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Efficacy of Fruit Load and Growth Regulators on Fruit Set, Seed Yield and Quality of Brinjal Hybrid CV GJBH 4

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ABSTRACT: The number of developing fruits retained on the female parent after crossing influenced not only seed yield, but also quality of seeds harvested. Plant growth regulators play a key role in controlling internal mechanisms of plant by interacting with key metabolic processes such as, nucleic acid metabolism and protein synthesis. Use of the growth regulators (PGRs) might be a useful alternative to increase crop production. Looking to these, the study was conducted with an aim to study the effect of fruit load per plant *viz.*, L_1: Four crossed fruits per plant, L_2: Six crossed fruits per plant, L_3: Eight crossed fruits per plant, and L_4: All crossed fruits per plant and growth regulators *viz.*, G_1: GA_3 @ 50 ppm, G_2: NAA @ 80 ppm and G_3: Control (No spray) on fruit set, seed yield and quality of brinjal hybrid GJBH 4. Significantly the maximum fruit weight, fruit length, fruit girth, number of seeds per fruit, seed weight per fruit, test weight, seed germination, seedling vigour index I and seedling vigour index II was recorded in retention of four crossed fruits per plant (L_1), while retention of all crossed fruits per plant recorded significantly the highest mature fruit yield per plant and seed yield per plant. Significantly the maximum fruit weight, fruit length, fruit girth, mature fruit yield per plant, number of seeds per fruit, seed weight per fruit, seed yield per plant, test weight, seed germination, seedling vigour index I and seedling vigour index II were recorded in G_1 (foliar spray of GA_3 @ 50 ppm at fruit initiation stage). The maximum number of fruit weight, fruit length, fruit girth, number of seeds per fruit, seed weight per fruit, test weight, seed germination, seedling vigour index I and seedling vigour index II were observed in retention of four crossed fruits on plant with foliar spray of GA3 @ 50 ppm at fruit initiation stage (L1 x G1). From these results, it can be stated that, consistently higher seed yield could be obtained by spraying GA_3 @ 50 ppm with retention of four fruits per plant in brinjal hybrid seed production.

Keywords: Brinjal, Fruit load, Growth regulators

INTRODUCTION

Brinjal (*Solanum melongena* L.) also known as eggplant is considered as prime vegetable in India and having chromosome number 2n = 2x = 24. The cultivated brinjal is of Indian origin and has been in cultivation for long time (Thompson and Kelly, 1957). The large numbers of cultivars are grown in various part of India according to the consumer preference largely dependent upon fruit colour, size and shape. The crop is cultivated on small family farms and considered to be the important source of nutrition and cash income for many resource poor farmers (Bose *et al*., 1993).

In brinjal hybrid seed production, the number of developing fruits retained on mother plant of the female parent after crossing also influenced not only seed yield, but also quality of the seeds harvested. Higher the number of fruits retained on the plant more is the seed yield, but quality of seeds is poor on the other hand. The reverse trend of yield with better seed quality could be observed if fruit load on female plant is less (Chen, 2003). The growth regulators are known to influence various physiological and biochemical processes of the plant and enhance growth and productivity. In crops like brinjal, application of growth regulators like GA_3, NAA, IAA, *etc.*, during flowering and fruiting period may enhance plant productivity by increasing fruit development, seed weight and seed number (Bisaria and Bhatnagar, 1978). Therefore, the present study was conducted to investigate the influence of fruit load and growth regulators on fruit set, seed yield and quality of seed in hybrid brinjal seed production.

MATERIALS AND METHODS

The field experiment was conducted at Sagdividi Farm, Department of Seed Science and Technology, College of Agriculture, Junagadh Agricultural University, Junagadh during *kharif* 2019, while laboratory study

