Society of Krishi Vigyan
www.iskv.in

J Krishi Vigyan 2025, 13(1) : 1-9

DOI: 10.5958/2349-4433.2025.00001.8

ISSN 2319-6432 (Print)
ISSN 2349-6433 (Online)

Analysis on Genotypic and Phenotypic Path Coefficients for Major Traits in Okra Germplasm

Udit Joshi[1*], D.K. Rana[2], Yogesh Kumar[3], Arun Prakash[4] and Kamlesh Kumar Yadav[5]
Department of Vegetable Science
G.B.P.U.A.T. Pantnagar, Udham Singh Nagar, 263145, (Uttarakhand), India

ABSTRACT

Okra (*Abelmoschus esculentus)* is the principal crop of family malvaceae prominent cultivated and consumed as vegetable during summer and *Kharif* season in India. The identification of attributes that can facilitate the selection process is a constant requirement in crop breeding. Therefore, the present research was designed during summer season 2019, using 26 different cultivars to examine the direct and indirect effect of several traits under study towards the yield per hectare at the H.N.B.G.U. Srinagar (Garhwal) Department of Horticulture, Uttarakhand, India. Analysis of path coefficient was estimated which indicated that the factors *viz.,* average fruit weight, pedicel diameter, number of primary branches per plant, days to first fruit set, pedicel length, fruit length, petiole length, days to first germination, and petiole diameter had a positive direct association with yield per hectare. Combining the correlation and path analysis showed that days to first germination, number of primary branches per plant, plant height, number of fruits per plant, fruit length, average fruit weight and yield per plot all positively and directly correlated with yield per hectare. Therefore, it is possible to draw the conclusion that when selecting selection indices for okra breeding and advancement programs, decisions based on characteristics such as days to first germination, plant height, number of primary branches per plant, fruit length, average fruit weight, number of fruits per plant and yield per plot may be more advantageous.

Key Words: Genotypic, Okra, Path Coefficient, Vegetable Breeding, Yield.

INTRODUCTION

Okra [*Abelmoschus esculentus* (L.) Moench] is one of the most widely consumed and farmed vegetable crops worldwide, especially in tropical and warm temperate climates (Jonah and Kwaga, 2019; Kumari *et al,* 2019). Fruits or pods of okra are highly valuable being highly nutritious, rich in vitamins, calcium, potassium, several minerals also having high medicinal, industrial and export potential (Pithiya *et al,* 2017; Joshi *et al,* 2021). Okra fits easily in any sequential cropping system due to its medium duration, fast growing habit, tolerance to heat, variation in rainfall and drought (Reddy *et al,* 2013; Ray *et al,* 2022). Commercial okra cultivars and hybrids are readily accessible in seed markets, but most of them are not appropriate for all of the nation's growing regions, thus farmers struggle to find the right germplasm in each location (Joshi *et al,* 2020; Raval *et al,* 2019). The idea of connections provided by an examination of the correlation between different quantitative traits may be effectively applied to the creation of picking and selection strategies aimed at improving yield and associated qualities (Raval *et al,* 2019; Kumar and Joshi 2024). Correlation studies are useful in

Corresponding Author's Email - uditjoshi444@gmail.com
1Department of Vegetable Science, G.B.P.U.A.T., Pantnagar, Udham Singh Nagar, 263145, (Uttarakhand), India
2Department of Horticulture, H.N.B.G.U., Srinagar (Garhwal), Pauri Garhwal, 246174, (Uttarakhand), India
3Department of Agriculture, M.J.P.R.U., Bareilly, 243006, (Uttar Pradesh), India
4Depratment of Food Technology, D.B.U.U., Dehradun, 248007, (Uttarakhand), India
5Department of Horticulture, S.K.N.A.U., Jobner, 303329, (Rajasthan), India

identifying the yield components, but they do not give a clear picture of the kind and degree to which each of the many independent qualities contributes. Therefore, to provide a clear picture of the relationship between fruit yield and its contributing factors, path analysis was utilized to compute the direct and indirect impacts. Only the magnitude and value of the connection between character pairs are indicated by the correlation values. Effective selection requires separating the genotypic relationship of component traits into direct and indirect effects, which is accomplished by the path coefficient analysis (Prajna *et al,* 2015). Therefore, this investigation was intended to examine the direct and indirect effects of various yield components on fruit yield in the genotypes and cultivars under examination employing path coefficient analysis.

MATERIALS AND METHODS

The present investigation was conducted in the summer of 2019 at the H.R.C, Department of Horticulture, H.N.B.G.U., Srinagar (Garhwal), Uttarakhand, India to study the direct and indirect effects of different traits on the yield characteristics of 25 diverse genotypes of okra viz., Arka Anamika (check), Varsha Uphar, Lucky-666, Punjab-8, Kashi Pragati, Kashi Vibhuti, Chanda, Hisar Naveen, Hisar Unnat, Kashi Kranti, LC-1, Kashi Mohini, LC-3, Kaveri, King Bhindi, LC-6, Parbhani Kranti, Pusa A-4, LC-2, Pusa Sawani, Super Anamika, VL Bhindi-2, LC-5, Vandana-241, LC-4 and Agri Bahar. The experiment was laid out in Randomized Block Design with three replications of each genotype. Five plants from each treatment per replication were randomly selected and tagged for recording the data. The observations noted were plant height (cm), days taken to first germination, internodal length (cm), number of primary branches per plant, stem girth (mm), petiole diameter (mm), petiole length (cm), number of epicalyx segments, leaf length (cm), days taken to first flowering, flower diameter (cm), fruit length (cm), number of nodes at flowering, fruit diameter (mm), number of fruits per plant, average fruit weight (g), number of ridges per fruit, pedicel diameter (mm), pedicel length (cm), days taken to first fruit set, flesh thickness (mm), days taken to first fruit harvest, number of seeds per fruit, seed index, yield per hectare (q), yield per plot (kg), T.S.S (^{0}Brix), chlorophyll content (SPAD), ascorbic acid (mg/100g), ash content, moisture content and physiological loss (days). After collecting data, the mean was calculated, and the mean data was analyzed statistically by various methods. The ANOVA and C.D test at 5% and 1% level of significance was applied as given by Panse and Sukhatme (1967) for the study of the significance of variation among the treatments. Path coefficient analysis (indirect and direct path) was estimated as per Wright (1921) and Dewey & Lu (1957).

RESULTS AND DISCUSSION

Analysis of genotypic and phenotypic path coefficient

A path coefficient study showed how each character contributes differently to the yield per plant. The direct impact of a selected characteristic on yield and its indirect effect on other features are featured in Tables 1 and 2 for the genotypic and phenotypic path coefficient by dividing the phenotypic and genotypic correlations.

