**	15.7**	2280.0**
GA 50PPM	51.1	15.7**	39.0**	13.3**	150.0**	57.9**	16.1**	2350.0**
IAA 10PPM	51.3	11.3	30.0	6.7	167.0	48.7	12.9	1980.0
IAA20PPM	53.4**	14.0*	36.0**	8.0*	165.0	49.2	13.2*	1990.0
IAA30PPM	55.7**	13.0	38.0**	7.7*	168.0	50.3	13.5**	2070.0*
IAA40PPM	55.7**	15.3**	40.0**	7.3	167.0	49.6	13.2*	2000.0
IAA50PPM	55.9**	12.3	25.0	6.0	165.0	53.1**	14.1**	1970.0
Mean	53.2	13.8	34.0	8.2	162.7	51.7	13.8	2074.5
S.D.	2.2	2.4	6.2	2.1	5.7	3.04	1.2	125.4
C.V.	9	17.5	18.3	25.0	3.5	5.9	8.4	6.0
S.E.	0.7	0.7	1.9	0.6	1.7	0.9	0.3	37.8
C.D. 5 %	1.5	1.6	4.2	1.4	3.8	2.0	0.8	84.3
C.D. 1 %	2.1	2.3	5.9	2.0	5.5	2.9	1.1	119.9

(* Significant at p=0.05; ** Significant at p=0.01)

The results have been summarized in Table 1. All treatment resulted in increased plant height. The Maximum height of the plant was recorded in plants treated with 50ppm IAA Similar results were previously reported by Bora and Sarma (2006), Moyazzama (2008) and Khairul *et al.* (2015). Length of root was influenced due to Ga_3 rather than IAA treatment. It was maximum (16.7cm) due to the treatment with 10ppm GA_3 and 40ppm IAA (15.3cm).

With the increase in concentration of GA_3 the number of branches per plant increased. Similar results were reported by Patil (2017) in Sunflower. Maximum number of pods per plant were recorded in plants treated with 50ppm GA_3 (57.9 pods per plant) IAA had very little effect on increasing number of pods.The size, weight and yield too increased due to the treatment with auxin and hormone

Average number of leaves per plant were 26, which significantly increased when plants were treated with different concentrations of IAA and GA_3. Maximum leaves (46) were recorded with 30 ppm GA_3.Ali salehi Sardoi *et al.* (2014) and Rahbrain*et al.*. (2014) reported similarly.

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PRINCIPAL
Late Ramesh Warpudkar (ACS)
College, Sonpeth Dist. Parbhani