was made in the laboratory of Department of Seed Science and Technology, College of Agriculture, Junagadh Agricultural University, Junagadh. There were different four fruit load per plant *viz.*, L_1: Four crossed fruits per plant, L_2: Six crossed fruits per plant, L_3: Eight crossed fruits per plant, and L_4: All crossed fruits per plant and two growth regulators *viz.*, G_1: GA_3 @ 50 ppm, G_2: NAA @ 80 ppm and G_3: Control (No spray) were evaluated in the field experiment following Randomized Block Design (Factorial) replicated thrice and seed quality parameters were analyzed following Completely Randomized Design (Factorial) as per the method suggested by Cochran and Cox (1957) using cv. Gujarat Junagadh Brinjal Hybrid 4 (GJBH 4). The observations were recorded on seed yield and its attributing characters *viz*., number of flowers pollinated per plant, number of crossed fruit set per plant, fruit set (%), fruit weight (g), fruit length (cm), fruit girth (cm), mature fruit yield per plant (g), number of seeds per fruit, seed weight per fruit (g), seed yield per plant (g) and test weight (g). Random sample of seeds harvested in field from each treatment combinations were brought to the laboratory for analyzing seed quality parameters *viz*., germination percentage, root length (cm), shoot length (cm), seedling length (cm), seedling fresh weight (mg), seedling dry weight (mg), seedling vigour index I (length) and seedling vigour index II (mass). Seedling vgour index in terms of length and mass were determined as per formulae given by Abdul-Baki and Anderson (1973).

RESULTS AND DISCUSSION

A. Effect of fruit load on fruit set, seed yield and seed quality of brinjal hybrid

The fruit set was relatively the highest (67.77 %) and lowest (65.59 %) recorded in four crossed fruits per plant (L_1) and six crossed fruits per plant (L_2), respectively. The number of flowers pollinated per female plant and number of crossed fruit set per plant were significantly the highest (18.13 and 11.91) and lowest (6.00 and 4.00) recorded in all crossed fruits per plant (L_4) and four crossed fruits per plant (L_1), respectively (Table 1).

Significantly the maximum fruit weight (156.39 g), fruit length (14.03 cm), fruit girth (16.36 cm), number of seeds per fruit (681.99), seed weight per fruit (3.90 g) and test weight (5.61 g) was recorded in retention of four crossed fruits per plant (L_1), while significantly the minimum values were recorded for these traits in that order in retention of all crossed fruits per plant (L_4) (61.59 g, 10.11 cm, 13.08 cm, 398.79, 2.06 g and 5.04 g) (Table 1 and 2). Above mentioned traits were found higher in four crossed fruits per plant due to diversion of more photosynthates towards the development of four fruits as compared to more or all crossed fruits per plant. Similar results was reported earlier by Bhat (1994) and Kumari *et al.* (2013) in okra for fruit weight, fruit length and fruit girth; Manjunatha *et al.* (2009) in bell pepper for fruit weight, number of seeds per fruit and seed weight per fruit; Kumar *et al.* (2015) in pumpkin for fruit weight, fruit length, fruit girth, number of seeds per fruit, seed weight per fruit and test weight; Sharma *et al.* (2017) in tomato for fruit weight, seed weight per fruit and test weight; and Bellad and Hiremath (2018) in watermelon for fruit weight and seed weight per fruit.

Significantly the maximum mature fruit yield per plant (732.94 g) and seed yield per plant (23.95 g) was recorded in retention of all crossed fruits per plant (L_4), while significantly the minimum values were recorded for these traits in retention of four crossed fruits per plant (L_1) (638.47 g and 15.57 g, respectively) (Table 2). The maximum mature fruit yield per plant and seed yield per plant was recorded in all crossed fruits per plant due to number of crossed fruits were higher in that. The results are in agreements with reports of Basavaraj (2006) and Chand *et al.* (2013) in okra; and Jolli *et al.* (2009) in tomato.

Significantly higher seed germination (93.66 %), root length (3.75 cm), shoot length (3.74 cm), seedling length (7.49 cm), seedling fresh weight (369.04 mg), seedling dry weight (15.45 mg), seedling vigour index I (566.80) and seedling vigour index II (1169.48) was recorded in retention of four crossed fruits per plant (L_1), while significantly the minimum values were recorded for these traits in that order in retention of all crossed fruits per plant (L_4) (77.11 %, 3.53 cm, 3.54 cm, 7.07 cm, 336.39 mg, 14.72 mg, 434.84 and 904.84, respectively) (Table 3 and 4). Seed that produce from plant with lower fruit retention had high food reserves and supply nutrient properly to the seeds, which perhaps results into the highest weight of seed and, in turn, high germination and longer root and shoot lenth, seedling fresh and dry weight and ultimately the seedling vigour index I and II. The superiority in seed performance could be correlated with seed weight that it is directly related to seed size, suggesting accumulation of more dry matter in bolder seeds. These results are in corroborative with reports of Bhat (1994) and Chand *et al.* (2013) in okra; Jolli (2004) in tomato; Patil *et al.* (2008) in brinjal; and Bellad and Hiremath (2018) in watermelon.