Direct effect

At genotypic level, path coefficient analysis showed that positive direct effect with regards to yield per hectare was found for yield per plot (1.0006), plant height (0.0040), pedicel length (0.0035), fruit length (0.0024), days taken to first fruit set (0.0018), number of primary branches per plant (0.0018), pedicel diameter (0.0018), number of epicalyx segments (0.0017), petiole length (0.0016), days taken to first germination (0.0014), petiole diameter (0.0012) and average fruit weight (0.0009). Hence it is suggested that selection should be based on these characters for yield improvement in okra. Adiger *et al* (2011), Kumar *et al* (2012), Reddy *et al* (2013) and Sawant *et al* (2014) in okra also reported similar results in their studies. The negative direct effect towards yield per hectare was observed in stem girth (-0.0015), days taken to first fruit harvest (-0.0017), fruit diameter (-0.0025) and internodal length (-0.0029). Similar findings were also observed by Adiger *et al* (2011), Sharma and Prasad (2015) and Umrao *et al* (2015) in okra. The phenotypic level, path coefficient analysis showed that positive direct effect with regards to yield per hectare was found for yield per plot (0.9992), days taken to first fruit harvest (0.0018), leaf length (0.0013), and flower diameter (0.0011). Hence, cultivar selection for further breeding process based on these traits will be valuable for yield improvement in okra. The results were in line with the findings of Adiger *et al* (2011), Sawant *et al* (2014), Kerure *et al* (2017) and Pithiya *et al* (2017) in okra. The negative direct effect towards yield per hectare was observed in number of nodes at first flowering (-0.0011) and days taken to first fruit set (-0.0020) the present findings were following the findings of Sharma and Prasad (2015), Thulasiram *et al* (2017), Jonah and Kwaga (2019) and Kumari *et al* (2019) in okra.

Indirect effect

Days taken to first germination

At genotypic level, the positive indirect effect of days to first emergence of seedling towards yield per hectare was observed via internodal length (0.0017) whereas the negative indirect effect was observed through plant height (-0.0015) and yield per plot (-0.0745). Earlier, workers like Kumar *et al* (2012), Prajna and Gasti (2015), Sharma and Prasad (2015) and Jonah and Kwaga (2019) came up with similar findings in okra. while, at phenotypic level, the negative indirect effect was observed through yield per plot (-0.0681). Similar findings were also observed by Sharma and Prasad (2015), Prajna and Gasti (2015), Umrao *et al* (2015) and Kumari *et al* (2019) in okra.

Plant height

At genotypic level, the positive indirect effect of plant height towards yield per hectare was observed through fruit diameter (0.0013), whereas the negative indirect effect was observed via pedicel diameter (-0.0011), fruit length (-0.0012), internodal length (-0.0018) and yield per plot (-0.4282). The present findings are in line with the findings of Adiger *et al* (2011), Kumar *et al* (2012), Reddy *et al* (2013) and Kerure *et al* (2017) in okra. While, at phenotypic level, the negative indirect effect was observed via yield per plot (-0.4153). Prajna and Gasti (2015), Sharma and Prasad (2015), Pithiya *et al* (2017), Thulasiram *et al* (2017) and Jonah and Kwaga (2019) also came up with similar findings in okra.

Number of primary branches per plant

Number of primary branches per plant, at genotypic level imparted positive indirect effect on yield per hectare via days taken to first fruit set (0.0014), pedicel length (0.0014), total soluble solids (0.0010), However, a negative indirect effect of the number of primary branches per plant towards yield per hectare was observed through internodal length (-0.0011), days taken to first fruit harvest (-0.0014) and yield per plot (-0.5932). The present results were in line with the findings of Adiger *et al* (2011), Reddy *et al* (2013), Sharma and Prasad (2015) and Kerure *et al* (2017) in okra. Number of primary branches per plant, at phenotypic level imparted positive indirect effect on yield per hectare via days taken to first fruit harvest (0.0012), However, a negative indirect effect of the number of primary branches per plant towards yield per hectare was observed through days taken to first fruit set (-0.0014) and yield per plot (-0.5655). The present findings were in accordance to the findings of Sharma and Prasad (2015), Pithiya *et al* (2017), Thulasiram *et al* (2017), Jonah and Kwaga (2019) and Raval *et al* (2019) in okra.

Internodal length

At genotypic level, internodal length disclosed positive indirect effect on yield per hectare through plant height (0.0025), fruit diameter (0.0011), fruit length (-0.0015) and yield per plot (-0.5134) which was similar with the findings of Reddy *et al* (2013) and Raval *et al* (2019) in okra. While, at phenotypic level, internodal length disclosed the negative indirect effect was observed via yield per plot (-0.4946) which was following the findings of Reddy *et al* (2013) and Raval *et al* (2019) in okra.

Stem girth

At genotypic level the traits viz., yield per plot (0.1133), pedicel length (0.0022), showed a positive indirect effect on yield per hectare which was following the findings of Sharma and Prasad (2015), Kerure *et al* (2017) and Pithiya *et al* (2017) in okra while, at phenotypic level, the traits viz., yield per plot (0.0932), showed the positive indirect effect on yield per hectare. Pithiya *et al* (2017), Jonah and Kwaga (2019) and Kumari *et al* (2019) also reported similar results in okra.

Leaf length

At genotypic level, pedicel diameter (0.0012) imparted a positive direct effect Similar results were also obtained by Sawant *et al* (2014) and Thulasiram *et al* (2017) in okra while, fruit diameter (-0.0014) and yield per plot (-0.02436), imparted a negative indirect impact on yield per hectare while, at phenotypic level, it imparted negative indirect impact on yield per hectare via yield per plot (-0.1206) which was similar with the findings of Sharma and Prasad (2015) and Thulasiram *et al* (2017) in okra.

Days taken to first flowering

Days taken to first flowering, at genotypic level disclosed positive indirect effect on yield per hectare through days taken to first fruit set (0.0018), pedicel length (0.0017), number of primary branches per plant (0.0014), total soluble solids (0.0009), whereas the negative indirect effect was observed via physiological loss (-0.0010), days taken to first fruit harvest (-0.0018) and yield per plot (-0.6956). Earlier, workers like Adiger *et al* (2011), Kumar *et al* (2012), Reddy *et al* (2013) and Kerure *et al* (2017) also came up with similar results in okra. Days taken to first flowering, at phenotypic level disclosed positive indirect effect on yield per hectare through days taken to first fruit harvest (0.0015), whereas the negative indirect effect was observed via days taken to first fruit set (-0.0017) and yield per plot (-0.5573) which was following the findings of Kumar *et al* (2012), Kerure *et al* (2017) and Kumari *et al* (2019) in okra.

Days taken to first fruit set

Days taken to first fruit set, at genotypic level disclosed positive indirect effect on yield per hectare through pedicel length (0.0016) and number of primary branches per plant (0.0014) similar findings were also made by Koundinya and Dhankhar (2013) and Umrao *et al* (2015) in okra. Days taken to first fruit set, at phenotypic level disclosed positive indirect effect on yield per hectare through days taken to first fruit harvest (0.0017), whereas the negative indirect effect of days taken to first fruit set was observed via yield per plot (-0.6137) which was in close conformity with the findings of Sharma and Prasad (2015) and Raval *et al* (2019) in okra.

