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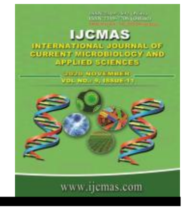

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Mean Performance, Character Association and Path Analysis Studies for Quantitative Characters in Okra (*Abelmoschus esculentus* (L.) Moench) Genotypes

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The present investigation was carried out to study the mean performance, character association and path coefficient analysis in okra (*Abelmoschus esculentus* (L.) Moench) during the *kharif* season of 2019-20. The experiment was laid out in Randomized Block Design with two replications at Olericulture Unit, Department of Horticulture, Main Agricultural Research Station, UAS, Dharwad. In the present study, the genotypes 360-R, IC-014096, 29-2-2, IC-00795, IC-755647 and 10-191 recorded high mean performance for fruit yield per plant. Significant and positive correlation was observed for number of fruits per plant, average fruit weight, fruit length, plant height 90 DAS, plant height 30 DAS, plant height 60 DAS and fruit diameter with fruit yield per plant. This indicates the possibility in increasing the yield by selecting for these characters. Path coefficient analysis indicated that, the number of fruits per plant had highest positive direct effect on fruit yield per plant followed by average fruit weight, days to fifty per cent flowering, internodal length, number of branches per plant, fruit length, fruit diameter, days to first flowering and plant height 60 DAS. This further indicates the positive correlation between these characters.

Introduction

Bhendi (*Abelmoschus esculentus* (L.) Moench) is one of the important tropical vegetable crops commonly known as okra and lady finger in India. It is the most ancient and traditional crop grown in tropical and sub-tropical low land regions of Asia, Africa, America and warmer parts of Mediterranean regions (Chauvahan, 1972).

According to the taxonomic classification of Zeven and Zhukovsky (1975), the cultivated species *A. esculentus* is believed to have originated in the Hindustani centre, *i.e.*, India. The first step in okra improvement should involve evaluation of the germplasm to assess the mean performance for yield and yield related traits. If there are any lines which would be performing better than commercial check, such lines could be pushed for commercial exploitation. A study conducted by Thirupathi *et al.*, (2012), indicated that ten entries performed superior as compared to commercial check Arka Anamika. Kumar *et al.*, (2019), evaluated sixty eight genotypes and reported that two entries such as B-02 and KS-442 were superior as compared to other entries. Nesru *et al.*, (2020), studied thirtythree okra genotypes for twenty seven quantitative characters and reported higher fruit yield per hectare in the genotype 29618 as compared to other genotypes.

Correlation studies indicate the degree of inter-relationship of plant characters for improvement of yield as well as important quality parameters in any breeding programme. Hence, understanding of the inter-relationship between yield and yield influencing characters is of vital importance because this would facilitate effective selection for simultaneous improvement in one or more yield characters. Path coefficient analysis facilitates the partitioning of correlation coefficient into direct and indirect effects of various traits on fruit yield per plant. It provides an effective means of finding out direct and indirect causes of association and provides a critical examination of the specific forces acting to produce a given correlation and measures the relative importance of each factor. Mishra *et al.*, (2016), reported that fruit yield per plant had highly significant and positive association with number of nodes per plant, number of fruits per plant, days to first flowering, internodal length, number of branches per plant and plant height. Saryam *et al.*, (2017), evaluated okra genotypes and reported that yield per plant had positive association with fruit diameter, fruit length, number of fruits per plant, fruit weight, number of seeds per fruit, 100 seed weight and fruit diameter. Kumar *et al.*, (2019), studied sixty eight genotypes of okra for different yield contributing characters and reported that total fruit yield per plant had positive direct effect with fruit girth, number of fruits per plant, fruit weight and internodal distance. Hence the present study was conducted to realize the importance of developing high yielding okra genotypes.