Fig. 1. General view of experiment block at transplanting and flowering stage.

Table 1: Effect of fruit load per plant, growth regulators and their interaction effect on number of flowers pollinated per plant, number of crossed fruit set per plant, fruit set (%), fruit weight (g) and fruit length (cm) in brinjal.

Treatments	Number of flowers pollinated per plant	Number of crossed fruit set per plant	Fruit set (%)	Fruit weight (g)	Fruit length (cm)
Fruit load per plant (L)					
L_1: Four crossed fruits per plant	6.00	4.00	67.77 (55.61*)	156.39	14.03
L_2: Six crossed fruits per plant	9.31	6.00	65.59 (54.27)	112.91	13.04
L_3: Eight crossed fruits per plant	12.02	8.00	67.36 (55.28)	86.58	11.86
L_4: All crossed fruits per plant	18.13	11.91	65.71 (54.17)	61.59	10.11
S. Em. ±	0.43	0.16	1.80	4.13	0.38
C.D. at 5 %	1.27	0.46	NS	12.56	1.12
Growth regulators (G)					
G_1: GA_3 @ 50 ppm as foliar spray at fruit initiation stage	11.48	7.53	66.43 (54.71)	120.55	12.90
G_2: NAA @ 80 ppm as foliar spray at fruit initiation stage	11.40	7.52	66.40 (54.65)	106.15	12.29
G_3: No spray (Control)	11.22	7.38	66.99 (55.15)	86.16	11.59
S. Em.±	0.38	0.14	1.56	3.57	0.33
C.D. at 5 %	NS	NS	NS	10.48	0.97
Fruit load per plant (L) × Growth regulators (G)					
L_1 x G_1	6.00	4.00	67.93 (55.73)	180.52	14.43
L_1 x G_2	5.93	4.00	68.49 (56.06)	155.45	14.06
L_1 x G_3	6.06	4.00	66.91 (55.03)	133.21	13.59
L_2 x G_1	9.40	6.00	64.54 (53.53)	134.02	13.64
L_2 x G_2	9.33	6.00	64.69 (53.60)	115.40	13.20
L_2 x G_3	9.20	6.00	67.54 (55.70)	89.30	12.28
L_3 x G_1	11.87	8.00	68.35 (55.93)	96.83	12.61
L_3 x G_2	12.20	8.00	65.78 (54.20)	87.92	11.61
L_3 x G_3	12.00	8.00	67.93 (55.73)	74.99	11.36
L_4 x G_1	18.67	12.13	64.89 (53.66)	70.82	10.92
L_4 x G_2	18.13	12.07	66.63 (54.73)	66.83	10.29
L_4 x G_3	17.60	11.53	65.61 (54.13)	47.13	9.10
Mean	11.37	7.47	66.61 (54.83)	104.37	12.26
S. Em.±	0.75	0.28	3.13	7.15	0.66
C.D. at 5 %	NS	NS	NS	NS	NS
C.V. %	11.46	6.41	9.88	11.86	9.33

*Figure in parenthesis are Arcsine transformed values

B. Effect of growth regulators on fruit set, seed yield and seed quality of brinjal hybrid

The number of flowers pollinated per female plant and number of crossed fruit set per plan were numerically higher (11.48 and 7.53) and lower (11.22 and 7.38) in G_1 (foliar spray of GA_3 @ 50 ppm at fruit initiation stage) and G_3 (control), respectively, while fruit set in percentage was numerically higher (66.99 %) in no spray (control) (G_3) and lower (66.40 %) in foliar spray of NAA @ 80 ppm at fruit initiation stage (G_2) (Table 1).