Days taken to first fruit harvest

At genotypic level, it imparted positive indirect effect on yield per hectare through days taken to first fruit set (0.0018), pedicel length (0.0017), number of primary branches per plant (0.0015) and total soluble solids (0.0011) which was in close conformity with the findings of Koundinya and Dhankhar (2013), Sharma and Prasad (2015) and Kerure *et al* (2017) in okra. At phenotypic level, it imparted negative indirect effect of days taken to first fruit harvest was observed via days taken to first fruit set (-0.0019) and yield per plot (-0.5659) similar results were also reported by Umrao *et al* (2015) and Raval *et al* (2019) in okra.

Fruit length

It imparted positive indirect effect, at genotypic level on yield per hectare via yield per plot (0.4947) and internodal length (0.0018). However, a negative indirect effect of fruit length towards yield per hectare was observed through fruit diameter (-0.0012) and plant height (-0.0019). Earlier, workers like Kumar *et al* (2012), Reddy *et al* (2013) and Raval *et al* (2019) also recorded similar results in okra. It imparted positive indirect effect, at phenotypic level on yield per hectare via yield per plot (0.3947). Similar findings were also made by Deepanshu and Shamd (2017), Kerure *et al* (2017), Pithiya *et al* (2017) and Thulasiram *et al* (2017) in okra.

Fruit diameter

At genotypic level, fruit diameter disclosed positive indirect effect on yield per hectare through yield per plot (0.3191), internodal length (0.0013), fruit length (0.0011), pedicel length (0.0011) and pedicel diameter (0.0010), whereas the negative indirect effect was observed via the plant height (-0.0021) which was following the findings of Adiger *et al* (2011), Kumar *et al* (2012) and Kerure *et al* (2017) in okra. While, at phenotypic level, fruit diameter disclosed positive indirect effect on yield per hectare through yield per plot (0.2570) which was supported by the findings of Kumar *et al* (2012), Deepanshu and Shamd (2017) and Raval *et al* (2019) in okra.

Average fruit weight

At genotypic level, the positive indirect effect of average fruit weight towards yield per hectare was observed via yield per plot (0.4964), whereas the negative indirect effect was observed through number of epicalyx segments (-0.0010). Similar findings were also made by Adiger *et al* (2011), Kumar *et al* (2012), Reddy *et al* (2013), Prajna and Gasti (2015) and Raval *et al* (2019) in okra. While, at phenotypic level, the positive indirect effect of average fruit weight towards yield per hectare was observed via yield per plot (0.3117) which was in close conformity with the findings of Kumar *et al* (2012), Sawant *et al* (2014) Sharma and Prasad (2015), Thulasiram *et al* (2017) and Raval *et al* (2019) in okra.

Number of fruits per plant

At genotypic level, the positive indirect effect of plant height towards yield per hectare was observed through yield per plot (0.6497), whereas the negative indirect effect was observed via plant height (-0.0010) the present results are in line with the findings of Adiger *et al* (2011), Kumar *et al* (2012), Reddy *et al* (2013), Prajna and Gasti (2015), Sharma and Prasad (2015) and Thulasiram *et al* (2017) in okra. While, at phenotypic level, the positive indirect effect of plant height towards yield per hectare was observed through yield per plot (0.4821), similar findings were also reported by Sawant *et al* (2014), Umrao *et al* (2015) and Raval *et al* (2019) in okra.

Flesh thickness

At genotypic level, the positive indirect effect of flesh thickness towards yield per hectare was observed via yield per plot (0.0034), internodal length (0.0011) and pedicel length (0.0011), whereas the negative indirect effect was observed through plant height (-0.0016), and fruit diameter (-0.0018) which was following the findings of Adiger *et al* (2011) and Kerure *et al* (2017) in okra. While, at phenotypic level, the negative indirect effect was observed through yield per plot (-0.0127). Similar findings in okra were also recorded by Kumar *et al* (2012), Deepanshu and Shamd (2017) and Raval *et al* (2019) in okra.

Yield per plot

At genotypic level, yield per plot imparted positive indirect effect on yield per hectare through internodal length (0.0015), fruit length (0.0012) and days taken to first fruit harvest (0.0011) which was in line with the findings of Prajna and Gasti (2015), Umrao *et al* (2015) and Thulasiram *et al* (2017) in okra. While, at phenotypic level, yield per plot imparted positive indirect effect on yield per hectare through days taken to first fruit set (0.0012). However, a negative indirect effect of yield per plot towards yield per hectare was observed through days taken to first fruit harvest (-0.0010). Similar results were also obtained by various workers like Reddy *et al* (2013), Sawant *et al* (2014), Sharma and Prasad (2015), Pithiya *et al* (2017) and Kumari *et al* (2019) in okra.

Total soluble solid

Total soluble solid, at genotypic level disclosed the negative indirect effect via yield per plot (-0.1745). Similar results were also observed by Reddy *et al* (2013) and Kumari *et al* (2019) in okra. While, total soluble solid, at phenotypic level total soluble solid disclosed whereas the negative indirect effect of total soluble solid was observed via yield per plot (-0.1573) which was in close conformity with the findings of Kumari *et al* (2019) in okra.

Ascorbic acid

At genotypic level, the positive indirect effect of ascorbic acid towards yield per hectare was observed via plant height (0.0017) and pedicel length (0.0016) whereas its negative indirect effect was observed through pedicel diameter (-0.0010) and yield per plot (-0.3815) similar results were also obtained by Kumari *et al* (2019) in okra. While, at phenotypic level, the negative indirect effect was observed through the yield per plot (-0.2041) which was in close conformity with the findings of Sawant *et al* (2014) in okra.

Chlorophyll content

Chlorophyll content, at genotypic level imparted positive indirect effect on yield per hectare through plant height (0.0019), days taken to first germination (0.0011). However, the negative indirect effect of chlorophyll content towards yield per hectare was observed through fruit length (-0.0010) and yield per plot (-0.09878), which was in close conformity with the findings of Thulasiram *et al* (2017) in okra. While, chlorophyll content, at phenotypic level imparted a negative indirect effect through yield per plot (-0.0645). Sawant *et al* (2014) and Thulasiram *et al* (2017) also came up with similar results in okra.

Ash content (%)

At genotypic level, the positive indirect effect of ash content towards yield per hectare was observed via yield per plot (0.3836), whereas its negative indirect effect was observed through pedicel length (-0.0010) and moisture content (-0.0016) which was in line with the findings of Olivera *et al* (2012), Reddy *et al* (2013) and Sawant *et al* (2014) in okra. While, at phenotypic level, the positive indirect effect of ash content towards yield per hectare was observed via yield per plot (0.2921) which was as per the findings of Olivera *et al* (2012) and Sawant *et al* (2014) in okra.

