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PERFORMANCE OF OKRA (*ABELMOSCHUS ESCULENTUS* L. MOENCH) GENOTYPES DURING THE LATE KHARIF SEASON

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ABSTRACT

The present experiment was conducted on a study of performance of Okra (*Abelmoschus esculentus* L.) genotypes was carried out during the *late* season are sown in August month, in the year 2021-2022. The study was undertaken on 37 genotypes of okra using randomized block design (RBD) with three replications. On the basis of mean performance, two genotypes, IC42470 and IC42484, were found superior over the check variety Arka Anamika for fruit yield per plant. Genotype IC42470 recorded superior for plant height, number of branches per plant, internodal length, number of fruits per plant, test weight, vigour index I and chlorophyll content, which contribute to yield and seed quality traits.
Keywords **:** Okra, Performance, Genotypes, Yield and Quality.

Introduction

Okra (*Abelmoschus esculentus* L.) is an annual herbaceous plant belonging to the family "Malvaceae", having a somatic chromosome number of 2n=130 and is considered to be an amphidiploid (Siemonsmo, 1982). It is generally known as 'bhendi' or lady's finger in India. Okra is an often-cross-pollinated crop; an extent of 20 per cent out-crossing by insects was reported, which renders a considerable amount of variability (Patil, 1995). It is the best vegetable and is widely cultivated in temperate, tropical and subtropical regions of the world. It is a costly vegetable produced in India for its tender fruits.

India, the world's largest producer of okra, accounts for roughly 72.9 per cent of global okra production. Okra is grown on an area of 526 hectares in India and contributes 3.9 per cent of nation's total vegetable production. Its annual production is 6,505 million tonnes, and its productivity is 11.90 metric tonnes per hectare. Okra is 11.90 metric tonnes per hectare. Okra is grown on 10,881 hectares in Telangana, with an annual output of 55,054 tonnes per year. The major okra producing states are Andhra Pradesh, West Bengal, Bihar, Orissa, Gujarat, Jharkhand, Karnataka and Tamil Nadu (NHB, 2021).

Tender fruits of okra are used as a vegetable or culinary preparation as sliced and fried pieces. The leaves are sometimes used as cattle feed. The ripe seeds are roasted, grinded and used as a substitute for coffee. It is also used for thickening soups and gravies, because of its high mucilage content. Okra fruits are also sliced for sun drying or canning or pickling for off-season use. It has good nutritive value, *viz.* 86.10 per cent water, 2.20 per cent protein, 0.02 per cent fat, 9.70 per cent carbohydrate, 1.0 per cent fibre and 0.80 per cent ash (Saifullah and Rabbani, 2009) and also rich in vitamin C (30 mg / 100 g), Calcium (90 mg /100 g) and iron (1.5 mg / 100 g) (Pal *et al*., 1952).

Material and Methods

The present experiment was conducted at the PG research block in Department of Vegetable Science, College of Horticulture, Mojerla, Wanaparthy district, Sri Konda Laxman Telangana Horticultural University, Mulugu, Siddipet District, Telangana during *late Kharif*, 2021-2022. The monthly mean maximum temperature ranged from 24.9 ^{o}C to 32.4 ^{o}C with an

average of 30.50 °C, while the monthly mean minimum temperature ranged from 12.7 °C to 21.4 °C with an average of 17.5 °C during the crop growth period. Relative humidity forenoon and afternoon fluctuated between 86% to 90% and 38% to 71% respectively. Rainfall received during the crop growth period. The monthly mean sunshine hours varied from 3.3 to 8.2, with an average of 5.6 hours per day and mean evaporation ranged from 2.8 to 5.1 mm with an average of 4.1 mm per day. The mean wind speed ranged from 2.8 to 11.2 km hr-1 with an average of 5.4 km hr-1. At all stages of the crop growth, the weather was congenial for the growth and development of okra crop during Late kharif season- 2021-2022 (Plate 1)

Plate 1 : Field view of the experimental plot

Source of Seed Materials

The 37 genotypes of okra were collected from NBPGR, Regional Station, New Delhi. IC33823, IC33853, IC34124, IC39132, IC39133, IC39134, IC39135, IC39136, IC39137, IC39143, IC40289, IC42451, IC42456, IC42464, IC42470, IC42472, IC42484, IC42490, EC329362, EC329364, EC329365, EC329366, EC329367, EC329368, EC329369, EC329370, EC329371, EC329372, EC329384, EC329384, EC329406, EC329418, EC329420, EC329421, EC329422, EC329423, Kashi Lalima (Check), IIVR, Varanasi and Arka Anamika (Check) IIHR, Bangalore. The data was recorded on the following parameters.

Results and Discussion

Mean performance of genotypes

In any selection programme, the mean performance of the genotypes for individual characters serves as an important criterion for discarding the undesirable types. This indicates that germplasm studies may act as a potential source and offer scope for selection of high yielding genotypes with desirable horticultural attributes. The mean performance of thirty-seven genotypes of okra with respect to various fruit yield and their seed quality attributes is described character-wise below. Mean performances of the genotypes for the nineteen characters are furnished in Table 1 & Plate 2.