Significantly the maximum fruit weight (120.55 g), fruit length (12.90 cm), fruit girth (15.62 cm), mature fruit yield per plant (777.17 g), number of seeds per fruit (584.96), seed weight per fruit (3.21 g), seed yield per plant (21.89 g) and test weight (5.52 g) were recorded in G_1 (foliar spray of GA_3 @ 50 ppm at fruit initiation stage), while the minimum values for these traits were recorded for these traits in that order (86.16 g, 11.59 cm, 14.05 cm, 558.13 g, 481.95, 2.51 g, 17.06 g and 5.22 g, respectively) in G_3 (control) (Table 1 and 2). Foliar spray of GA_3 @ 50 ppm at fruit initiation stage produced the largest length and girth of fruit due to rapid and better nutrient translocation from root to apical parts of the plants (Kumar *et al.*, 2018 and Singh *et al*., 2018 in tomato.) and in turn, which ultimately encourage the production of the mature fruit yield per plant, number of seeds per fruit and finally the seed yield per plant.

Table 2: Effect of fruit load per plant, growth regulators and their interaction effect on fruit girth (cm), mature fruit yield per plant (g), number of seeds per fruit, seed weight per fruit (g), seed yield per plant (g) and test weight (g) in brinjal.

Treatments	Fruit girth (cm)	Mature fruit yield per plant (g)	Number of seeds per fruit	Seed weight per fruit (g)	Seed yield per plant (g)	Test weight (g)
Fruit load per plant (L)						
L_1 : Four crossed fruits per plant	16.36	638.47	681.99	3.90	15.57	5.61
L_2 : Six crossed fruits per plant	15.26	661.47	567.09	3.08	18.46	5.48
L_3 : Eight crossed fruits per plant	14.44	705.11	497.85	2.55	20.39	5.35
L_4 : All crossed fruits per plant	13.08	732.94	398.79	2.06	23.95	5.04
S. Em. ±	0.42	24.33	16.44	0.11	0.71	0.09
C.D. at 5 %	1.22	71.37	48.22	0.33	2.07	0.25
Growth regulators (G)						
G_1 : GA_3 @ 50 ppm as foliar spray at fruit initiation stage	15.62	777.17	584.96	3.21	21.89	5.52
G_2: NAA @ 80 ppm as foliar spray at fruit initiation stage	14.67	718.19	542.39	2.97	19.83	5.38
G_3: No spray (Control)	14.05	558.13	481.95	2.51	17.06	5.22
S. Em.±	0.36	21.07	14.24	0.09	0.61	0.08
C.D. at 5 %	1.06	61.81	41.76	0.28	1.79	0.23
Fruit load per plant (L) × Growth regulators (G)						
L_1 x G_1	17.23	722.08	749.20	4.29	17.16	5.71
L_1 x G_2	16.23	633.81	707.43	4.09	16.36	5.65
L_1 x G_3	15.61	559.52	589.37	3.29	13.18	5.47
L_2 x G_1	16.11	756.16	614.93	3.46	20.77	5.64
L_2 x G_2	15.49	692.44	568.19	3.18	19.10	5.48
L_2 x G_3	14.19	535.81	518.15	2.59	15.52	5.34
L_3 x G_1	15.27	774.67	539.95	2.81	22.44	5.48
L_3 x G_2	14.03	740.69	486.98	2.54	20.28	5.33
L_3 x G_3	14.01	599.97	466.61	2.31	18.46	5.23
L_4 x G_1	13.87	855.77	435.75	2.29	27.19	5.23
L_4 x G_2	12.96	805.85	406.97	2.06	23.58	5.03
L_4 x G_3	12.41	537.20	353.67	1.83	21.09	4.86
Mean	14.78	684.49	536.43	2.9	19.59	5.37
S. Em.±	0.73	42.15	28.47	0.19	1.22	0.16
C.D. at 5 %	NS	NS	NS	NS	NS	NS
C.V. %	8.51	10.66	9.19	11.75	10.82	5.06

Patil *et al.* (2008) and Vaja *et al.* (2017) in brinjal; Chauhan *et al.* (2017) in tomato; and Natesh *et al.* (2005) in chilli observed significantly the maximum seed yield per plant in GA_3 as foliar spray as against the IAA as foliar spray.

