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SEED QUALITY AS INFLUENCED BY PLANT GROWTH REGULATORS IN RIDGE GOURD

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Abstracts
The four growth regulators, gibbrelic acid, hapthalene actic acid, ethephon, maleic hydrazide and one micronutrient, boron were used for foliar application at various concentrations with two controls i.e. water spray and absolute control. Five sprays were given at 40,55,70,85 and 100 days after sowing from the present study naphthalene acetic acid at 50 PPM and boron at 4 PPM were effective in improving the quality parameters of ridge gourd.

Introduction :

Ridgegourd is the most important cucurbitaceous vegetable crop widely cultivated in Maharashtra. Growth regulators enhance the number of flowers, fruits, fruit size and yield in this crop (1) However, their effect on seed quality has not been demonstrated yet. Therefore, the present investigation was undertaken.

Materials and Methods :

A field trial was conducted during the summer 2013 with three replications in RBD. The seeds were dibbled 60 cm apart per hill and 2 m apart in a row. After germination, only one healthy seedling per hill was kept. Each treatment consisted of 2 rows each having 8 plants in a gross plot and 6 plants in a net plot. Plant protection measures were adopted as and when required. Five plants from each plot were selected randomly for recording observation. Four growth regulators (gibbrelic acid, naphthalene acetic acid, ethephon, maleic hydrazide) and one micronutrient (Boron) were used for foliar application at various concentrations. (Table 1) with two controls (water spray and absolute control). Five sprays were given at 40, 55, 70, 85 and 100 days after sowing. The seeds were extracted from fruits on maturity and subjected to seed quality evaluation.

Result and Discussion :

Among different treatment, NAA (50 PPM) AND Boron (4 ppm) gave the highest number of seeds (40) per fruit which were significantly higher than other treatments (Table 1.) MH (300 ppm) and NAA (150 ppm) did not improve seeds per fruit (30.06) as compared to control (30.12). in case of seed weight per fruit, Boron at 4 ppm recorded significantly higher weight (8.94 g) than other combinations followed by GA3 at 25 ppm (8.62 g) and NAA at 50 ppm (8.46 g). Arora et al. (2) and Sitaram et al. (3) reported increased seed weight pe fruit in pumpkin and cucumber due to application of GA3 at 25 ppm and Ethephon at 200 ppm respectively.

Seeds harvested from plants sprayed with Ethephon at 50 ppm gave the highest germination (75%) followed 72 percent germination by Boron (4 ppm) and NAA (150 ppm). The lowest percentage of germination was noticed in control (66%). The germination potential of cucumber seed however, was unaffected due to spraying of Ethephon (3,4) .

MH at 300 ppm significantly improved 100 seed weight (24.01 g) as compared to control (23.27g.) Spraying of Ethephon and MH recorded 5% increased in seed weight over control in cucumber(3). The percentage of filled seeds was maximum with application of NAA at 50 ppm (86.14) followed by GA3 at 35 ppm (85.21). NAA at 100 ppm, GA3 at 25 ppm, and MH at 100 ppm also recorded substantially higher percentage (>80%) of seed quality as influenced by growth regulators in bittergourd filled seeds. The improvement in percentage of filled seeds however, was not reflected with improvement in germination percentage most probably due to existence of some amount of dormancy.

From the present study it is concluded that NAA at 50 ppm, or Boron at 4 ppm were effective in improving the seed quality parameters of bittergourd.

Table. 1. Effect of plant growth regulators and micronutrient on seed quality parameters of ridgegourd

Treatment	Dose (ppm)	No. of seeds per fruit	Seed wt. (g)	100-seed wt. (g)	Germination percentage	% of filled seed
GA3	15	36.52	7.74	23.01	67	79.89
	25	36.12	8.62	22.97	70	80.82
	35	38.43	7.86	22.01	68	85.21
NAA	50	40.12	8.46	22.14	69	86.14
	100	36.27	8.01	22.13	70	80.96
	150	30.06	7.92	23.69	72	79.99
Ethephon	50	34.67	7.80	13.01	75	78.14
	100	34.36	8.08	23.06	69	77.14
	150	36.46	8.21	22.89	69	77.02
MH	100	34.12	8.11	23.04	69	80.79
	200	32.36	7.85	23.71	68	79.92
	300	30.06	7.31	24.01	66	78.42
Boron	2	34.48	8.31	23.014	68	75.64
	4	40.24	8.4	23.70	72	77.12
	6	33.00	8.39	23.94	70	74.81
Water Spray	-	34.12	7.78	23.00	68	75.11
Control	-	30.12	7.50	23.27	66	76.81
S.E. ±		0.41	0.14	0.31	0.49	0.68
C.D. at 5 %		0.91	0.41	0.89	1.42	1.96

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