Materials and Methods

The investigation was carried out at Olericulture Unit, Department of Horticulture. MARS, UAS, Dharwad during *kharif* 2019-20. The experimental material which is used in the present investigation comprised of fifty genotypes of okra. They were evaluated using randomized block design (RBD). Twenty six genotypes were collected from NBPGR Hyderabad, twenty two from UAS, Dharwad and two from IIHR Bangalore. The row to row spacing was 60 cm and plant to plant spacing was 30 cm. The recommended package of practices by UHS, Bagalkot was followed. Five plants were selected randomly from each replication and data were recorded for the characters *viz.*, plant height 30 DAS (cm), plant height 60 DAS (cm), plant height 90 DAS (cm), days to first flowering, days to fifty per cent flowering, number of branches per plant, internodal length (cm), first fruiting node, days to first harvest, number of fruits per plant, number of seeds per fruit, fruit length (cm), average fruit weight (g), fruit diameter (cm), yield per plant (g) and yield per hectare (t). Genotypic and phenotypic correlation coefficients were calculated using the method given by Johnson *et al.*, (1955). Path coefficient analysis was carried out by the procedure originally proposed by Wright (1921).

Results and Discussion

In the present study it is evident from the Table 1, that there was significant variation in the mean performance of the fifty genotypes for all the sixteen traits studied. The most important trait in any crop improvement programme is the fruit yield. Significantly higher yield was recorded in the entry 360-R (443.42 g) and there were only two entries namely IC-014096 and Arka Anamika which were at par with this (Table 1–3).

Table.1 Mean performance of the fifty genotypes for growth and yield characters in okra

SI. No.	Genotype	Plant height 30 DAS (cm)	Plant height 60 D AS (cm)	Plant height 90 DAS (cm)	Number of branches per plant	Days to 1st flowering	Days to 50% floweing	Internodal length (cm)	First fruiting node	Days to first harvest	Number of seeds per fruit	Fruit length (cm)	Fruit diameter (cm)	Average fruit weight (g)	Number of fruits per plant	Yield per plant (g)	Estimated yield per hectare (t)
1	IC-014018	46.20	80.70	116.90	1.00	49.52	52.59	8.80	4.16	54.50	75.25	12.84	5.08	16.30	15.75	235.25	8.04