Significantly the higher seed germination (88.58 %), root length (3.69 cm), shoot length (3.68 cm), seedling length (7.37 cm), seedling fresh weight (359.16 mg), seedling dry weight (15.32 mg), seedling vigour index I (524.49) and seedling vigour index II (1088.97) were recorded in G_1 (foliar spray of GA_3 @ 50 ppm at fruit initiation stage), while the minimum values were recorded for these traits in that order (83.08 g, 3.60 cm, 3.61 cm, 7.21 cm, 348.35 mg, 14.97 mg, 477.66 and 990.88, respectively) in G_3 (control) (Table 3 and 4). Seed germination per cent and other seed quality parameters found higher in foliar spray of GA_3 @ 50 ppm at fruit initiation stage might be due that GA_3 is known to cause physiological changes in plants like enlargement and development of fruits, and source-sink relation. Growth regulators bring certain changes in metabolism during fruit and seed development due to which there would be greater accumulation of food reserves resulting in bold seed ultimately higher germination percentage and other seed quality paramers. Similar results were earlier reported by Patil *et al.* (2008) and Vaja *et al.* (2017) in brinjal; Chauhan *et al.* (2017) in tomato; Natesh *et al.* (2005) in chilli; and Basavaraj (2006) in okra.

Table 3: Effect of fruit load per plant, growth regulators and their interaction effect on seed germination (%), root length (cm), shoot length (cm) and seedling length (cm) in brinjal.

Treatment	Seed germination (%)	Root length (cm)	Shoot length (cm)	Seedling length (cm)
Fruit load per plant (L)				
L_1 : Four crossed fruits per plant	93.66 (75.67*)	3.75	3.74	7.49
L_2 : Six crossed fruits per plant	88.66 (70.53)	3.69	3.68	7.37
L_3 : Eight crossed fruits per plant	83.88 (66.43)	3.62	3.62	7.25
L_4 : All crossed fruits per plant	77.11 (61.43)	3.53	3.54	7.07
S. Em. ±	0.56	0.03	0.02	0.05
C.D. at 5 %	1.62	0.08	0.07	0.15
Growth regulators (G)				
G_1 : GA_3 @ 50 ppm as foliar spray at fruit initiation stage	88.58 (70.97)	3.69	3.68	7.37
G_2 : NAA @ 80 ppm as foliar spray at fruit initiation stage	85.83 (68.47)	3.64	3.65	7.29
G_3 : No spray (Control)	83.08 (66.10)	3.60	3.61	7.21
S. Em.±	0.48	0.02	0.02	0.04
C.D. at 5 %	1.41	0.07	0.06	0.13
Fruit load per plant (L) × Growth regulators (G)				
L_1 x G_1	95.67 (78.10)	3.79	3.78	7.57
L_1 x G_2	94.00 (75.97)	3.74	3.73	7.47
L_1 x G_3	91.33 (72.93)	3.71	3.70	7.41
L_2 x G_1	92.00 (73.67)	3.73	3.72	7.45
L_2 x G_2	89.00 (70.67)	3.69	3.68	7.37
L_2 x G_3	85.00 (67.27)	3.64	3.64	7.27
L_3 x G_1	87.33 (69.17)	3.67	3.66	7.33
L_3 x G_2	83.33 (65.93)	3.61	3.61	7.22
L_3 x G_3	81.00 (64.20)	3.59	3.60	7.19
L_4 x G_1	79.33 (62.97)	3.57	3.58	7.15
L_4 x G_2	77.00 (61.33)	3.54	3.55	7.10
L_4 x G_3	75.00 (60.00)	3.49	3.49	6.98
Mean	85.83 (68.52)	3.65	3.64	7.29
S. Em.±	0.96	0.04	0.04	0.09
C.D. at 5 %	NS	NS	NS	NS
C.V. %	2.44	2.12	2.00	2.05

***Figure in parenthesis are Arcsine transformed values**

C. Interaction effect fruit load per plant and growth regulators

All crossed fruits retains on plant and foliar spray of GA_3 @ 50 ppm at fruit initiation stage (L_4 x G_1) recorded more number of flowers pollinated per female plant (18.67) and number of crossed fruit set per plant (12.13), while four crossed fruits retains on plant and foliar spray of GA_3 @ 50 ppm at fruit initiation stage (L_1 x G_2) recorded lower number of flowers pollinated per female plant (5.93). All combinations of retentions of four crossed fruits on plant with growth regulators recorded the lower number of crossed fruit set per plant (4.00). Retention of four crossed fruits on plant and foliar spray of NAA @ 80 ppm at fruit initiation stage (L_1 x G_2) recorded more fruit set in percentage (68.49 %) followed by L_3 x G_1 (68.35 %) and L_3 x G_3 (67.93 %) treatment combinations, while retention of six crossed fruits on plant with foliar spray of GA_3 @ 50 ppm at fruit initiation stage (L_2 x G_1) recorded lower fruit set in percentage (64.54 %) (Table 1).