The mean value for plant height exhibited a range from 35.73 cm to 71.28 cm with a total mean of 50.625 cm. The genotype IC42470 recorded highest plant height (71.28 cm), while the genotype IC34124 revealed lowest plant height of (35.73 cm). Genotypes *viz*., IC-42470 (71.28 cm), IC-40289 (63.37 cm), EC-329418 (62.8367 cm), EC329422 (62.10 cm), IC-42451 (61.68cm), IC-39135 (60.70 cm), IC-39143 (60.47 cm), IC-39137 (59.63 cm), EC329423 (59.020 cm), IC-39134 (56.24 cm), EC-329420 (56.13 cm) and IC- 42472 (54.25 cm) were revealed significantly maximum plant height than to check Arka Anamika (53.71 cm). Such variation in okra genotypes for plant height was also noticed by Mshelia *et al*. (2018) and Sood *et al*. (2019).

Number of branches ranged from 2.00 to 5.53, with an overall mean performance of 3.0261. The genotype IC42470 registered maximum number branches per plant (5.53), while the genotype EC329364 recorded minimum number branches per plant (2.00). Genotypes, viz., IC-42470 (5.53), IC42451 (4.8), IC-39143 (4.7), IC-39135 (4.37), IC-40289 (3.9), EC-329418 (3.83), EC-329422 (3.6), IC-39137 (4.53), EC-329420 (3.47), EC-329423 (3.47), IC-42472 (3.43) and IC-39136 (3.4) were noticed to have significantly more number of primary branches per plant compared to check Arka Anamika (3.4). Variation in okra in number of branches was also reported by Saifullah et al (2009). Karri et al. (2012). Mohammed et al. (2022) and Sood *et al.* (2019). Internodal length ranged between 1.36 cm and 5.94 cm with an average mean value of 3.6574 cm. Maximum internodal length (5.94 cm) was observed in genotype IC42470, whereas the minimum internodal length (1.36 cm) was exhibited in genotype IC-42484. Genotypes viz., IC-42470 (5.94 cm), IC-39137 (5.76 cm), IC-39143 (5.67 cm), IC-39135 (5.52 cm), IC-39136 (4.65 cm), IC-40289 (4.57 cm), IC-42451 (4.57 cm), EC-329418 (5.12 cm), EC329422 (4.98 cm), IC-39134 (4.79 cm), IC-39133 (4.36 cm) and IC-33853 (4.35 cm) were recorded significantly higher intermodal length than to check Arka Anamika (4.01 cm). Similar results were reported by Sood *et al*. (2019).

Days to 50 % flowering varied from 36.27 to 54.97, with the grand mean value of 43.6574. The genotype IC34124 recorded earlier days to 50 % flowering (36.27), whereas genotype IC39134 recorded significantly late days to 50 % flowering (54.97). Genotypes viz., IC39134 (54.96), EC329362 (54.36),

IC39143 (54.20), IC39132 (53.46), IC42456 (53.43), IC39133 (51.30), EC329372 (45.66), EC329371 (44.23), EC329364 (44.20), IC42490 (43.53), IC42451 (43.46), IC42464 (43.46), EC329406 (43.36), IC33823 (43.20), EC329422 (43.16), IC39137 (42.56) and IC40289 (42.53) were revealed significantly earlier days to 50 % flowering than to check Arka Anamika (42.53). The variation in days to 50 % flowering in okra was also noticed by Mohammed *et al*. (2022).

The fruit length ranged from 9.84 cm to 15.25 cm with a grand mean of 12.60 cm. The genotype IC-39143 produced the maximum fruit length (15.25 cm), while the genotype IC-34124 recorded minimum fruit length (9.84 cm). Genotypes viz., IC39143 (15.24 cm), IC39137 (15.22 cm), EC329364 (15.16 cm), IC42470 (14.35 cm), IC33823 (14.24 cm), IC42456 (13.81 cm), EC329422 (13.59 cm), IC42451 (13.55 cm), IC40289 (13.54 cm), IC42490(13.50 cm), EC329371 (13.49 cm), EC329368 (13.35 cm), EC329421 (13.33 cm), IC39134 (13.32 cm), IC39136 (13.25 cm), IC39135 (13.24 cm), IC33853 (13.25 cm), EC329418 (13.25 cm), EC329367 (13.13 cm) and IC39133 (12.75 cm) registered significantly maximum fruit length compared to check Arka Anamika (12.44 cm). Similar results were reported by Meher *et al*. (2016). Kumar *et al*. (2017). Sing *et al*. (2018) and Ashraf *et al*. (2020).