2	IC-009856	49.10	87.25	166.10	2.30	52.30	51.43	5.50	5.50	57.16	48.50	12.79	5.35	14.54	17.20	215.97	7.17
3	IC-015540	44.40	76.75	156.65	1.00	47.52	49.88	6.03	3.83	54.16	122.75	12.41	7.71	15.24	16.05	212.61	7.51
4	IC-755647	47.30	87.75	166.95	2.45	48.06	51.46	7.81	5.83	54.83	83.00	14.90	5.51	18.73	18.95	354.81	11.8
5	IC-42490	50.05	75.88	148.45	1.00	39.89	40.94	16.35	4.67	45.99	56.75	16.41	5.79	17.15	15.80	270.99	9.02
6	IC-433641	38.65	64.10	127.50	1.45	53.15	54.57	11.50	4.83	57.83	37.75	13.40	5.36	12.91	14.90	218.81	7.06
7	IC-011533	41.20	74.20	129.20	1.00	48.57	53.42	7.36	4.83	55.49	47.25	14.40	5.11	12.46	20.60	256.47	8.53
8	IC-111515	41.80	78.75	145.10	2.80	52.66	55.78	8.83	4.83	58.66	70.75	13.10	5.37	12.11	16.95	219.31	6.86
9	IC-016566	45.65	92.50	148.12	3.45	51.92	54.18	9.05	5.33	58.16	56.25	13.31	6.49	16.80	15.40	258.62	8.60
10	IC-00795	52.75	99.95	181.45	4.80	40.34	43.41	10.38	6.50	46.49	57.52	14.52	5.97	18.33	19.50	357.40	11.91
11	IC-008769	48.20	89.65	148.80	1.80	52.09	53.82	7.11	5.50	57.33	56.75	13.26	6.22	17.20	18.30	314.84	10.48
12	IC-04328	55.60	83.60	141.35	1.45	42.97	45.43	9.30	3.83	48.49	74.25	15.42	5.70	16.48	18.90	311.52	10.37
13	IC-001543	42.75	81.95	142.25	1.00	48.71	51.82	8.26	3.83	54.33	91.75	14.96	7.11	21.72	13.90	301.91	10.04
14	IC-014096	44.55	86.45	141.05	1.65	43.32	46.83	7.62	4.67	49.83	43.75	18.09	5.40	18.89	21.50	425.22	14.15
15	IC-014600	52.35	88.65	139.95	1.00	46.94	49.72	9.26	4.50	52.83	50.75	15.50	5.04	14.89	20.70	308.18	10.26
16	IC-013995	55.22	82.75	132.90	1.30	39.32	41.59	10.99	3.33	45.83	52.25	15.10	5.09	13.42	12.90	160.17	5.33
17	IC-42404	45.75	80.20	128.10	1.00	49.91	52.27	11.47	3.50	56.16	53.25	14.10	6.16	15.55	14.65	242.80	8.24
18	IC-0113356	49.10	85.10	166.05	1.00	48.42	50.21	7.15	4.83	53.83	56.25	17.17	5.20	11.96	15.00	204.86	7.08
19	IC-90219	46.25	78.20	150.85	1.45	49.77	54.59	8.97	5.50	57.00	62.25	15.36	6.25	18.14	16.60	300.99	10.02
20	IC-04328	38.15	77.95	132.00	1.45	49.10	53.84	7.16	4.50	56.33	61.00	15.92	5.68	16.58	15.90	263.67	8.77
21	IC-29119	42.30	78.95	119.60	1.00	44.44	48.61	11.69	3.50	51.33	89.00	11.09	5.57	18.66	14.40	268.76	8.93
22	IC-10265	47.25	85.50	152.20	2.30	52.76	54.05	8.94	5.50	57.66	57.00	12.87	6.41	14.96	16.60	248.51	8.26
23	RHBG-1	42.33	87.40	118.55	1.45	45.98	46.57	9.95	4.50	50.83	52.25	13.75	5.70	18.60	9.20	171.06	5.68