Moisture content

Moisture content, at genotypic level disclosed positive indirect effect on yield per hectare through yield per plot (0.1798), Physiological loss (0.0026), fruit length (0.0011), internodal length (0.0010), whereas the negative indirect effect of moisture content was observed via pedicel length (-0.0015) which was similar with the findings of Kumar *et al* (2012) and Sawant *et al* (2014) in okra. Moisture content, at phenotypic level disclosed positive indirect effect on yield per hectare through yield per plot (0.1620) which was in line with the findings of Reddy *et al* (2013) and Sharma and Prasad (2015) in okra.

Number of seeds per fruit

Number of seeds per fruit, at genotypic level imparted positive indirect effect on yield per hectare via the number of primary branches per plant (0.0010). However, a negative indirect effect of the number of seeds per fruit towards yield per hectare was observed through yield per plot (-0.1982). Earlier, workers like Kumar *et al* (2012) and Pithiya *et al* (2017) also recorded similar observations in okra. Number of seeds per fruit, at phenotypic level imparted negative indirect effect through yield per plot (-0.1663) which was in accordance with the findings of Kerure *et al* (2017) and Raval *et al* (2019) in okra.

CONCLUSION

Path coefficient analysis based on direct and indirect effects of several traits on yield per hectare revealed that plant height, pedicel length, fruit length, days taken to first fruit set, number of primary branches per plant, pedicel diameter, petiole length, days taken to first germination, petiole diameter and average fruit weight had a positive direct effect on yield per hectare. The correlation and path analysis together indicated that yield per hectare had a positive and direct association with days taken to first germination, plant height, number of primary branches per plant, number of fruits per plant, average fruit weight, fruit length, and yield per plot. Hence, selection of these characters should be taken into consideration in future varietal enhancement programme in okra.

Table 1: Genotypic and phenotypic path coefficient estimates of direct and indirect effects of different traits on yield per hectare in okra