The mean value for fruit diameter ranged from 1.25 cm to 2.43 cm with a grand mean of 1.5 cm. Maximum fruit diameter (2.43 cm) was recorded in genotype IC-34124, whereas the genotype EC-329364 registered minimum fruit diameter (1.25 cm). Genotypes viz., IC34124 (2.42 cm), IC33823 (1.95 cm), IC33853 (1.71 cm), EC329371 (1.7167 cm), EC329367 (1.7 cm), IC39132 (1.73 cm), IC42490 (1.66 cm), IC42464 (1.57 cm), EC329366 (1.58 cm), IC39136 (1.56 cm), EC329384 (1.5267 cm), IC39133 (1.52 cm), EC329369 (1.52 cm), IC39134 (1.50 cm), IC39135 (1.51 cm), IC42484 (1.48 cm), EC329365 (1.48 cm), IC39143 (1.48 cm), IC40289 (1.45 cm), EC329370 (1.45 cm), IC39137 (1.43 cm), EC329368 (1.44 cm), EC329372 (1.42 cm), EC329406 (1.40 cm), IC42470 (1.41 cm) and Kashi Lalima (1.40 cm) had significantly higher fruit diameter than to check Arka Anamika (1.4 cm). Similar results were reported by Kumar *et al*. (2017).

Among the evaluated genotype, the days to first picking varied significantly and which was ranging from 38.66 days to 58.26 days, with an average mean value of 47.24 days. The genotype EC329366 picked earlier in 38.66 days; however, more number of days (58.26 days) were taken in genotype IC39134. Genotypes viz., IC39134 (58.2633), IC39143 (56.6967), IC39132 (55.56), IC42484 (56.4567), EC329372 (51.6467), EC329371 (51.64), IC39133 (53.51), IC40289 (49.3967), EC-329422 (49.3833) and IC42451(48.5967) were registered significantly earlier days to first picking compared to check Arka Anamika (48.44 days).

The mean value for number of locules per fruit ranged from 4.24 to 10.46, with a total mean of 6.07. The genotype EC329367 registered maximum number of locules per fruit (10.46), while the genotype IC40289 recorded minimum number of locules per fruit (4.24). Genotypes viz., EC329367 (10.46), EC329366 (10.03), EC329371 (9.26), EC329369 (9.21), EC329368 (9.18), EC329384 (9.15), IC39143 (6.28), EC329422 (6.18), IC39136 (5.65) and IC42490 (5.62) were observed significantly more number of locules per fruit compared to check Arka Anamika (5.61). Similar results were reported by Karri *et al*. (2012).

Number of seeds per fruit varied from 24.23 to 65.9, with a grand mean of 50.43. The genotype EC329368 produced maximum number of seeds per fruit (65.13), whereas, the genotype EC329406 produced minimum number of seeds per fruit (24.23). Genotypes viz., EC329368 (65.9), EC329371 (65.1333), IC39135 (64.37), IC42451 (64.13), EC329418 (62.4), IC40289 (61.07), IC42470 (60.87), EC329367 (59.3667), IC39137 (58.97), IC33853 (57.57), EC329370 (57.0667), IC39136 (55.8), IC39132 (55.53), IC42490 (55.53), IC42456 (54.97), IC39133 (54.8), EC329420 (54.8), EC329423 (54.73), IC34124 (53.93), IC39143 (53.67), IC33823 (48.2), IC42464 (52.67), EC329421 (48.73), IC42472 (47.93), EC329384 (47.43), EC329365 (45.17) and EC329369 (45) exhibited significantly more number of seeds per fruit compared to check Arka Anamika (44.17). The variation in okra in no of seeds per fruit was also reported by Karri *et al*. (2012).

Number of fruits per plant ranged from 17.69 to 52.90 and average was calculated to be 33.3043. Maximum number of fruits per plant (52.90) was found in genotype IC42470 and it was recorded to be least (17.69) in genotype EC329372. Genotypes *viz.*, IC42470 (52.90), EC329422 (48.75), EC329421 (44.71), IC42451 (43.33), IC39137 (43.36), IC39135 (42.75), IC39136 (41.38), EC329423 (41.15), IC39143 (40.56), EC329420 (40.51), IC42472 (39.18), IC40289 (38.60), IC39133 (36.75), EC329418 (37.92) were significantly found to have a greater number of fruits per plant than to check Arka Anamika (36.28).

The Fruit yield per plant lay between 0.156 kg to 0.444 kg with a grand mean of 0.2674 kg. The maximum fruit yield per plant (0.444 kg) was observed

in genotype IC42470 and the genotype IC42484 recorded a significantly minimum fruit yield per plant (0.156 kg). Genotypes viz., IC42470 (0.444 kg), EC329422 (0.4217 kg), EC329423 (0.3813 kg), EC329421 (0.3777 kg), IC39137 (0.3267 kg), EC329420 (0.326 kg), IC39135 (0.2867 kg), IC42451 (0.2833 kg), EC329368 (0.2833 kg), IC40289 (0.276 kg), EC329418 (0.274 kg), IC33853 (0.2693 kg), EC329384 (0.2663 kg), IC39143 (0.2683 kg), EC329365 (0.2653 kg), EC329369 (0.2643 kg) and IC39134 (0.2603 kg) recorded significantly more fruit yield per plant compared to check Arka Anamika (0.256 kg).). Similar results were reported by Karri *et al*. (2012).