24	RHBG-7	52.70	85.60	137.55	1.45	45.39	48.61	12.43	3.83	52.16	43.50	13.62	5.77	15.25	13.75	231.67	7.64
25	RHBG-43	43.50	86.75	101.25	4.80	46.77	46.75	10.90	3.50	52.16	78.25	12.22	6.01	14.00	15.10	224.88	7.46
26	RHBG-175-41	45.52	86.82	125.75	3.45	50.00	53.00	12.01	3.50	56.00	108.75	13.34	5.66	15.05	17.00	255.84	8.51
27	VRD-6	45.10	83.60	133.75	1.45	47.83	50.50	11.25	3.50	53.83	62.25	13.24	5.83	14.00	14.20	198.82	6.60
28	20-298	47.45	82.70	152.60	1.30	50.00	53.00	8.88	5.50	56.00	55.75	15.22	5.66	17.13	14.70	251.74	8.37
29	29-2-2	43.50	84.55	156.45	2.30	52.16	55.00	7.48	6.16	58.16	81.75	15.02	6.17	17.98	21.80	391.76	13.04
30	36-377	43.05	82.88	138.22	1.80	46.50	49.50	10.61	4.50	52.49	76.25	11.94	5.68	13.18	16.20	212.03	7.02
31	40-1	53.35	99.45	171.65	1.00	45.83	48.50	7.41	6.50	51.83	62.75	12.95	6.45	18.33	16.30	298.94	9.95
32	42-322	48.15	88.80	163.15	1.45	49.16	52.50	10.83	4.83	55.16	82.75	13.20	6.37	16.69	18.30	305.45	10.17
33	59-112	43.69	80.50	111.80	1.00	46.66	49.50	11.13	3.67	52.16	72.25	13.47	5.83	14.05	16.10	236.23	7.97
34	10-191	46.55	86.20	154.70	1.00	45.83	48.50	9.22	3.83	51.33	67.25	14.49	5.68	18.15	19.30	350.37	11.66
35	NO:69	50.85	88.20	174.05	3.50	53.83	56.50	7.24	5.83	59.83	66.75	14.81	5.03	13.14	17.50	230.01	7.64
36	NO:32	43.95	88.35	171.90	1.80	52.33	55.50	7.01	4.83	58.33	64.00	14.01	5.90	17.18	13.60	233.57	7.77
37	279-R	50.10	92.60	170.60	3.15	54.16	57.00	6.20	5.50	60.16	59.50	11.94	5.42	12.33	18.20	239.90	8.35
38	360-R	65.30	89.75	173.10	1.00	49.67	51.50	7.16	3.83	55.66	60.25	15.91	6.39	21.92	22.50	443.42	14.75
39	Anamika × 43	53.05	88.90	154.30	1.45	53.00	56.00	7.86	4.83	59.00	63.25	16.07	5.17	17.48	17.20	300.56	10.00
40	Abhay × 43	54.75	99.85	177.90	1.45	49.33	51.50	9.72	3.83	55.33	76.75	14.67	5.68	15.14	19.20	290.78	9.68
41	43 × Abhay	54.75	97.25	170.80	1.45	50.33	53.50	7.99	4.83	56.33	62.25	16.29	5.46	15.54	19.20	298.16	9.93
42	B-2, 210 (44s)	45.85	95.75	155.50	1.00	49.17	51.50	8.95	5.33	55.16	53.25	13.32	6.28	18.20	15.10	279.81	9.13
43	B-2, 14-2 (47s)	52.55	98.10	165.25	1.00	45.50	48.50	10.64	6.67	51.50	57.25	13.61	6.14	18.94	17.60	333.35	11.08
44	B-1, 60,15	47.10	94.27	168.25	1.00	46.50	49.50	11.71	3.83	52.49	75.75	13.42	6.16	17.15	14.20	243.63	8.11
45	B-3, 39R	52.40	101.9	177.75	1.80	50.00	52.50	7.57	4.83	55.99	56.25	14.35	6.02	16.20	17.30	280.38	9.33
46	B-3, 149,22	53.95	98.90	168.00	2.30	50.50	53.00	7.83	4.83	56.49	56.75	13.79	6.57	18.38	18.30	336.38	11.2
47	4 × 5	47.70	89.40	167.45	1.45	51.33	53.50	8.39	4.83	57.33	51.25	14.45	5.68	15.15	19.10	289.35	9.64
48	Arka Abhay	52.10	95.00	155.15	1.30	46.83	49.50	11.66	3.83	52.83	66.75	15.00	5.69	16.79	19.20	322.39	10.73
49	Arka Anamika	46.30	82.30	149.95	1.30	49.00	51.50	9.61	3.83	55.49	61.25	16.97	6.39	20.82	19.30	423.06	14.08
50	GS-303	42.00	73.70	104.93	1.00	46.17	48.50	8.17	3.50	51.60	55.75	15.65	6.29	12.95	13.90	180.02	5.97
Mean		47.83	86.52	149.03	1.72	48.43	51.03	9.18	4.64	54.41	46.69	14.27	5.85	16.25	16.87	276.10	9.08
C.V.		6.61	6.17	6.41	12.34	2.00	1.36	5.17	5.16	0.93	8.24	6.55	6.33	8.14	5.42	9.02	9.16
S.Em ±		2.23	3.77	6.75	0.15	0.68	0.49	0.33	0.17	0.36	2.39	0.35	0.13	0.59	0.28	9.80	0.25
C.D. 5%		6.35	10.73	19.20	0.42	1.95	1.39	0.95	0.48	1.02	6.81	1.02	0.39	1.68	0.82	27.87	1.19
C.D. 1%		8.48	14.32	25.61	0.56	2.60	1.86	1.27	0.64	1.36	9.09	1.36	0.52	2.24	1.09	37.17	1.60
Range Lowest		38.15	64.10	101.25	1.00	39.32	40.94	5.50	3.33	45.83	37.75	11.09	5.03	11.96	9.20	160.17	5.33
Range Highest		65.30	101.9	181.45	4.80	54.16	57.00	16.35	6.67	60.16	122.75	18.09	7.71	21.92	22.50	443.42	14.75