Characters		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	26
1	G	**0.0014**	-0.0015	-0.0004	0.0017	0.0004	-0.0003	-0.0001	0.0002	0.0005	-0.0001	0.0001	0.0001	-0.0004	-0.0006	-0.0003	0.0000	-0.074
	P	**0.0006**	0.0000	-0.0001	0.0002	0.0000	-0.0002	0.0000	0.0000	0.0000	0.0001	0.0004	0.0003	0.0000	-0.0001	-0.0002	0.0000	-0.067
2	G	-0.0005	**0.0040**	0.0002	-0.0018	-0.0003	-0.0003	0.0000	0.0000	-0.0003	0.0000	-0.0001	0.0000	-0.0012	0.0013	-0.0001	-0.0001	-0.428**
	P	-0.0001	**0.0000**	0.0001	-0.0003	0.0000	-0.0001	0.0000	0.0000	0.0000	0.0000	-0.0002	-0.0002	0.0001	0.0003	-0.0001	-0.0001	-0.416**
3	G	-0.0003	0.0005	**0.0018**	-0.0011	-0.0004	-0.0008	0.0000	0.0000	0.0001	-0.0004	-0.0003	0.0000	-0.0003	0.0001	-0.0003	-0.0001	-0.594**
	P	-0.0001	0.0000	**0.0006**	-0.0002	0.0000	-0.0003	0.0000	0.0000	0.0000	0.0002	-0.0005	0.0001	0.0000	0.0000	-0.0001	-0.0002	-0.567**
4	G	-0.0008	0.0025	0.0006	**-0.0029**	0.0001	-0.0004	0.0001	0.0000	0.0000	-0.0001	-0.0002	-0.0001	-0.0015	0.0011	-0.0002	0.0000	-0.514**
	P	-0.0002	0.0000	0.0002	**-0.0005**	0.0000	-0.0001	0.0000	0.0000	0.0000	0.0001	-0.0004	-0.0004	0.0001	0.0003	-0.0002	0.0000	-0.496**
5	G	-0.0003	0.0007	0.0005	0.0001	**-0.0015**	0.0003	0.0001	0.0001	-0.0006	-0.0001	-0.0002	0.0001	0.0001	-0.0004	0.0003	0.0000	0.113
	P	-0.0001	0.0000	0.0001	0.0000	**-0.0002**	0.0001	0.0000	0.0000	0.0000	0.0001	-0.0003	0.0004	0.0000	-0.0001	0.0001	0.0000	0.093
6	G	-0.0003	-0.0009	-0.0009	0.0008	-0.0003	**0.0016**	0.0001	0.0000	-0.0002	0.0001	0.0000	0.0000	0.0013	-0.0010	0.0004	0.0001	0.253*
	P	-0.0001	0.0000	-0.0002	0.0001	0.0000	**0.0008**	0.0000	0.0000	0.0000	-0.0001	0.0001	0.0001	-0.0001	-0.0002	0.0002	0.0001	0.194
7	G	-0.0002	-0.0001	0.0000	-0.0003	-0.0001	0.0001	**0.0012**	0.0001	-0.0005	0.0001	0.0000	0.0000	-0.0004	-0.0009	0.0002	0.0000	0.023
	P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	**-0.0003**	-0.0001	0.0000	0.0000	0.0001	0.0001	0.0000	-0.0001	0.0001	-0.0001	-0.005
8	G	0.0005	-0.0001	0.0001	-0.0002	-0.0003	0.0001	0.0002	**0.0004**	0.0001	-0.0001	0.0000	0.0001	-0.0003	-0.0014	-0.0001	0.0000	-0.244*
	P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0013**	0.0000	0.0000	-0.0002	0.0001	0.0000	-0.0001	0.0002	-0.0001	-0.120
9	G	0.0004	-0.0007	0.0001	0.0000	0.0005	-0.0001	-0.0003	0.0000	**0.0017**	0.0000	0.0001	0.0000	-0.0006	0.0004	-0.0005	0.0000	-0.242*
	P	0.0001	0.0000	0.0000	0.0000	0.0001	-0.0001	0.0000	0.0000	**0.0001**	0.0000	0.0002	0.0000	0.0001	0.0001	-0.0002	-0.0001	-0.212
10	G	0.0002	0.0002	0.0014	-0.0007	-0.0003	-0.0005	-0.0001	0.0001	0.0000	**-0.0005**	-0.0003	0.0001	-0.0002	0.0002	-0.0001	-0.0001	-0.695**
	P	0.0001	0.0000	0.0003	-0.0001	0.0000	-0.0002	0.0000	0.0001	0.0000	**0.0004**	-0.0005	0.0002	0.0000	0.0001	-0.0001	-0.0001	-0.558**
11	G	-0.0003	0.0011	0.0012	-0.0015	-0.0008	0.0000	0.0000	0.0000	-0.0005	-0.0004	**-0.0004**	0.0000	-0.0008	0.0003	-0.0001	0.0000	-0.450**
	P	-0.0002	0.0000	0.0003	-0.0002	-0.0001	0.0000	0.0000	0.0002	0.0000	0.0002	**-0.0011**	0.0000	0.0000	0.0001	0.0002	0.0000	-0.280*
12	G	0.0005	-0.0009	0.0002	0.0012	-0.0006	0.0002	0.0002	0.0001	0.0000	-0.0001	0.0000	**0.0002**	0.0006	-0.0013	0.0002	0.0000	0.073
	P	0.0001	0.0000	0.0001	0.0002	-0.0001	0.0001	0.0000	0.0002	0.0000	0.0001	0.0000	**0.0011**	0.0000	-0.0003	0.0001	0.0000	0.068
13	G	-0.0002	-0.0019	-0.0002	0.0018	0.0000	0.0008	-0.0002	-0.0001	-0.0004	0.0001	0.0001	0.0001	**0.0024**	-0.0012	0.0002	0.0001	0.494**
	P	-0.0001	0.0000	-0.0001	0.0003	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	**-0.0002**	-0.0003	0.0001	0.0001	0.395**
14	G	0.0003	-0.0021	-0.0001	0.0013	-0.0003	0.0007	0.0004	0.0002	-0.0003	0.0000	0.0001	0.0001	0.0011	**-0.0025**	0.0002	0.0001	0.319**
	P	0.0000	0.0000	0.0000	0.0002	0.0000	0.0002	0.0000	0.0002	0.0000	0.0000	0.0001	0.0004	-0.0001	**-0.0008**	0.0001	0.0001	0.257*
15	G	-0.0005	-0.0005	-0.0006	0.0007	-0.0005	0.0007	0.0003	-0.0001	-0.0010	0.0001	0.0000	0.0000	0.0006	-0.0007	**0.0009**	0.0000	0.496**
	P	-0.0001	0.0000	-0.0001	0.0001	0.0000	0.0002	0.0000	0.0003	0.0000	0.0000	-0.0002	0.0001	0.0000	-0.0001	**0.0008**	0.0000	0.312**