The maximum fruit weight, fruit length, fruit girth, number of seeds per fruit, seed weight per fruit and test weight were observed in retention of four crossed fruits on plant with foliar spray of GA_3 @ 50 ppm at fruit initiation stage (L_1 x G_1) (180.52 g, 14.43 cm, 17.23 cm, 749.20, 4.29 g and 5.71 g, respectively), while the maximum mature fruit yield per plant (855.77 g) and seed yield per plant (27.19 g) were observed in retention of all crossed fruits on plant with foliar spray of GA_3 @ 50 ppm at fruit initiation stage (L_4 x G_1) (Table 1 and 2). The results are in conformity with the finding of Basavaraj (2006) in okra for seed yield per plant. The minimum number of fruit weight, fruit length, fruit girth, number of seeds per fruit, seed weight per fruit and test weight were observed in retention of all crossed fruits on plant with no any spray of growth regulators (L_4 x G_3) (47.13 g, 9.10 cm, 12.41 cm, 353.67, 1.83 g and 4.86 g, respectively), while the minimum mature fruit yield per plant and seed yield per plant (535.81 g and 13.18 g) were noted in L_2 x G_3

(retention of six crosses fruits on plant with no any spray of growth regulators) and L_1 x G_3 (retention of four crosses fruits on plant with no any spray of growth regulators), respectively (Table 1 and 2).

The higher seed germination (95.67 %), root length (3.79 cm), shoot length (3.78 cm), seedling length (7.57 cm), seedling fresh weight (373.08 g), seedling dry weight (15.61 g), seedling vigour index I (591.70) and seedling vigour index II (1219.32) recorded in retention of four crossed fruits on plant with foliar spray of GA_3 @ 50 ppm at fruit initiation stage (L_1 x G_1), while the minimum values were recorded for these traits in that order (75.00 g, 3.49 cm, 3.49 cm, 6.98 cm, 332.76 g, 14.52 g, 418.97 and 871.50, respectively) in retention of all crossed fruit on plant with no any spray of growth regulators (L_4 x G_3) (Table 3 and 4). The results are in conformity with the finding of Patil *et al.* (2008) in brinjal for seed quality parameters.

Table 4: Effect of fruit load per plant, growth regulators and their interaction effect on seedling fresh weight (mg), seedling dry weight (mg), seedling vigour index I and seedling vigour index II in brinjal.

Treatment	Seedling fresh weight (mg)	Seedling dry weight (mg)	Seedling vigour index I	Seedling vigour index II
Fruit load per plant				
L_1 : Four crossed fruits per plant	369.04	15.45	566.80	1169.48
L_2 : Six crossed fruits per plant	360.29	15.28	519.79	1078.57
L_3 : Eight crossed fruits per plant	349.67	15.11	481.62	1004.46
L_4 : All crossed fruits per plant	336.39	14.72	434.84	904.84
S. Em. ±	3.16	0.10	7.15	15.17
C.D. at 5 %	9.21	0.30	20.88	44.29
Growth regulators				
G_1 : GA_3 @ 50 ppm as foliar spray at fruit initiation stage	359.16	15.32	524.49	1088.97
G_2 : NAA @ 80 ppm as foliar spray at fruit initiation stage	354.04	15.13	500.13	1038.16
G_3 : No spray (Control)	348.35	14.97	477.66	990.88
S. Em.±	2.73	0.08	6.19	13.14
C.D. at 5 %	7.98	0.26	18.08	38.36
Fruit load per plant × Growth regulators				
L_1 x G_1	373.08	15.61	591.70	1219.32
L_1 x G_2	369.88	15.55	567.92	1181.94
L_1 x G_3	364.16	15.18	540.78	1107.19
L_2 x G_1	366.08	15.52	549.17	1143.76
L_2 x G_2	361.88	15.17	520.87	1072.35
L_2 x G_3	352.91	15.15	489.33	1019.58
L_3 x G_1	357.39	15.16	506.93	1049.02
L_3 x G_2	348.09	15.15	476.36	999.11
L_3 x G_3	343.55	15.03	461.56	965.25
L_4 x G_1	340.09	14.99	450.17	943.77
L_4 x G_2	336.33	14.66	435.36	899.24
L_4 x G_3	332.76	14.52	418.97	871.50
Mean	353.85	15.14	500.76	1039.34
S. Em.±	5.47	0.18	12.39	26.28
C.D. at 5 %	NS	NS	NS	NS
C.V. %	2.68	2.05	4.28	4.38

