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Short communication

Effect of growth retardants on reproductive characters and yield of okra cv. Parbhani Kranti

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ABSTRACT

A study was conducted to see the affect of cyocel (cu) and bengylamine (BA) on growth and reproductive characters of okra cv. Parbhani Kranti following seed, foliar and seed + foliar methods. Seed + foliar application of 1000 ppm ccc enhanced flowering by 4:9 days. Treatment 75 ppm BA + 1000 ppm ccc gave good quality pods and yield (154.22 q/ha) compared to control (138.60 q/ha).

Key words: Cycocel,

Okra has high acceptability in the Indian market and fetches high price, hence cultivars are eager to know about its scientific management practices. The yield potential of okra can be improved with application of growth regulators like cycocel (CCC) and benzyladinine (BA). Growth regulator help in efficient utilization of metabolites in different physiological process of plant. The reproductive characters and yield in terms of fruits per plant, their size and weight, are known to enhance with the application of BA and CCC, hence present investigation was conducted to find out effective concentration and the method of present investigation application of growth retardants on reproductive characters and yield of okra was conducted at Research Farm, AAI-DU, Allahabad. There were two growth regulators BA and CCC having three different concentrations (50, 75, 100 ppm of BA; and 500, 1000, 1500 ppm of CCC) and three different methods of application, *i.e.*, seed, foliar and seed + foliar. The seeds of cultivar Parbhani Kranti were sown at row spacing of 0.45 m and plant spacing of 0.45 m. fertilizers were applied at the rate of 120:50:50 kg NPK/ha in the form of urea, SSP and MOP. Data on duration of reproductive phase; number, length, diameter, fresh weight, dry weight and yield per ha of tender immature fruits, number of mature fruits and it weight per plant, number of seeds per fruit, its weight and yield per ha, ratio of seed to fruit (%) were recorded and statistically analysed. The growth regulators like BA and CCC produce shorter stem through inhibition of cell division and cell elongation of sub-apical meristems but did not completely suppress apical dominance. Asghar *et al.* (2) reported that retardants interact with gibberellins or IAA-oxidase (or its co-factor and inhibitors) or lower the level of diffusible auxin and thereby suppress vegetative growth. The duration of reproductive phase and earliness in flowering in okra was significantly increased by growth retardants. Flowering was earlier by 4.19 days than control and reproductive phase was highest (37.19) in the case of 1000 ppm CCC seed + foliar application. This was also in agreement with Abdul-Karim *et al.* (15). The maximum number of immature fruits per plant (20.50) was observed under 1500 ppm of CCC followed by (20.42) medium concentration of 75 ppm of BA & 1000 ppm of CCC and (20.28) under 1000 ppm CCC seed + foliar application was observed. Similar result was found, *i.e.* maximum ratio (52.38%) was found under 1500 ppm of CCC followed by (50.86%) under medium concentration of 75 ppm BA and 1000 ppm of CCC and (50.62%) under 1000 ppm CCC seed + foliar application. Similar results was found by Ilias *et al.* (3). Maximum pod length(11.69 cm) was found in 1000 ppm CCC seed + foliar application followed by (11.65 cm) of medium concentration of 75 ppm of BA & 1000 ppm of CCC and (11.45 cm) of 1500 ppm CCC. Maximum diameter (1.67 cm), fresh weight (304.54 g), dry weight (60.81 cm), number of seeds per fruit (56.02), seed weight/fruit (3.33 g) and yield (161.03 q/ha) was found only with 75 ppm BA & 1000 ppm of CCC. Similar effects were also reported by Kumar *et al.* (4), and Pandita *et al*. (5). It was interesting to note that all growth retardants exhibited highly significantly role in character pertaining to seed production. The maximum number (58.62) and weight (3.56 g) of seeds per fruit, maximum number of seeds (50.13 g) per plant and maximum yield of seed (26.76 q/ha) was observed under CCC @ 1000 ppm seed + foliar treatment with CCC @ 1000 ppm with highest ratio (55.17%) and least under BA @ 50 ppm seed

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Table 1. Effect of growth retardants on fruit, yield and yield components of okra.

Treatment	No. of immature fruits/plant	Length (cm)	Dia. (cm)	Fresh wt. (g)	Dry wt. (g)	No. of seeds/ fruit	Seed w/ fruit (g)	Yield (q/ha)	Ratio (%)
Growth bioregulator									
BA	18.32	10.55	1.49	292.21	47.53	53.71	3.07	138.60	49.06
CCC	20.50	11.45	1.65	303.9	59.80	55.49	3.26	154.90	52.38
CD at 5%	0.011	0.019	0.015	0.007	0.013	0.043	0.007	0.019	0.013
Concentration of BA & CCC									
Low	17.81	10.27	1.42	285.99	47.14	53.34	3.05	130.45	47.84
Medium	20.42	11.65	1.67	304.54	60.81	56.02	3.33	161.03	50.86
High	19.98	11.06	1.57	301.09	53.01	54.44	3.12	148.77	48.46
CD at 5%	0.022	0.022	0.018	0.010	0.016	0.023	0.013	0.024	0.019
Method of application									
Seed	18.58	10.33	1.51	292.19	48.69	53.79	3.15	139.30	50.52
Foliar	19.39	10.58	1.59	297.63	53.35	54.55	3.17	146.47	50.62
Seed + Foliar	20.28	11.69	1.61	304.29	58.96	55.46	3.22	154.22	51.01
CD at 5%	0.019	0.026	0.013	0.020	0.028	0.040	0.010	0.037	0.017

treatment. Similar findings were also reported by Singh *et al.* (1999) and Asghar *et al.* (2).

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