16	G	0.0001	-0.0010	-0.0008	0.0002	0.0000	0.0006	-0.0002	-0.0001	-0.0003	0.0002	0.0000	0.0000	0.0008	-0.0008	0.0000	**0.0002**	0.649**
	P	0.0000	0.0000	-0.0002	0.0000	0.0000	0.0002	0.0001	-0.0003	0.0000	-0.0001	0.0000	-0.0001	-0.0001	-0.0002	0.0001	**0.0005**	0.482**
17	G	0.0007	-0.0002	0.0011	-0.0001	-0.0004	-0.0006	0.0003	0.0001	0.0000	-0.0004	-0.0001	0.0001	-0.0004	-0.0005	-0.0003	-0.0001	-0.545**
	P	0.0002	0.0000	0.0003	0.0000	0.0000	-0.0002	0.0000	0.0000	0.0000	0.0002	-0.0001	0.0004	0.0000	-0.0002	-0.0002	-0.0002	-0.475**
Characters		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**26**
18	G	0.0002	0.0006	0.0007	-0.0006	-0.0010	-0.0002	-0.0001	0.0001	-0.0003	-0.0002	-0.0002	0.0001	-0.0006	-0.0008	-0.0001	0.0000	-0.269*
	P	0.0001	0.0000	0.0002	-0.0001	-0.0001	-0.0001	0.0000	0.0000	0.0000	0.0001	-0.0004	0.0003	0.0001	-0.0002	-0.0001	0.0000	-0.244*
19	G	0.0003	-0.0024	-0.0004	0.0009	0.0004	0.0007	0.0004	0.0003	0.0005	0.0000	0.0000	0.0000	0.0001	-0.0014	0.0001	0.0000	0.042
	P	0.0000	0.0000	-0.0001	0.0001	0.0000	0.0002	0.0000	0.0003	0.0000	0.0000	0.0000	0.0001	0.0000	-0.0003	0.0001	0.0000	0.034
20	G	0.0002	0.0005	0.0014	-0.0007	-0.0003	-0.0005	-0.0002	0.0001	0.0002	-0.0005	-0.0002	0.0001	0.0000	0.0003	-0.0002	-0.0001	-0.666**
	P	0.0001	0.0000	0.0004	-0.0001	0.0000	-0.0002	0.0000	0.0001	0.0000	0.0003	-0.0004	0.0003	0.0000	0.0001	-0.0001	-0.0002	-0.614**
21	G	0.0001	0.0003	0.0015	-0.0007	-0.0004	-0.0006	-0.0002	0.0001	0.0002	-0.0005	-0.0003	0.0001	-0.0001	0.0002	-0.0001	-0.0001	-0.654**
	P	0.0001	0.0000	0.0004	-0.0001	0.0000	-0.0002	0.0000	0.0001	0.0000	0.0003	-0.0004	0.0003	0.0000	0.0001	-0.0001	-0.0001	-0.566**
22	G	0.0004	-0.0016	0.0001	0.0011	-0.0002	0.0005	0.0001	0.0001	0.0003	0.0000	0.0001	0.0000	0.0008	-0.0018	-0.0001	0.0000	0.004
	P	0.0001	0.0000	0.0000	0.0001	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	-0.0001	-0.0003	-0.0001	0.0000	-0.013
23	G	-0.0004	-0.0001	0.0010	-0.0004	-0.0005	-0.0001	0.0002	0.0001	0.0001	-0.0002	-0.0002	0.0001	-0.0001	-0.0005	0.0004	-0.0001	-0.198
	P	-0.0001	0.0000	0.0003	-0.0001	-0.0001	0.0000	0.0000	0.0002	0.0000	0.0001	-0.0003	0.0005	0.0000	-0.0001	0.0002	-0.0001	-0.167
24	G	0.0005	0.0000	-0.0009	0.0001	0.0002	0.0002	0.0001	0.0001	-0.0004	0.0001	0.0001	0.0000	0.0002	-0.0008	0.0005	0.0001	0.265*
	P	0.0001	0.0000	-0.0002	0.0000	0.0000	0.0002	0.0000	0.0001	0.0000	-0.0001	0.0001	0.0000	0.0000	-0.0001	0.0003	0.0001	0.252*
25	G	-0.0001	-0.0017	-0.0011	0.0015	-0.0002	0.0004	0.0000	-0.0001	-0.0004	0.0003	0.0002	0.0000	0.0012	-0.0008	0.0004	0.0001	1.000**
	P	0.0000	0.0000	-0.0003	0.0003	0.0000	0.0002	0.0000	-0.0002	0.0000	-0.0002	0.0003	0.0001	-0.0001	-0.0002	0.0003	0.0002	1.000**
27	G	-0.0001	0.0004	0.0009	-0.0008	-0.0003	-0.0009	-0.0004	-0.0002	-0.0002	-0.0002	-0.0002	0.0000	-0.0008	0.0006	0.0002	0.0000	-0.175
	P	0.0000	0.0000	0.0003	-0.0001	0.0000	-0.0003	0.0001	-0.0002	0.0000	0.0002	-0.0004	0.0001	0.0001	0.0001	0.0001	0.0000	-0.157
28	G	0.0001	0.0017	-0.0001	0.0001	-0.0002	0.0004	-0.0004	0.0001	0.0000	0.0001	-0.0001	0.0000	-0.0007	-0.0003	0.0002	0.0000	-0.382**
	P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0000	0.0000	-0.0001	0.0001	0.0000	0.0000	0.0000	-0.0001	-0.204
29	G	0.0011	0.0019	0.0001	0.0001	-0.0003	-0.0005	-0.0002	0.0002	-0.0005	-0.0001	0.0000	0.0000	-0.0010	0.0002	-0.0004	-0.0001	-0.098
	P	0.0001	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	-0.0001	-0.064
30	G	0.0002	0.0001	0.0002	0.0009	-0.0004	0.0001	0.0000	0.0000	-0.0001	-0.0001	0.0000	0.0001	0.0007	-0.0006	0.0002	0.0000	0.383**
	P	0.0001	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0000	0.0005	0.0000	-0.0001	0.0000	0.0000	0.292**
31	G	-0.0002	0.0001	-0.0002	0.0010	0.0000	-0.0004	-0.0002	0.0000	0.0003	0.0002	0.0002	0.0000	0.0011	-0.0002	0.0003	0.0000	0.180
	P	0.0000	0.0000	-0.0001	0.0001	0.0000	0.0000	0.0001	-0.0001	0.0000	-0.0001	0.0004	0.0001	-0.0001	-0.0001	0.0000	0.0000	0.163
32	G	0.0001	0.0001	-0.0005	-0.0001	0.0005	-0.0004	0.0002	-0.0001	0.0001	0.0002	0.0002	0.0000	-0.0004	0.0008	-0.0002	0.0000	-0.074
	P	0.0000	0.0000	-0.0001	0.0000	0.0000	-0.0001	0.0000	-0.0002	0.0000	-0.0001	0.0004	-0.0001	0.0000	0.0002	-0.0001	0.0000	-0.067