The Test weight varied from 53.0333 g to 75.8333 g with a grand total mean of 63.3432 g. The genotype IC42470 recorded found maximum test weight (75.8333 g), whereas the genotype EC329366 recorded minimum test weight (53.0333 g). Genotypes *viz.,* IC42470 (75.8333g), IC39132 (74.1 g), EC329418 (72.8333 g), IC42451 (72.5 g), IC39135 (70.4 g), IC39143 (69.6 g), IC39133 (68.73 g), IC39136 (68.4 g), IC42484 (67.83 g), EC329420 (67.5333g), IC39137 (67.5 g), IC40289 (66.53 g), IC33853 (66.13 g), IC33823 (65.77 g), EC329365 (65.23 g), IC39134 (64.4 g), EC329422 (64.1667 g), EC329423 (63.9 g), EC329370 (63.73g), EC329421 (63.33g) and IC34124 (63.33g) were recorded significantly maximum test weight than to check Arka Anamika (62.7 g). Similar results were reported by Karri *et al*. (2012).

The average germination percent was 86.37 and it ranged from 75.06 to 96.47 %. The genotype IC42451 exhibited the maximum germination percent (96.47 %), whereas the genotypes IC42456 recorded the minimum germination percent (75.06). Genotypes viz., IC42451 (96.47 %), IC42464 (95.7 %), EC329423 (94.23 %), EC329365 (93.56 %), IC33853 (92.3 %), IC39133 (92.1 %), IC39135 (92.0 %), IC42470 (91.7 %) recorded significantly higher germination percent compared to check Arka Anamika (91.43 %).

Among the evaluated genotypes the seedling length varied from 7.47 cm to 13.79 cm and average seedling length was found to be 10.18 cm. The genotype EC329422 was found to produce the maximum seedling length (13.79 cm), whereas the genotype EC329366 recorded significantly minimum seedling length (7.4767 cm). Genotypes viz., EC329422 (13.79 cm), IC42484 (13.68 cm), IC39132 (13.48 cm), IC42470 (12.05 cm), EC329362 (11.66 cm), EC329418 (11.39 cm), EC329372 (10.99 cm), IC42472 (10.91 cm), EC329421 (10.81 cm), Kashi Lalima (10.77 cm), EC329365 (10.62 cm), IC42490 (10.58 cm), EC329423 (10.59 cm), IC42451 (10.54 cm), EC329364 (10.51 cm) and EC329371 (10.38 cm) were found to have significantly higher seedling length compared to check Arka Anamika (10.38 cm). Variation in okra in seedling length was also reported by Sanodiya *et al*. (2017).

The mean value for seedling dry weight exhibited a range from 0.0207 g to 0.0381 g with an overall mean performance of 0.0297 g. The genotype EC329421 recorded maximum seedling dry weight (0.0381 g), whereas minimum seedling dry weight (0.0207 g) was exhibited in genotypes EC329367. Genotypes viz., EC329421 (0.0381 g), IC33853 (0.0376 g), EC329420 (0.0369 g), IC42451 (0.0358 g), IC42470 (0.0354 g), IC39135 (0.0349 g), IC42484 (0.035 g) and IC39132 (0.0354 g) registered significantly maximum seedling dry weight than to check Arka Anamika (0.035 g). Variation in okra in seedling dry weight was also reported by Sanodiya *et al*. (2017).