Table.2 Genotypic and phenotypic correlation coefficients among growth and yield parameters in okra

		X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16
X1	rp	1.000	0.459**	0.454**	-0.137	-0.190	0.052	-0.150	-0.031	0.325**	0.229**	0.172	-0.078	-0.022	-0.120	0.342*	0.339**
	rg	1.000	0.839	0.721	-0.184	-0.213	0.128	-0.181	-0.068	0.395	0.286	0.225	-0.064	-0.027	-0.175	0.425	0.419
X2	rp		1.000	0.623**	0.001**	0.015**	0.305*	0.016	-0.155	0.234**	-0.001	0.265*	0.095	0.205*	-0.045	0.312*	0.309**
	rg		1.000	0.708	0.046	-0.027	0.413	0.012	-0.199	0.306	-0.078	0.316	0.170	0.312	-0.050	0.390	0.386
X3	rp			1.000	0.201*	0.230*	0.519**	0.239*	-0.343**	0.355**	0.154	0.233*	-0.011	0.077	-0.044	0.393*	0.356**
	rg			1.000	0.265	0.231	0.601	0.265	-0.403	0.451	0.183	0.243	-0.026	0.118	-0.048	0.447	0.442
X4	rp				1.000	0.934**	0.264*	0.970**	-0.500**	0.101	-0.170	-0.170	-0.056	0.175	-0.044	0.393*	-0.045
	rg				1.000	0.981	0.274	1.003	-0.547	0.119	-0.209	-0.185	-0.071	0.181	-0.008	-0.036	-0.033
X5	rp					1.000	0.270*	0.966**	-0.509*	0.161	-0.135	-0.119	-0.044	0.111	0.041	0.024	0.026
	rg					1.000	0.279	0.990	-0.539	0.175	-0.144	-0.145	-0.037	0.121	0.042	0.026	0.929
X6	rp						1.000	0.263*	-0.360**	0.261**	-0.024	0.115	-0.044	0.291*	-0.255*	0.230*	0.232
	rg						1.000	0.275	-0.381	0.286	-0.007	0.129	-0.054	0.301	-0.280	0.248	0.256
X7	rp							1.000	-0.519**	0.136	-0.146	-0.144	-0.047	0.170	0.013	-0.005	-0.007
	rg							1.000	-0.547	0.145	-0.166	-0.165	-0.040	0.172	0.014	-0.005	-0.0029
X8	rp								1.000	-0.295	-0.090	0.003	0.146	-0.070	0.011	-0.156	-0.142
	rg								1.000	-0.301	-0.106	-0.007	0.160	-0.064	0.010	-0.168	-0.152
X9	rp									1.000	0.333**	0.150	-0.140	0.120	-0.004	0.765*	0.767**
	rg									1.000	0.356	0.160	-0.170	0.126	-0.004	0.783	0.469
X10	rp										1.000	0.241*	-0.235*	-0.235*	-0.296*	0.415*	0.419**
	rg										1.000	0.275	-0.284	-0.259	-0.004	0.783	0.469
X11	rp											1.000	0.538**	-0.120	0.109	0.697*	0.695**
	rg											1.000	0.606	-0.137	0.118	0.929	0.734
X12	rp												1.000	-0.062	0.205*	0.257*	0.258**
	rg												1.000	-0.072	0.226	0.270	0.279
X13	rp													1.000	0.109	-0.019	-0.016
	rg													1.000	0.099	-0.020	-0.012
X14	rp														1.000	0.015	0.005
	rg														1.000	0.020	0.003
X15	rp															1.000	0.996
	rg															1.000	0.026
X16	rp																1.000
	rg																1.000