REFERENCES

Adiger S, Shanthkumar G, Gangashetty P and Salimath P M (2011). Association studies in okra [*Abelmoschus esculentus* (L.) Moench]. *El J Pl Breed* **2**(4): 568-573.

Dewey D R and Lu K H (1959). A correlation and path coefficient analysis of components of crusted wheat grass seed production. *Agron J* **51**: 515- 518.

Jonah P M and Kwaga Y M (2019). Genetic interrelationship among quantitative traits and path analysis of some West African okra (*Abelmoschus caillei*) genotypes. *Agri Sci Tech* **11**(1): 3-7.

Table 2: Genotypic and phenotypic path coefficient estimates of direct and indirect effects of different traits on yield per hectare in okra

Characters		17	18	19	20	21	22	23	24	25	27	28	29	30	31	32	R with 26 (yield)
1	G	-0.0004	0.0005	0.0004	0.0003	-0.0001	0.0002	0.0001	0.0001	-0.0745	-0.0001	0.0000	-0.0007	-0.0002	0.0002	0.0001	-0.074
	P	-0.0002	0.0000	0.0000	-0.0003	0.0003	0.0000	0.0002	-0.0001	-0.0681	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.067
2	G	0.0000	0.0005	-0.0011	0.0002	-0.0001	-0.0002	0.0000	0.0000	-0.4282	0.0002	-0.0002	-0.0004	0.0000	0.0000	0.0001	-0.428**
	P	0.0000	0.0000	0.0000	-0.0002	0.0001	0.0000	0.0000	0.0000	-0.4153	0.0000	0.0000	-0.0001	0.0000	0.0000	0.0000	-0.416**
3	G	-0.0005	0.0014	-0.0004	0.0014	-0.0014	0.0000	-0.0001	-0.0002	-0.5932	0.0010	0.0001	0.0000	-0.0001	0.0002	-0.0007	-0.594**
	P	-0.0004	0.0001	0.0000	-0.0014	0.0012	0.0000	-0.0004	0.0002	-0.5655	0.0000	0.0000	0.0000	0.0000	0.0001	-0.0002	-0.567**
4	G	0.0000	0.0008	-0.0005	0.0004	-0.0004	-0.0002	0.0000	0.0000	-0.5134	0.0006	0.0000	0.0000	0.0002	0.0005	0.0001	-0.514**
	P	0.0000	0.0000	0.0000	-0.0004	0.0003	0.0000	-0.0001	0.0000	-0.4946	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	-0.496**
5	G	-0.0002	0.0022	-0.0005	0.0004	-0.0005	0.0001	-0.0001	0.0000	0.1133	0.0003	-0.0001	-0.0002	-0.0002	0.0000	-0.0008	0.113
	P	-0.0002	0.0001	0.0000	-0.0003	0.0003	0.0000	-0.0002	0.0000	0.0932	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0002	0.093
6	G	0.0003	-0.0004	0.0008	-0.0006	0.0006	0.0002	0.0000	0.0000	0.2521	-0.0011	-0.0001	0.0003	-0.0001	0.0004	-0.0006	0.253*
	P	0.0002	0.0000	0.0000	0.0004	-0.0003	0.0000	0.0000	-0.0001	0.1930	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0001	0.194
7	G	-0.0002	-0.0004	0.0007	-0.0003	0.0003	0.0001	0.0000	0.0000	0.0231	-0.0006	0.0002	0.0002	0.0000	0.0003	0.0005	0.023
	P	-0.0001	0.0000	0.0000	0.0002	-0.0001	0.0000	-0.0001	-0.0001	-0.0055	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	-0.005
8	G	-0.0002	0.0006	0.0012	0.0006	-0.0005	0.0002	-0.0001	0.0001	-0.2436	-0.0007	-0.0002	-0.0004	-0.0001	0.0001	-0.0004	-0.244*
	P	0.0000	0.0000	0.0000	-0.0002	0.0001	0.0000	-0.0001	0.0000	-0.1206	0.0000	0.0000	-0.0001	0.0000	0.0001	-0.0001	-0.120
9	G	0.0000	-0.0007	0.0006	0.0002	-0.0002	0.0001	0.0000	-0.0001	-0.2429	-0.0002	0.0000	0.0002	0.0000	-0.0003	0.0001	-0.242*
	P	0.0000	0.0000	0.0000	-0.0001	0.0001	0.0000	0.0000	0.0001	-0.2124	0.0000	0.0000	0.0001	0.0000	-0.0001	0.0000	-0.212
10	G	-0.0006	0.0017	-0.0001	0.0018	-0.0018	0.0000	-0.0001	-0.0001	-0.6956	0.0009	0.0001	-0.0002	-0.0003	0.0006	-0.0010	-0.695**
	P	-0.0004	0.0001	0.0000	-0.0017	0.0015	0.0000	-0.0002	0.0001	-0.5573	0.0000	0.0000	0.0000	0.0000	0.0002	-0.0002	-0.558**
11	G	-0.0002	0.0017	0.0000	0.0011	-0.0012	-0.0001	-0.0001	-0.0001	-0.4493	0.0011	-0.0001	0.0000	-0.0001	0.0006	-0.0012	-0.450**
	P	-0.0001	0.0001	0.0000	-0.0007	0.0007	0.0000	-0.0002	0.0001	-0.2792	0.0000	0.0000	0.0000	0.0000	0.0002	-0.0003	-0.280*
12	G	-0.0004	0.0011	0.0002	0.0005	-0.0006	0.0001	-0.0001	0.0000	0.0726	0.0002	-0.0001	-0.0001	-0.0005	-0.0002	-0.0001	0.073
	P	-0.0003	0.0001	0.0000	-0.0006	0.0005	0.0000	-0.0004	0.0000	0.0675	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	0.068
13	G	0.0001	-0.0008	0.0001	0.0000	0.0001	0.0002	0.0000	0.0000	0.4947	-0.0006	0.0002	0.0004	-0.0002	-0.0007	-0.0004	0.494**
	P	0.0001	0.0000	0.0000	0.0001	-0.0001	0.0000	0.0000	0.0000	0.3947	0.0000	0.0000	0.0001	0.0000	-0.0002	-0.0001	0.395**
14	G	-0.0002	0.0011	0.0010	-0.0002	0.0001	0.0004	0.0000	0.0001	0.3191	-0.0005	-0.0001	0.0001	-0.0002	-0.0001	-0.0009	0.319**
	P	-0.0002	0.0001	0.0000	0.0003	-0.0001	0.0000	-0.0001	-0.0001	0.2570	0.0000	0.0000	0.0000	0.0000	-0.0001	-0.0002	0.257*
15	G	0.0002	-0.0003	0.0003	-0.0003	0.0001	-0.0001	-0.0001	0.0002	0.4964	0.0004	-0.0001	0.0004	-0.0002	-0.0005	-0.0006	0.496**
	P	0.0002	0.0000	0.0000	0.0003	-0.0002	0.0000	-0.0001	-0.0002	0.3117	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0001	0.312**
16	G	0.0004	0.0002	-0.0002	-0.0007	0.0007	0.0000	0.0001	0.0001	0.6497	-0.0002	0.0001	0.0003	0.0000	0.0000	0.0001	0.649**
	P	0.0002	0.0000	0.0000	0.0007	-0.0005	0.0000	0.0001	-0.0001	0.4821	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.482**
17	G	**-0.0008**	0.0021	0.0000	0.0012	-0.0012	0.0001	-0.0001	-0.0001	-0.5453	0.0004	0.0001	-0.0002	-0.0001	0.0007	-0.0006	-0.545**
	P	**-0.0008**	0.0001	0.0000	-0.0011	0.0008	0.0000	-0.0001	0.0001	-0.4739	0.0000	0.0000	0.0000	0.0000	0.0002	-0.0001	-0.475**
Characters		**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**27**	**28**	**29**	**30**	**31**	**32**	**R with 26 (yield)**
18	G	-0.0005	**0.0035**	-0.0004	0.0008	-0.0009	0.0002	-0.0001	0.0000	-0.2692	0.0010	-0.0001	-0.0004	-0.0001	0.0004	-0.0011	-0.269*
	P	-0.0004	**0.0002**	0.0000	-0.0008	0.0007	0.0000	-0.0001	0.0000	-0.2433	0.0000	0.0000	-0.0001	0.0000	0.0002	-0.0003	-0.244*
19	G	0.0000	-0.0007	**0.0018**	-0.0005	0.0004	0.0003	0.0000	0.0000	0.0417	-0.0009	0.0000	0.0005	0.0002	0.0005	-0.0006	0.042
	P	0.0000	-0.0001	**0.0000**	0.0003	-0.0002	0.0000	0.0000	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0001	-0.0001	0.034
20	G	-0.0005	0.0016	-0.0005	**0.0018**	-0.0017	0.0000	-0.0001	-0.0001	-0.6663	0.0008	0.0000	-0.0003	-0.0003	0.0004	-0.0009	-0.666**
	P	-0.0004	0.0001	0.0000	**-0.0020**	0.0017	0.0000	-0.0002	0.0001	-0.6137	0.0000	0.0000	0.0000	0.0000	0.0001	-0.0002	-0.614**
21	G	-0.0005	0.0017	-0.0004	0.0018	**-0.0017**	0.0000	-0.0001	-0.0001	-0.6547	0.0011	0.0000	-0.0003	-0.0003	0.0004	-0.0009	-0.654**
	P	-0.0004	0.0001	0.0000	-0.0019	**0.0018**	0.0000	-0.0003	0.0001	-0.5659	0.0000	0.0000	0.0000	0.0000	0.0001	-0.0002	-0.566**
22	G	-0.0002	0.0011	0.0009	0.0000	0.0000	**0.0006**	0.0000	0.0000	0.0034	-0.0007	0.0000	-0.0001	-0.0002	-0.0005	-0.0005	0.004
	P	-0.0001	0.0001	0.0000	0.0001	0.0000	**0.0000**	-0.0001	0.0000	-0.0127	0.0000	0.0000	0.0000	0.0000	-0.0001	-0.0001	-0.013
23	G	-0.0002	0.0008	0.0000	0.0007	-0.0009	0.0000	**-0.0002**	-0.0001	-0.1982	0.0008	-0.0001	0.0002	-0.0003	-0.0002	0.0000	-0.198
	P	-0.0001	0.0000	0.0000	-0.0007	0.0007	0.0000	**-0.0007**	0.0001	-0.1663	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	-0.167
24	G	0.0002	0.0003	0.0000	-0.0004	0.0005	0.0001	0.0001	**0.0004**	0.2651	0.0002	-0.0002	-0.0004	0.0000	-0.0004	-0.0008	0.265*
	P	0.0001	0.0000	0.0000	0.0003	-0.0002	0.0000	0.0001	**-0.0006**	0.2520	0.0000	0.0000	0.0000	0.0000	-0.0001	-0.0001	0.252*
25	G	0.0004	-0.0009	0.0001	-0.0012	0.0011	0.0000	0.0000	0.0001	**1.0006**	-0.0004	0.0001	0.0003	0.0001	-0.0006	0.0005	1.000**
	P	0.0004	-0.0001	0.0000	0.0012	-0.0010	0.0000	0.0001	-0.0001	**0.9992**	0.0000	0.0000	0.0001	0.0000	-0.0002	0.0001	1.000**
27	G	0.0001	0.0008	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0001	-0.1745	**0.0004**	-0.0006	-0.0007	-0.0002	-0.0005	-0.0003	-0.175
	P	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0001	-0.0001	-0.1573	**0.0000**	-0.0001	-0.0001	0.0000	-0.0001	-0.0001	-0.157
28	G	-0.0002	0.0016	-0.0010	0.0007	-0.0006	0.0000	0.0001	0.0002	-0.3815	0.0003	**-0.0005**	-0.0009	0.0000	0.0000	-0.0003	-0.382**
	P	-0.0001	0.0000	0.0000	-0.0002	0.0001	0.0000	0.0001	-0.0001	-0.2041	0.0000	**0.0000**	-0.0003	0.0000	0.0000	0.0000	-0.204
29	G	-0.0001	0.0005	-0.0003	0.0006	-0.0007	0.0001	-0.0001	0.0000	-0.0978	0.0003	-0.0002	**0.0000**	**-0.0008**	-0.0008	0.0003	-0.098
	P	-0.0001	0.0000	0.0000	-0.0005	0.0004	0.0000	-0.0003	0.0000	-0.0645	0.0000	0.0000	**0.0000**	**-0.0001**	-0.0002	0.0001	-0.064
30	G	0.0003	-0.0010	-0.0006	-0.0005	0.0004	0.0002	0.0000	0.0001	0.3836	0.0001	-0.0002	0.0000	**-0.0004**	-0.0016	0.0002	0.383**
	P	0.0002	-0.0001	0.0000	0.0003	-0.0002	0.0000	-0.0001	-0.0001	0.2921	0.0000	0.0000	0.0000	**0.0000**	-0.0007	0.0000	0.292**
31	G	0.0002	-0.0015	-0.0004	-0.0006	0.0006	-0.0001	0.0000	-0.0001	0.1798	-0.0005	0.0001	0.0001	-0.0001	**-0.0001**	0.0026	0.180
	P	0.0001	-0.0001	0.0000	0.0006	-0.0005	0.0000	0.0000	0.0001	0.1620	0.0000	0.0000	0.0000	0.0000	**0.0000**	0.0007	0.163
32	G	-0.0004	0.0005	0.0004	0.0003	-0.0001	0.0002	0.0001	0.0001	-0.0745	-0.0001	0.0000	-0.0007	-0.0002	0.0002	**0.0001**	-0.074
	P	-0.0002	0.0000	0.0000	-0.0003	0.0003	0.0000	0.0002	-0.0001	-0.0681	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**	-0.067

