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Analysis Of The Traits Contributing Towards Yield In Okra *(Abelmoschusesculentus (L.) Moench*)

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Abstract

The present investigation was carried out on 32 genotypes of okra at Agricultural Research Farm of Rama University, Kanpur during year 2019-20 for yield and its attributing traits. Various morphological parameters viz., days to 50% flowering, plant height (cm), number of branches/plant, length of fruit per plant(cm), diameter of pod (cm), number of seeds per pod, number of fruits per plant and edible fruit yield per plant (g) were recorded. At genotypic and phenotypic levels, days to 50 % flowering exhibited significant positive correlation with number of branches per plant. Plant height revealed significant positive correlation with number of fruits per plant followed by fruit diameter. Number of fruits per plant showed significant positive correlation with fruit length. At both genotypic and phenotypic level, path coefficient analysis revealed maximum direct effect in case of fruit diameter. However, fruit diameter showed significant positive highest indirect effect on yield. The traits which were correlated positively with yield can be used as selection criteria in crop improvement program.

Introduction

Okra is commonly known as bhindi or lady figure, known as ***Hibischus esculantum*** from the family Malavacesae, having chromosome no. 2n = 130, 2n = 8x = 72 or 144. For crop improvement program, trait association analysis is very important. The information on correlation coefficients between grain yield and its component characters is essential since yield is a complex character and is highly influenced by several component characters. Likewise, correlation coefficient is another fundamental tool showing relationships among independent characteristics.

Results and Discussion

At phenotypic level, days to 50 % flowering exhibited significant positive correlation with number of branches per plant (0.312**) followed by plant height (0.150), while it showed negative correlation with edible yield per plant (-0.002) followed by number of seeds per fruit (-0.074) and no. of fruits per plant (-0.029). – Plant height showed significant positive correlation with number of fruits per plant (0.253**) followed by number of branches per plant (0.076), fruit length (0.038), diameter of fruit (0.122). Number of branches per plant showed highest positive correlation with fruit diameter (0.162) followed by no. of fruits per pod (0.008), no. of seeds per fruit (0.018) while it showed negative correlation with yield (-0.134) followed by fruit length (-0.064). Number of fruits per plant showed highest positive correlation with fruit length (0.122)

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followed by number of seeds per fruit (0.054) while it showed negative correlation with edible yield per plant (-0.055) followed by fruit diameter (-0.065).Fruit length exhibited significant positive correlation with number of seeds per fruit (0.303**) followed by fruit diameter (0.155) and edible yield per plant (0.026). Fruit diameter showed highest positive correlation with edible yield per plant (0.141) followed by seed per plant (0.089). Number of seeds per fruit also showed positive correlation with yield per plant (0.087).

Traits	DFF	PH(cm)	NBPP	NFP	FL(cm)	DF(cm)	SPF	EYPP(g)
DFF	1.000	0.150	0.312**	-0.029	0.067	0.117	-0.074	-0.002
PH(cm)		1.000	0.076	0.253**	0.038	0.122	0.008	0.025
NBPP			1.000	0.008	-0.064	0.162	0.018	-0.134
NFP				1.000	0.122	-0.065	0.054	-0.055
FL(cm)					1.000	0.155	0.303**	0.026
DF(cm)						1.000	0.089	0.141
SPF							1.000	0.087
EYPP (g)								1.000

**** &** Signficant at 5% & 1% respectively***

Table : Phenotypic correlation coefficients among the traits under study in okra

Path Coefficient Analysis at phenotypic level

At phenotypic level, path coefficient analysis revealed that direct effect of fruit diameter was maximum (0.156) followed by number of seeds per fruit (0.092), days to 50% flowering (0.039) and plant height (0.026). The negative direct effect was maximum in case of number of branches per plant (-0.177), followed by number of fruits per plant (-0.049) and fruit length (-0.035).

Days to 50% flowering showed positive highest indirect effect on diameter of fruit (0.018) followed by Plant height (0.004), no. of fruit per plant (0.002). Plant height showed positive highest indirect effect on edible fruit yield (0.025) followed by diameter of pod (0.019), days of 50% flowering (0.006). No of branches per plant showed positive highest indirect effect on diameter of fruit (0.025) followed by days to 50% flowering (0.012). No of fruit per plant showed positive highest indirect effect on plant height (0.007) followed by seed per pod (0.005). Fruit length showed highest positive indirect effect on seed per fruit (0.028) followed by diameter of fruit (0.024), no. of branches per plant (0.011). Diameter of fruit showed significant positive highest indirect effect on no. of seeds per pod (0.008) followed by days of 50% flowering (0.005) followed by plant height and no of fruit per plant (0.003). Number of seeds per fruit showed significant positive highest indirect effect on edible fruit yield (0.087) followed by diameter of fruit (0.014) .

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Traits	DFF	PH(cm)	NBPP	NFP	FL(cm)	DF(cm)	SPF	EYPP(g)
DFF	**0.039**	0.004	-0.055	0.002	-0.002	0.018	-0.007	-0.002
PH(cm)	0.006	**0.026**	-0.014	-0.013	-0.001	0.019	0.001	0.025
NBPP	0.012	0.002	**-0.177**	0.000	0.002	0.025	0.002	-0.134
NFP	-0.001	0.007	-0.001	**-0.049**	-0.004	-0.010	0.005	-0.055
FL(cm)	0.003	0.001	0.011	-0.006	**-0.035**	0.024	0.028	0.026
DF(cm)	0.005	0.003	-0.029	0.003	-0.005	**0.156**	0.008	0.141
SPF	-0.003	0.000	-0.003	-0.003	-0.011	0.014	**0.092**	0.087

**** &** Significant at 5% & 1% respectively***

R SQUARE = 0.0561 RESIDUAL EFFECT = 0.9716

Table : Phenotypic Path coefficients among the traits under study in okra

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