*Significant at 5% level of significance, **Significant at 1% level of significance rp=phenotypic correlation, rg= genotypic correlation

X1=Plant height 30DAS, X2=Plant height 60DAS, X3=Plant height 90DAS, X4=Days to first flowering, X5=Days to fifty percent flowering, X6=First fruiting node, X7=Days to first fruiting, X8=Internodal length, X9=Number of fruits per plant, X10=Fruit length, X11=Average fruit weight, X12=Fruit diameter, X13=Number of branches per plant, X14=Number of seeds per fruit, X15=Yield per hectare, X16=Yield per plant

Table.3 Genotypic and phenotypic path coefficient analysis for yield and its components in okra

		X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15
X1	P	**-0.086**	-0.040	-0.039	0.012	0.016	-0.007	0.013	0.003	-0.028	-0.020	-0.015	0.007	0.002	0.001	-0.030
	G	**0.781**	0.655	0.563	-0.144	-0.166	0.100	-0.141	-0.053	0.308	0.224	0.175	-0.056	-0.021	-0.137	0.332
X2	P	0.008	**0.018**	0.012	0.001	0.001	0.006	0.001	-0.003	0.004	0.001	0.005	0.002	0.004	-0.001	0.006
	G	-0.639	**-0.761**	-0.539	-0.035	0.020	-0.315	-0.009	0.151	-0.233	0.059	-0.240	-0.129	-0.237	0.038	-0.297
X3	P	-0.013	-0.018	**-0.029**	-0.006	-0.007	-0.015	-0.007	0.010	-0.001	-0.004	-0.007	0.001	-0.002	0.001	-0.011
	G	-0.514	-0.505	**-0.713**	-0.189	-0.164	-0.429	-0.189	0.288	-0.322	-0.131	-0.173	0.018	-0.084	0.034	-0.319
X4	P	-0006	0.001	0.009	**0.045**	0.042	0.012	0.044	-0.023	0.005	-0.008	-0.008	-0.003	0.008	0.001	-0.002
	G	-0.663	0.166	0.953	**3.591**	3.523	0.987	3.603	-1.965	0.429	-0.750	-0.665	-0.258	0.651	-0.028	-0.132
X5	P	-0.051	0.004	0.061	0.249	**0.266**	0.072	0.257	-0.136	0.043	-0.036	-0.032	-0.012	0.030	0.011	0.007
	G	0.253	0.032	-0.273	-1.162	**-1.184**	-0.331	-1.173	0.639	-0.208	0.171	0.172	0.044	-0.143	-0.050	-0.031
X6	P	-0.001	-0.003	-0.005	-0.003	-0.003	**-0.010**	-0.003	0.003	-0.003	0.001	-0.001	0.001	-0.003	0.002	-0.002
	G	0.171	0.552	0.802	0.366	0.372	**1.333**	0.367	-0.508	0.382	-0.096	0.173	-0.073	0.402	-0.373	0.331