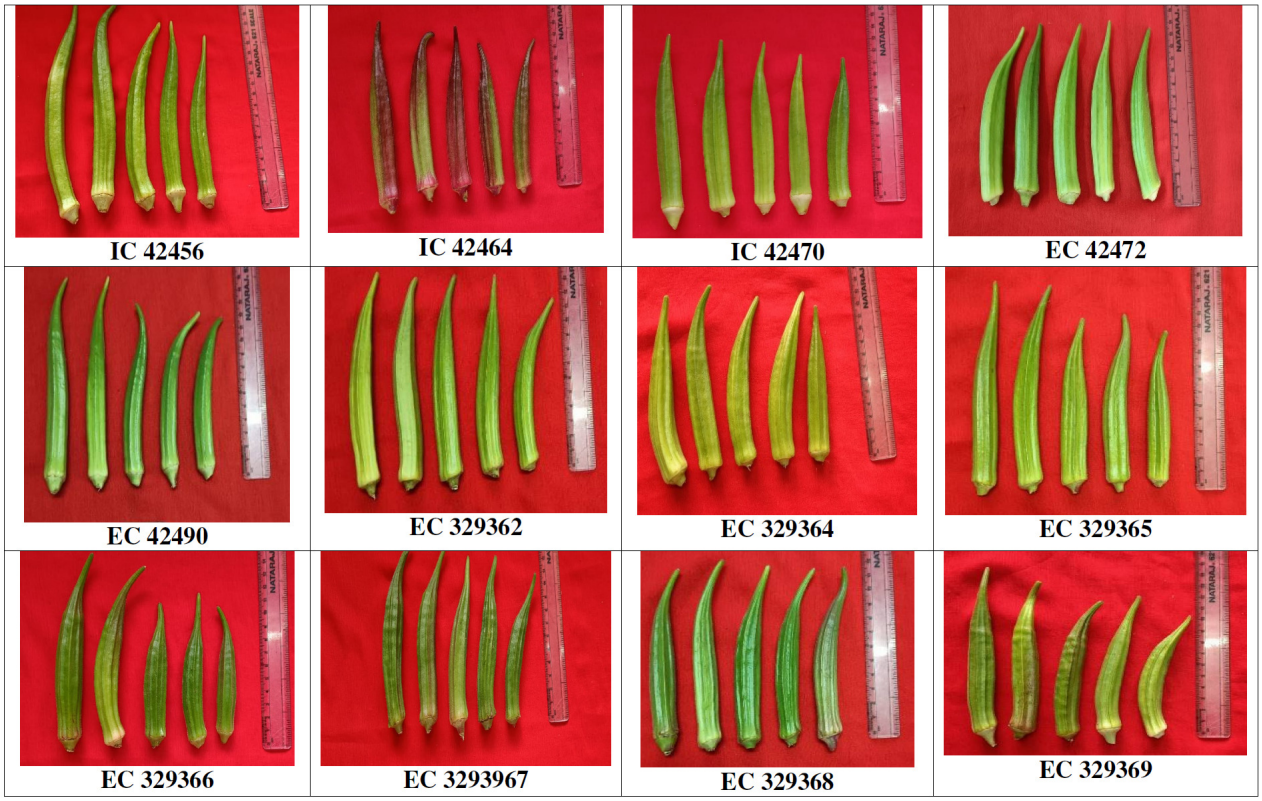
The mean value for vigour index I varied from 514.08 to 1225.7 with a total grand mean of 881.49. Genotype EC329422 recorded significantly maximum vigour index I (1225.7), whereas minimum vigour index I (514.08) was observed in genotype EC329367. Genotypes viz.,EC329422 (1225.76), IC42470 (1105.34), IC39132 (1084.192), IC42484 (1071.885), EC329362 (1058.01), IC42451 (1017.145), EC329423 (997.718), EC329372 (977.015), EC329365 (993.60), EC329418 (961.95) and IC42490 (952.02) were significantly higher vigour index I compared to check Arka Anamika (948.79). Similar results were reported by Sanodiya *et al*. (2017).

The mean value for vigour index II varied from 1.3692 to 3.4743 with a total grand mean of 2.5797. Genotype IC33853 recorded significantly maximum vigour index II of 3.4743, whereas minimum vigour index II was observed in genotype EC329367. Genotypes viz., IC33853 (3.4743), IC42451 (3.4496), EC329421 (3.3244), EC329420 (3.26), IC42470 (3.24790), IC3913 (3.2138), were recorded significantly higher vigour index II than to check Arka Anamika (3.1886). Variation in okra in vigour index II was also reported by Sanodiya *et al*. (2017).

Total chlorophyll content lied between 0.16 mg to 1.9533 mg with a grand mean of 0.715 mg. The genotypes IC42470 recorded significantly highest total chlorophyll content of (1.9533 mg), whereas the genotype IC42464 recorded the lowest total chlorophyll content (0.16 mg). Genotypes viz., IC42470 (1.9533 mg), EC329422 (1.4567 mg), EC329420 (1.2533 mg), EC329421 (1.0533 mg), EC329418 (0.95 mg), IC39132 (0.95 mg), IC39135

(0.94 mg), IC42472 (0.8633mg), IC39137 (0.8467 mg), IC40289 (0.8433 mg), EC329368 (0.8367 mg), EC329370 (0.8333 mg), EC329365 (0.7567 mg), EC329369 (0.76 mg), EC329423 (0.75 mg), EC329362 (0.7433 mg), IC42451 (0.7333 mg), IC39133 (0.73 mg), IC33823 (0.7333 mg), EC329384 (0.6533 mg), EC329367 (0.653mg), IC33853 (0.65 mg) and IC39143 (0.6533 mg) were observed significantly maximum total chlorophyll content compared to check Arka Anamika (0.5567 mg).