CONCLUSION

Fruit load per plant and plant growth regulators played an important role on seed yield per plant and quality of brinjal hybrid seeds after the harvest of seeds. Irrespective of plant growth regulators, retention of four crossed fruits per plant noted significantly the higher values for yield attributing components and seed quality parameters. But, seed yield per plant found to be the highest in all crossed fruits per plant because of maximum numbers of fruits. Similarly, irrespective of fruit load, foliar spray of GA_3 @ 50 ppm at fruit initiation stage produced significantly the higher seed yield per plant, yield attributing components and seed quality parameters Among the different combinations of fruit load per plant and plant growth regulators, retention of four crossed fruits per plant and foliar spray of GA_3 @ 50 ppm at fruit initiation stage (L_1 x G_1) was found to the best combination, as it having the maximum fruit weight with the highest test weight and different seed quality parameters after the harvest of seeds of hybrid brinjal. However, seed yield per plant noted the highest in retention of all crossed fruits per plant and foliar spray of GA_3 @ 50 ppm at fruit initiation stage (L_4 x G_1).

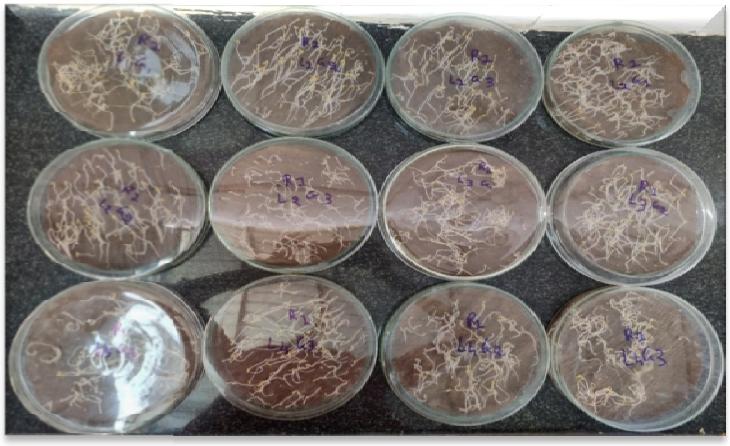
A. Four fruit retention per plant

B. Six fruit retention per plant

C. Eight fruit retention per plant

D. All fruit retention per plant

Fig. 2. Retention of different number of fruits per plant.



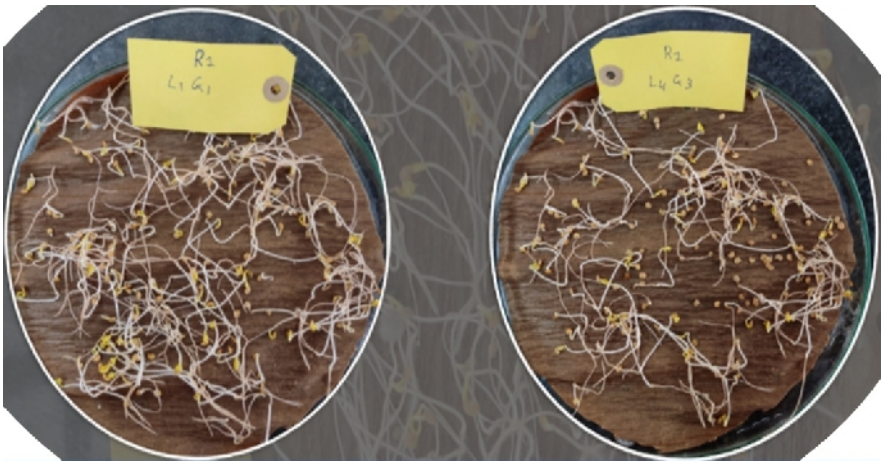


Fig. 3. Influence of fruit load and growth regulators on germination percentage of brinjal hybrid cv. GJBH4.

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