*, ** significant at 5% and 1% level, respectively

1- Days taken to first germination, 2- Plant height, 3- Number of primary branches per plant, 4- Internodal length, 5- Stem girth, 6- Petiole length, 7- Petiole diameter, 8- Leaf length, 9- Number of epicalyx segments, 10- Days taken to first flowering, 11- Number of nodes at first flowering, 12 -flower diameter, 13- Fruit length, 14- Fruit diameter, 15- Average fruit weight, 16- Number of fruits per plant, 17- Number of ridges per fruit, 18- Pedicel length, 19- Pedicel diameter, 20- Days taken to first fruit set, 21- Days taken to first fruit harvest, 22- Flesh thickness, 23- Number of seeds per fruit, 24- Seed index , 25- Yield per plot, 26- Yield per hectare, 27- Total soluble solids, 28- Ascorbic acid, 29- Chlorophyll content, 30- Ash content, 31- Moisture content and 32- Physiological loss.

Joshi U, Rana D K, Bisht T S and Singh V (2021). Varietal evaluation in okra for yield and yield attributing traits under mid-hill conditions of garhwal himalayas. In: Siddiqui N A, Bahukhandi K D, Tauseef S M and Koranga N. (eds) Advances in Environment Engineering and Management.

Joshi U, Rana D K and Singh V (2020). Characterization study based on the morphology of various okra [*Abelmoschus esculentus* (L.) Moench.] genotypes. *J Emerg Tech Inn Res* **7**(5): 701-710.

Kerure P, Pitchaimuthu M and Hosamani M (2017). Studies on variability, correlation and path analysis of traits contributing to fruit yield and its components in okra [(*Abelmoschus esculentus* (L.) Moench)]. *E J Pl Breed* **8**(2): 620-625.

Koundinya A V V and Dhankhar S K (2013). Correlation and path analysis of seed yield components in okra [Abelmoschus esculentus (L.) Moench]. *Ann Horti* **6**(1): 145-148.

Kumar P, Singh K V, Singh B, Kumar S and Singh O (2012). Correlation and path analysis studies in okra [*Abelmoschus esculentus* (L.) Moench]. *Prog Agri* **12**(2): 354-359.

Kumar Y and Joshi U (2024). A genetic interrelationship among quantitative characteristics in notable okra genotypes. *J Krishi Vigyan* **12**(2): 278-284.

Kumari A, Singh V K and Kumari M (2019). Genetic variability, correlation and path coefficient analysis for yield and quality traits in okra [*Abelmoschus esculentus* (L.) Moench]. *Int J Curr Microbio App Sci* **8**(6): 918-926.

Olivera D F, Mugridge A, Chaves A R, Mascheroni R H and Viña S Z (2012). Quality attributes of Okra (*Abelmoschus esculentus* L. Moench) pods as affected by cultivar and fruit size. *J Food Res* **1**(4): 224-235.

Pithiya P H, Kulkarni G U, Jalu R K and Thumar D P (2017). Correlation and path coefficient analysis of quantitative characters in okra (*Abelmoschus esculentus* (L.) Moench). *J Pharma Phytochem* **6**(6): 1487-1493.

Prajna S P, Gasti V D and Evoor S (2015). Correlation and path analysis in okra [*Abelmoschus esculentus* (L.) Moench]. *Hort Flora Res Spect* **4**(2): 123-128.

Raval V, Patel A I, Vashi J M and Chaudhari B N (2019). Correlation and path analysis studies in okra (*Abelmoschus esculentus* (L.) Moench). *Acta Sci Agri* **3**(2): 65-70.

Ray S K, Debnath B, Das B and Mishra V K (2022). Early seasonal okra (*Abelmoschus esculentus*) cultivation provides better returns to farmers. *J Krishi Vigyan* **11**(1): 68-71.

Reddy M T, Babu K H, Ganesh M, Reddy K C, Begum H, Reddy R S K and Babu J D (2013). Correlation and path coefficient analysis of quantitative characters in okra (*Abelmoschus esculentus* (L.) Moench). *Song J Sci Tech*, **35**(3): 243-250.

Sawant S N, Nagre P K, Gudadhe P S and Narkhede G W (2014). Correlation coefficient and path analysis studies in okra. *Int J Trop Agri*, **32**(4): 341-347.

Sharma R K and Prasad K (2015). Genetic divergence, correlation and path coefficient analysis in okra. *Indian J Agri Res* **49**(1): 77-82.

Thulasiram L B, Bhople S R and Ranjith P (2017). Correlation and path analysis studies in okra. *Elect J Plant Breed* **8**(2): 620-625.

Umrao V, Sharma S K, Kumar V, Kumar R, Sharma A and Kumar J (2015). Correlation and path coefficient analysis of yield components in okra [*Abelmoschus esculentus* (L.) Moench]. *Hort Flora Res Spect* **4**(2):139-143.

Wright S. (1921). Correlation and causation. *J Agri Res* **20**: 557-585.

Received on 10/11/2024 Accepted on 25/02/2025