Plate 2:Phenotypic diversity in the fruits of okra



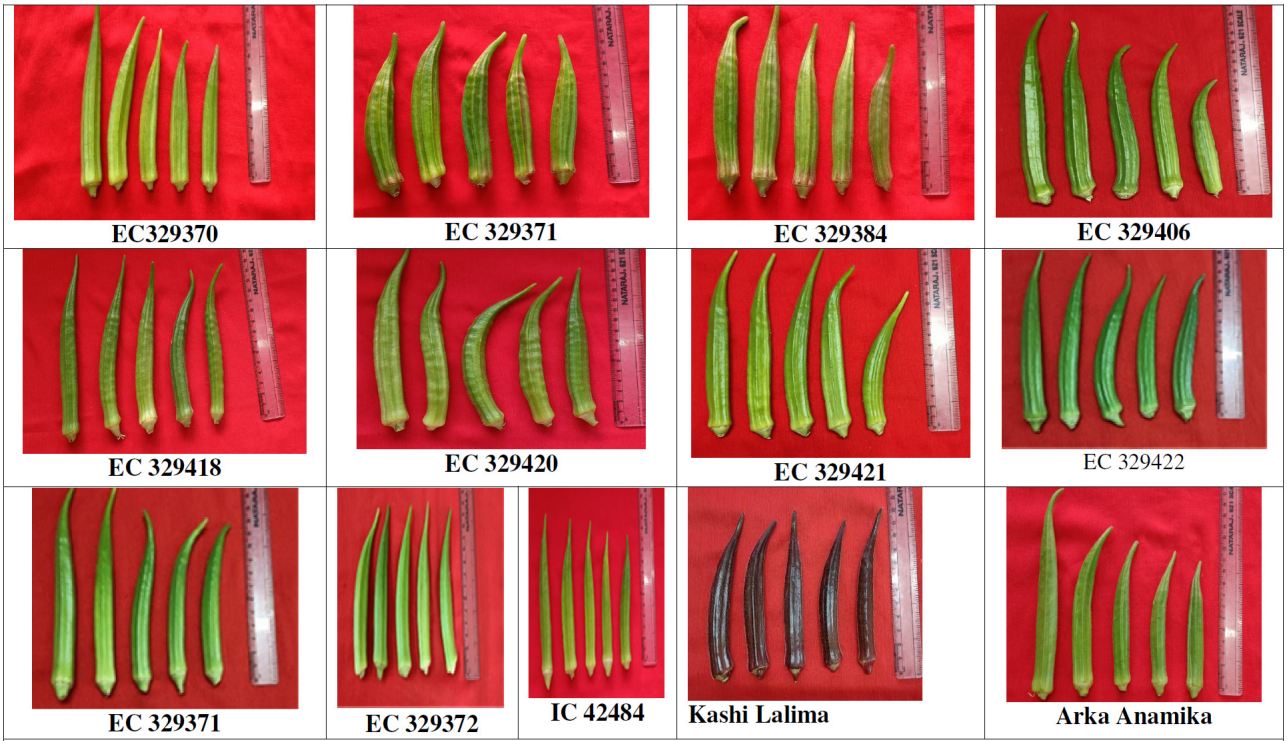


Plate 2: Phenotypic diversity in the fruits of okra

Table 1 : Mean performance of thirty-seven genotypes of okra in terms of growth, yield, seed quality and their related characters