X7	P	0.028	-0.003	-0.045	-0.183	-0.182	-0.050	**-0.188**	0.098	-0.026	0.028	0.027	0.009	-0.032	-0.002	0.002
	G	0.567	-0.037	-0.830	-3.141	-3.102	-0.863	**-3.130**	1.714	-0.456	0.521	0.518	0.125	-0.540	-0.044	0.017
X8	P	-0.008	-0.037	-0.082	-0.120	-0.122	-0.086	-0.124	**0.239**	-0.072	-0.022	0.001	0.035	-0.017	0.003	-0.003
	G	0.078	0.227	0.460	0.624	0.615	0.434	0.624	**-1.140**	0.343	0.121	0.008	-0.182	0.073	-0.012	0.192
X9	P	0.158	0.114	0.188	0.049	0.079	0.127	0.066	-0.145	**0.485**	0.162	0.073	-0.068	0.039	-0.002	0.373
	G	-5.525	-4.292	-6.314	-1.671	-2.457	-4.007	-2.040	4.217	**-13.98**	-4.979	-2.243	2.423	-1.767	0.062	-10.96
X10	P	0.020	0.001	0.014	-0.015	-0.012	-0.002	-0.013	-0.008	0.029	**0.088**	0.021	-0.0021	-0.021	-0.026	0.037
	G	-0.541	0.148	-0.346	0.394	0.273	0.012	0.314	0.201	-0.671	**-1.887**	-0.519	0.536	0.48	0.604	-0.891
X11	P	0.065	0.101	0.088	-0.064	-0.045	0.043	-0.054	0.001	0.057	0.090	**0.375**	0.235	-0.068	0.041	0.262
	G	-2.682	-3.771	-2.904	2.209	1.734	-1.546	1.973	0.087	-1.911	-3.280	**-11.91**	-7.226	2.231	-1.412	-8.696
X12	P	-0.006	0.008	-0.001	-0.005	-0.004	-0.004	-0.004	0.012	-0.011	-0.019	0.043	**0.081**	-0.005	0.017	0.021
	G	0.074	-0.195	0.030	0.082	0.043	0.063	0.046	-0.184	0.199	0.3266	-0.697	**-1.149**	0.083	-0.259	-0.310
X13	P	-0.002	0.019	0.007	0.016	0.010	0.027	0.016	-0.006	0.011	-0.021	-0.016	-0.006	**0.091**	0.010	-0.002
	G	0.022	-0.254	-0.096	-0.147	-0.098	-0.245	-0.140	0.052	-0.103	0.211	0.152	0.058	**-0.814**	-0.080	0.017
X14	P	0.029	0.010	0.010	0.002	-0.009	0.057	-0.003	-0.003	0.001	0.067	-0.025	-0.046	-0.025	**-0.025**	-0.004
	G	-0.213	-0.061	-0.058	-0.009	0.051	-0.341	0.017	0.012	-0.005	-0.389	0.144	0.275	0.120	**1.216**	0.025
X15	P	-0.030	0.006	-0.011	-0.002	0.007	-0.002	0.002	-0.003	0.373	0.037	0.262	0.021	-0.002	-0.004	**0.935**
	G	0.332	-0.297	-0.319	-0.132	-0.031	0.331	0.017	0.192	-10.96	-0.891	-8.696	-0.310	0.017	0.025	**1.320**

