

## EFFECT OF MIXTALOL ON GROWTH, SEED YIELD AND QUALITY OF BOTTLEGOURD (*Lagenaria siceraria* (Mol.) Standl.)

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Mixtalol is a concentrated mixture of biologically active, long chain alephatic alcohol which when sprayed on plants induces higher level of photosynthetic activity and increases growth of yield component resulting in a significantly higher yield in most of the vegetables (Menon and Srivastava, 1984). Of late mixtalol solution has been reported to augment the yield of brinjal and tomato when sprayed on the foliage at a concentration of 1-4 ppm (Shukla and Prabhakar, 1987, Ram and Lal, 1988). It was therefore, considered worthful to assess its effectiveness on bottlegourd cv. Faizabad Local.

Field experiments were conducted at Narendra Deva University of Agriculture and Technology, Kumarganj, Faizabad during *zaid* season of 1987-88 and 1988-89. The soil of experimental plot was loamy silt with pH value of 7.9, low in available nitrogen (220.50 kg/ha), medium in available phosphorus (22.50 kg/ha) and low in potassium (175.50 kg/ha). Experiments were laid out in randomized block design with three replications. Four concentrations of mixtalol viz. control, 20 ml, 25 ml and 30 ml in 10 litre of water and two intervals of spray viz. 20 and 45 days after sowing were involved as treatment. The recommended doses of 40 kg nitrogen, 30 kg each of phosphorus and potash per hectare was applied as per principles. However, 1/3 of nitrogen was applied as basal alongwith full of phosphorus and potash and remaining nitrogen was applied in two split doses around the trunk of the plant first at the time of vine development and second before fruit formation. Besides two kg well rotten farm yard manure per pit was also applied. The seeds were sown during last week of February in both the year at the distance of 200 x 80 cm. All the cultural practices were adopted for good growth and stand of the crop. Observations on growth, yield and quality parameters were recorded as given in the Table 1 and 2. Chemical analysis of soil was done according to procedure described in A.O.A.C., 1975. Data collected on growth, yield and quality parameters were subjected to statistical analysis as per procedure suggested by (Panse and Sukhatme, 1967).

Foliar application of mixtalol caused a dramatic increase in growth, yield attributes, yield and quality parameters (Table 1). Height and number of leaves per

Table 1

Effect of mixtalol on length of main shoot, number of leaves and fruits and size of fruit of bottlegourd

Treatments	Length of main shoot at 50% flowering		Number of leaves/plant at 50% flowering		Number of fruits/plant		Length of fruit (cm)		Diameter of fruit (cm)	
	87-88	88-89	87-88	88-89	87-88	88-89	87-88	88-89	87-88	88-89
Concentration (ml/10 l water) :										
(Control)	1.59	1.41	25.88	22.79	1.88	2.52	32.68	36.16	30.38	29.81
0	2.14	1.61	30.92	28.27	2.77	3.07	41.25	36.54	31.58	31.25
5	2.51	1.98	37.37	31.04	4.44	3.81	47.58	39.48	33.09	32.82
10	2.70	2.50	37.40	31.42	4.45	3.82	47.91	40.92	34.49	34.82
C. D. at 5%	0.77	0.38	4.06	4.66	0.76	0.65	4.09	3.05	3.03	3.12
Spraying interval (days after sowing) :										
0	2.37	2.41	32.12	26.56	3.84	3.31	35.94	36.69	29.75	29.36
5	2.47	2.60	33.16	30.20	3.86	3.30	48.25	39.75	34.99	35.75
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1.53	0.45	3.76	3.06

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Table 2

Effect of mixtalol on seed yield and its attributes

Treatments	Total number of seeds/fruit		Number of bold seed		Chaffy seed per fruit (%)		Seed yield (kg/ha)		Test weight (g)		Germination (%)	
	87-88	88-89	87-88	88-89	87-88	88-89	87-88	88-89	87-88	88-89	87-88	88-89
Concentration (ml/10 l water) :												
(Control)	324.16	336.64	250.83	294.27	22.62	12.58	142.00	134.62	97.00	96.25	90.25	90.35
0	426.83	359.13	362.83	347.45	14.92	3.25	147.65	139.65	97.25	96.50	90.15	90.25
5	455.00	389.98	611.33	370.70	6.66	4.94	157.25	159.27	98.00	98.15	90.00	90.00
10	465.66	392.09	690.85	380.16	8.33	3.02	165.25	167.66	98.00	98.25	90.00	90.25
C. D. at 5%	7.74	10.77	37.60	34.76	0.75	1.59	3.09	3.76	0.06	0.09	N.S.	N.S.
Spraying interval (days after sowing) :												
0	462.25	375.25	401.50	336.65	13.16	9.24	152.15	147.34	95.75	96.45	92.50	92.40
5	477.52	387.00	556.40	359.65	6.66	22.53	159.15	153.25	96.25	96.50	92.50	92.38
C. D. at 5%	6.01	6.15	9.75	6.03	3.25	3.75	0.75	1.75	N.S.	N.S.	N.S.	N.S.

RESPONSE OF BOTTEGOURD TO MIXTALOL

plant increased significantly due to various concentrations of mixtaloI spray and maximum increase was obtained with the spray of 30 ml mixtaloI. It is also obvious from the data that most of the yield attributes such as number of fruits per plant, length of fruit, diameter of fruit, total number of seeds per fruit, number of bold seeds per fruit and seed yield (kg/ha) were influenced significantly and maximum values were obtained with the spray of 30 ml mixtaloI control plants produced large number of chaffy seeds. This indicates that foliar feeding of mixtaloI might have caused favourable impact toward better physiological behaviour regarding increased photosynthesis which have ultimately initiated the efficient utilization and absorption of nutrients from the soil. Sufficient availability of nutrients to the plants thus caused increase in the growth, yield and quality parameters. There was also improvement seed quality. Maximum test weight (98.00 and 98.25 g) was obtained when 30 ml of mixtaloI was sprayed. However, germination percentage remained unaffected in both the years. Interval of spray also caused tangible effect on some of the parameters viz. length of fruit, diameter of fruit, total number of seeds per fruit, number of bold seeds per fruit, seed yield (kg/ha). Maximum values of above parameters were obtained when the spray was made at 45 days after sowing. This indicates that number of leaves present at the time of foliar sprays might have favoured towards good response and maximum utilization of foliar spray of mixtaloI was used by the plants. Test weight and germination percentage remained unaffected. Interactions due to various concentration of mixtaloI and different interval did not show any formidable effect during both the year of experimentation. Since the spraying of 30 ml mixtaloI after 45 days of sowing have been proved best and given favourable response towards good growth, seed yield and quality parameter of bottlegourd, the possibility of improvement in the productivity of bottlegourd is indicated.

Foliar sprays of mixtaloI at various concentration to bottlegourd cv. Faizabad Local significantly influenced the growth, yield attributes, seed yield and quality parameters. Highest values for most of the attributes were obtained when 30 ml mixtaloI in 10 litre of water was used as spray. Interval of spray also cause some useful effect with some of the attributes excluding growth. Interactions due to various concentration of mixtaloI and interval of spray did not cause tangible effect on any one of the attributes under study.

सारांश

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