S. No.	Genotype	Plant height (cm)	Number of primary branches	Internodal length (cm)	Days to 50% flowering	Fruit length (cm)	Fruit diameter (cm)	Days to 1st picking	Number of locules per fruit	Number of seeds per fruit	Number of fruits per plant
1	IC33823	45.7167	2.4667	3.6267	43.2000	14.2400	1.9533	46.3533	5.1467	48.2000	18.5333
2	IC33853	52.8600	2.8667	4.3500	42.3333	13.2567	1.7133	45.8100	5.3300	57.5667	22.4200
3	IC34124	35.7267	2.6667	2.7200	39.4333	9.836	2.4267	42.2767	5.2367	53.9333	23.4867
4	IC39132	45.3067	2.5667	3.4533	53.4667	12.3333	1.7300	55.5600	5.4533	55.5333	32.3100
5	IC39133	51.2200	2.6333	4.3600	51.3000	12.7533	1.5233	53.5100	5.2700	54.8000	36.7567
6	IC39134	56.2367	3.2000	4.7900	54.9667	13.3267	1.5067	58.2633	5.4167	41.1333	33.1833
7	IC39135	60.6967	4.3667	5.5167	42.4000	13.2467	1.5133	45.4433	5.4033	64.3667	42.7533
8	IC39136	53.6333	3.4000	4.6500	40.4333	13.2567	1.5667	45.2533	5.6567	55.8000	41.3833
9	IC39137	59.6333	4.5333	5.7600	42.5667	15.2267	1.4367	43.4967	5.4700	58.9667	43.3667
10	IC39143	60.4667	4.7000	5.6733	54.2000	15.2467	1.4800	56.6967	6.2833	53.6667	40.5600
11	IC40289	63.3667	3.9000	4.5667	42.5333	13.5400	1.4533	49.3967	4.2400	61.0667	38.6033
12	IC42451	61.6833	4.8000	4.5700	43.4667	13.5533	1.3200	48.5967	5.2533	64.1333	43.3367
13	IC42456	51.6000	2.3667	3.5067	53.4333	13.8167	1.3233	42.6767	5.2367	54.9667	29.4600
14	IC42464	41.3667	2.4667	2.5533	43.4667	10.6633	1.5767	42.6767	5.5867	52.6667	30.9867
15	IC42470	71.2767	5.5333	5.9367	40.5000	14.3533	1.4133	45.4400	5.0433	60.8667	52.8967
16	IC42472	54.2500	3.4333	3.8100	41.5667	11.5400	1.3733	46.3133	5.2400	47.9333	39.1800
17	IC42484	40.7933	2.3333	1.8300	41.8333	11.5067	1.4867	56.4567	5.3467	19.7333	19.2067
18	IC42490	52.1267	2.5000	3.5400	43.5333	13.5067	1.6633	46.1833	5.6233	55.5333	21.6333
19	EC329362	46.7900	2.4000	3.2433	54.3667	10.5267	1.3167	46.1833	5.4467	43.3667	32.0200
20	EC329364	43.9033	2.3000	2.7867	44.2000	15.1633	1.2467	44.4567	5.4467	43.3667	28.8467
21	EC329365	50.0533	3.0000	3.6267	42.1000	11.7900	1.4867	44.6400	5.4467	45.1667	34.7333
22	EC329366	48.0533	2.3000	3.6667	40.5667	10.7500	1.5800	38.6567	10.0300	42.7667	30.5700
23	EC329367	41.8267	2.4333	2.2033	42.1333	13.1367	1.7000	44.3767	10.4567	59.3667	27.0167
24	EC329368	42.9833	2.4333	2.9733	36.2667	13.3500	1.4400	39.9833	9.1833	65.9000	32.1000
25	EC329369	47.7900	2.6000	1.6333	41.5667	10.3167	1.5200	46.7033	9.2167	45.0000	35.7500
26	EC329370	42.6067	2.4667	2.6300	36.4667	11.5867	1.4533	41.6133	5.5833	57.0667	27.3333
27	EC329371	44.8733	2.3333	2.8967	44.2333	13.4900	1.7167	51.6400	9.2600	65.1333	28.3300
28	EC329372	36.0267	1.6333	1.3633	45.6667	10.3533	1.4200	51.6467	5.4967	27.0333	17.6867
29	EC329384	44.0567	2.1333	2.8933	41.4667	10.8067	1.5267	47.5800	9.1533	47.4333	29.4167
30	EC329406	37.2700	2.0000	2.1467	43.3667	11.3367	1.4067	48.4233	5.1600	24.2333	18.5533
31	EC329418	62.8367	3.8333	5.1167	39.8667	13.2500	1.2500	46.6167	5.2433	62.4000	37.9267
32	EC329420	56.1300	3.4667	3.7900	40.4667	12.3300	1.2733	46.4200	5.1700	54.8000	40.5167
33	EC329421	51.8333	2.9000	3.6667	42.3000	13.3333	1.3267	47.4567	5.3233	48.7333	44.7133
34	EC329422	62.0967	3.6000	4.9767	43.1667	13.5933	1.2600	49.3833	6.1867	39.5333	48.7567
35	EC329423	59.0200	3.4667	3.9333	40.1333	12.1500	1.3200	45.8700	5.2067	54.7333	41.1567
36	Kashi Lalima (Check hybrid)	43.3067	2.5333	2.5500	40.4000	11.3133	1.3967	46.4133	5.5900	35.1000	30.4933
37	Arka Anamika (Check hybrid)	53.7067	3.4000	4.0133	42.5333	12.4367	1.4000	48.4400	5.6100	44.1667	36.2833
Grand mean		**50.6250**	**3.0261**	**3.6574**	**43.6574**	**12.6005**	**1.5000**	**47.2421**	**6.0661**	**50.4369**	**33.3043**
SEm ±		0.5539	0.1137	0.0961	0.2368	0.1140	0.0679	0.1421	0.1834	1.1241	0.4671
CV (%)		1.8950	6.507	4.551	0.9392	1.5669	7.8378	0.5208	5.236	3.8603	2.4294
CD(P=0.05)		1.5615	0.3205	0.271	0.6676	0.3213	0.1914	0.4005	0.5170	3.1690	1.3169

Continue…

S. No.	Genotype	Fruit yield per plant	Seed weight per fruit	Test weight	Germination (%)	Seedling length	Seedling dry weight	Vigour index I	Vigour index II	Chlorophyll content (mg/100 g)
1	IC33823	0.2490	3.4103	65.7667	85.1067	8.2900	0.0337	705.4942	2.8690	0.7333
2	IC33853	0.2693	3.7717	66.1333	92.3000	9.7800	0.0376	902.7300	3.4743	0.6500
3	IC34124	0.2290	4.2747	63.3333	87.4333	9.4700	0.0281	828.1883	2.4534	0.3467
4	IC39132	0.2303	4.1733	74.1000	80.4667	13.4767	0.0354	1084.1920	2.8476	0.9500
5	IC39133	0.2547	2.8583	68.7333	92.1000	9.7200	0.0320	895.7813	2.9505	0.7300
6	IC39134	0.2603	3.6793	64.4000	82.6333	10.0133	0.0290	827.1353	2.3963	0.4500
7	IC39135	0.2867	2.5143	70.4000	92.0000	9.4600	0.0349	870.5850	3.2138	0.9400
8	IC39136	0.2530	3.2340	68.4600	90.9667	10.3333	0.0323	940.1080	2.9397	0.5400
9	IC39137	0.3267	3.6023	67.5000	90.7667	9.9000	0.0331	898.5153	3.0053	0.8467
10	IC39143	0.2683	3.4957	69.6000	86.8333	7.6033	0.0262	660.5883	2.2740	0.6533