Residual effect at genotypic level: 0.1846, Residual effect at phenotypic level: 0.0745

P=Phenotypic, G= Genotypic

X1=Plant height 30DAS, X2=Plant height 60DAS, X3=Plant height 90DAS, X4=Days to first flowering, X5=Days to fifty percent flowering, X6=First fruiting node, X7=Days to first fruiting, X8=Internodal length, X9=Number of fruits per plant, X10=Fruit length, X11=Average fruit weight, X12=Fruit diameter, X13=Number of branches per plant, X14=Number of seeds per fruit, X15=Yield per hectare

Most of the qualitative traits of 360-R were comparable with the commercial check Arka Anamika in terms of characters namely dark green fruit colour, medim pubescence and acute fruit shape. The entry 360-R had higher yield by 37.46% as compared to Arka Abhay. The performance of the entry 360-R should be studied across the seasons for its stability. If found stable this could be released as an alternative to Arka Anamika. This kind of results were expressed by Prakash *et al.,* (2001), Senapati *et al.,* (2011), Thirupathi *et al.,* (2012), Kumar *et al.,* (2019) and Nesru *et al.,* (2020) in okra. The polygenic trait such as yield is a result of characters namely number of fruits per plant and fruit weight. In the present study significantly higher number of fruits was recorded in the entry 360-R (22.50). This indicates that number of fruits trait was important for getting higher yield and there was only one entry namely 29-2-2 which was at par with this. The entry 360-R had 17.18% more number of fruits per plant as compared to Arka Abhay and 16.58 % as compared to the check variety Arka Anamika. Similar findings were reported by Ajimal *et al.,* (1979), Dhall *et al.,* (2000), Sureshbabu *et al.,* (2004), Sanjay *et al.,* (2012) and Mishra *et al.,* (2016). Significantly higher average fruit weight (21.92 g) was recorded in the entry 360-R and there were two genotypes namely IC-001543 and Arka Anamika which were at par with this. The entry 360-R had 30.55 % more fruit weight as compared to check variety Arka Abhay. So higher is the fruit weight higher is the yield. Hence it is important trait for increasing the yield. Similar results were expressed by Saryam *et al.,* (2017) and Kumar *et al.,* (2019).

In the present investigation both genotypic and phenotypic correlations were worked out for yield and its contributing characters. In general, genotypic correlation was higher than phenotypic correlations for eight characters studied. Number of fruits per plant (r_p = 0.767**, r_g = 0.469), had highly significant phenotypic and genotypic association with fruit yield per plant followed by average fruit weight (r_p =0.696**, r_g =0.734), fruit length (r_p =0.419**, r_g = 0.469), plant height 90DAS (r_p =0.356**, r_g = 0.442), plant height 30 DAS (r_p =0.339**, r_g = 0.419), plant height 60DAS (r_p =0.309**, r_g = 0.386) and fruit diameter (r_p =0.258**, r_g = 0.279). The genotypes such as 360-R, 29-2-2, IC-014096, IC-001543, IC-0113356, IC-00795, IC-04328, IC-42490, B-3-39-R, IC-29119 and B-3-149-22 were superior entries for the characters Yield per plant, number of fruits per plant, average fruit weight, fruit length and plant height had positive and significant correlation with fruit yield per plant. This indicates the possibility of increasing the yield by selecting for these characters. Thus, direct selection for above parameters will be useful in enhancing fruit yield of okra. These correlation outcomes are in line with works of Singh *et al.,* (1974), Ajimal *et al.,* (1979), Singh and Singh (1979), Bendale *et al.,* (2003), Verma *et al.,* (2007), Kumar *et al.,* (2009), Mishra *et al.,* (2016), Saryam *et al.,* (2017), Kumar *et al.,* (2019) and Nesru *et al.,* (2020) in okra.

In present study path coefficient analysis exhibited that, the number of fruits per plant had highest positive direct effect on fruit yield per plant followed by average fruit weight, days to fifty per cent flowering, internodal length, number of branches per plant, fruit length, fruit diameter, days to first flowering and plant height 60 DAS, which further indicates the positive correlation between these characters. The characters which are showing higher positive effect could be used to select genotypes (360-R, IC-014096, 29-2-2, IC-001543, IC-42490, IC-111515, IC-009856, RHBG-43, RHBG-175-41, IC-755647, IC-011533, IC-29119, IC-013995 and B-3-39-R) for enhancement of fruit yield in okra. Similar results were reported by Ajimal *et al.,* (1979), Reddy *et al.,* (1985), Dhall *et al.,* (2000), Sureshbabu *et al.,* (2004), Mehta *et al.,* (2006), Sateesh *et al.,* (2011), Saryam *et al.,* (2017), Sundaram (2018), Arun *et al.,* (2019) and Nesru *et al.,* (2020) in okra.

Any deviations in the results observed between the present study and other authors is attributed to the differences in the genotype used in the study, differences in number of genotypes, breeding methods employed, methods of statistical analysis adapted, soil characters and environmental conditions.

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