11	IC40289	0.2760	3.4217	66.5333	87.1667	8.5300	0.0340	743.9366	2.9640	0.8433
12	IC42451	0.2833	4.6907	72.5000	96.4667	10.5433	0.0358	1017.1450	3.4496	0.7333
13	IC42456	0.2367	3.8377	59.0000	75.0667	9.5800	0.0273	719.0320	2.0493	0.5500
14	IC42464	0.2537	3.5840	61.4667	95.7000	8.9700	0.0256	858.2510	2.4533	0.1600
15	IC42470	0.4447	4.1713	75.8333	91.7000	12.0533	0.0354	1105.3480	3.2479	1.9533
16	IC42472	0.2463	3.3433	57.3667	78.1000	10.9067	0.0236	851.6506	1.8402	0.8633
17	IC42484	0.1560	2.1967	67.8333	78.3667	13.6800	0.0347	1071.8850	2.7214	0.2600
18	IC42490	0.2250	3.7473	56.9333	89.9667	10.5800	0.0288	952.0287	2.5940	0.3533
19	EC329362	0.2410	4.3203	60.7667	90.7333	11.6600	0.0268	1058.0100	2.4318	0.7433
20	EC329364	0.2190	3.3853	57.1000	81.0667	10.5133	0.0321	852.4327	2.6010	0.5533
21	EC329365	0.2653	3.3483	65.2333	93.5667	10.6167	0.0250	993.6013	2.3395	0.7567
22	EC329366	0.2433	3.4533	53.0333	79.7000	7.4767	0.0283	595.9970	2.2549	0.5533
23	EC329367	0.2463	3.1360	60.4333	65.9667	7.7933	0.0207	514.0860	1.3692	0.65330
24	EC329368	0.2833	4.8373	61.1667	68.3333	7.7900	0.0243	532.1480	1.6627	0.8367
25	EC329369	0.2643	3.0627	54.2000	90.3000	10.1367	0.0252	915.3560	2.2712	0.7600
26	EC329370	0.2397	3.5713	63.7333	88.9000	10.2600	0.0257	912.0913	2.2795	0.8333
27	EC329371	0.2533	3.6883	50.7333	86.0000	10.3767	0.0234	892.3017	2.0092	0.5533
28	EC329372	0.1760	3.3000	55.4667	88.8333	10.9967	0.0278	977.0150	2.4705	0.4667
29	EC329384	0.2663	3.8740	56.5333	88.9333	9.3600	0.0273	832.6460	2.4299	0.6533
30	EC329406	0.1733	2.4013	59.7000	78.1333	9.5833	0.0249	748.8697	1.9465	0.3700
31	EC329418	0.2740	3.8420	72.8333	84.4333	11.3933	0.0324	961.9573	2.7325	0.9500
32	EC329420	0.3260	3.3470	67.5333	88.2333	9.4833	0.0369	836.9153	3.2600	1.2533
33	EC329421	0.3777	3.5130	63.3333	87.1667	10.8067	0.0381	941.9433	3.3244	1.0533
34	EC329422	0.4217	4.0850	64.1667	88.8667	13.7933	0.0322	1225.7610	2.8647	1.4567
35	EC329423	0.3813	3.7777	63.9000	94.2333	10.5867	0.0239	997.7180	2.2483	0.7500
36	Kashi Lalima (Check Variety)	0.2373	2.8150	55.2333	87.8000	10.7667	0.0230	945.1207	2.0191	0.1433
37	Arka Anamika (Check hybrid)	0.2560	2.9707	62.7000	91.4333	10.3767	0.0349	948.7890	3.1886	0.5567
Grand mean		**0.2674**	**3.5334**	**63.3432**	**86.3723**	**10.1800**	**0.0297**	**881.4961**	**2.5797**	**0.7150**
SEm ±		0.0075	0.0833	1.2109	1.0911	0.1286	0.0009	16.9470	0.0860	0.0149
CV (%)		4.855	4.085	3.311	2.187	2.187	5.427	3.3299	5.773	3.6016
CD(P=0.05)		0.021	0.235	3.413	3.075	0.362	0.002	47.776	0.242	0.0419

Conclusion

Based on mean performance, the genotypes IC42470 and IC42484 were found to be superior to the check variety Arka Anamika for fruit yield per plant. Genotype IC42470 recorded superior for plant height, number of branches per plant, internodal length, number of fruits per plant, test weight, vigour index I and chlorophyll content, which contribute to yield and seed quality traits.

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