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Character Association and Path Analysis of Fruit Yield and Yield Components in F_2 Population of Intraspecific Hybrid derived from Muskmelon (*Cucumis melo* L.) and Mangalore Melon (*Cucumis melo var. acidulus*)

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ABSTRACT: The success of most crop improvement program largely depends on the understanding of relationship among characters and magnitude of this relation help to breeder to determine the selection criteria for breeding program. An investigation was carried out to assess the character association and path analysis for sixteen quantitative traits in F_2 segregating generation of Haramadhu × MS-78 cross. Association studies revealed that, six out of sixteen traits exhibited highly significant positive correlation with fruit yield per vine. However, the traits average fruit weight (0.721), number of fruits per vine (0.569), fruit length (0.340), fruit width (0.272), fruit shape index (0.231) and TSS (0.142) were found to possess significant association in desirable direction with fruit yield per vine at phenotypic level. Path analysis studies revealed that average fruit weight exhibited the highest positive direct effect (0.756) on fruit yield per vine followed by number of fruits per vine (0.609), fruit shape index (0.292), fruit width (0.135), sex ratio (0.011), TSS (0.019) and seed cavity width (0.009) showed true relationship by establishing significant positive association and direct effect on fruit yield per vine.

Keywords: Melon, character association, path analysis, yield.

INTRODUCTION

India being one of the secondary centers of origin of *Cucumis melo*, is rich in its feral and cultivated forms which comprise nearly 40 species (Whitaker and Davis, 2008) and Africa was suggested to be the region of domestication of melon based on the availability of many specimens of wild *Cucumis* (Koli and Murthy, 2013). *Cucumis melo* L. is one of the most important cultivated, morphologically diverse, horticultural crop (Martuscelli *et al.,* 2016) and belonging to family *Cucurbitaceae.* Musk melon fruits are highly perishable and shelf life is about 15 days (Ryan and Lipton 1979). To enhance the shelf life of muskmelon for continuous usage and their availability though out the year is challenging. Several studies were conducted to enhance post-harvest storage life of musk melon. Identification of readily crossable, trait donor parent from *Cucumis* gene pool is essential to improve the shelf life of musk melon. On the contrary, culinary melon [*Cucumis melo* var. *acidulus* (2n = 2x = 24)], popularly known as Mangalore melons have longer shelf life up to 150 days (Shet *et al*., 2022). Mangalore melons are predominantly grown in the coastal and Malnad regions of South Indian states. The success of intra specific hybridization depends on the cross compatibility between these two distinct groups of vegetables. The musk melon and culinary melon belongs to genus *Cucumis* and chromosome number 2n=24 and are cross compatible (Subha *et al.,* 1986). The assessment of developed intraspecific hybrids in segregating generation for ecomomic fruits traits including shelf life is very essential to breeder point of view in improvement of muskmelon.

Correlation or character association is measures of the degree of association between two traits (Rashwan *et al.,* 2011). Variability studies provide information on the extent of improvement possible in different traits but they do not provide the information about extent and nature of relationship existing between yield and various yield attributing traits (Schober *et al.,* 2018). Further many of these yield contributing traits are associated in undesirable and desirable direction. Hence, the information regarding the association of various traits among themselves and with economic traits is necessary for making indirect and direct selection for improvement of economic traits. (Falconer, 1964).

Fruit yield being a complex character is very difficult to improve by selecting the genotypes for yield *per se.* Therefore identifying the characters which are closely related and have contributed to yield becomes highly essential. The estimates of correlation coefficients mostly indicate the inter relationships of the characters whereas path analysis permits the understanding of the cause and effect of related characters (Wright, 1921). The path analysis reveals whether the association of characters with yield is due to their direct effect on yield or is a consequence of their indirect effects via other component characters (Lleras, 2005; Chen *et al.*, 2021). With this background, the present study was conducted to know the association of different fruit traits on yield and their direct and indirect effects in F_2 segregating generation of muskmelon (Haramadhu) and Mangalore melon (MS-78) intraspecific cross.

MATERIALS AND METHOD

The experiment was carried out at research field of Biotechnology and Crop Improvement,, College of Horticulture, Sirsi, 200 Seeds of (Haramadhu × MS.78) cross F_2 generation were sown in the main field at a spacing of 2 m × 0.60 m. Observations were each plants for sixteen quantitative characters *viz.,* vine length (cm), sex ratio (%), days to harvest, number of fruits per vine, fruit yield per vine (g), average weight of fruit (g), fruit length (cm), fruit width (cm), flesh thickness (cm), seed cavity length (cm), seed cavity width (cm), number of seeds per fruit, hundred seed weight (g), T.S.S. (°Brix), peduncle length (cm), fruit shape index and shelf-life (days). The mean data were subjected to statistical analysis and estimates of correlation coefficients were worked out as per the Falconer (1964). Direct and indirect effects of yield components on fruit yield were calculated as suggested by Dewey and Lu (1959).

RESULT AND DISCUSSION

A. Association study

(i) Association of fruit yield with its component characters. A highly significant, positive association was observed for fruit yield with average fruit weight (0.721), number of fruits per vine (0.569), fruit length (0.340), fruit width (0.272) and fruit shape index (0.231). TSS (0.142) was significant and positive association with fruit yield per vine. Fruit yield per vine registered positive non-significant correlation with vine length (0.061), number of seeds per fruit (0.072), flesh thickness (0.024) and seed cavity width (0.013) and shelf-life (0.043). Other traits registered negative non-significant association with fruit yield per vine (Table 1). Quit similar results were also obtained by Ramana (2000) in oriental pickling melon, Singh and Lal (2005); Rukam *et al.* (2008), Hanchinamani and Patil (2009) in cucumber, Choudhary *et al.* (2011); Reddy *et al.* (2013); Reddy *et al.* (2017); Pasha *et al.* (2019) in muskmelon.

(ii) Association among fruit yield component characters. Fruit length was positively associated with fruit width (0.517), fruit shape index (0.856), average fruit weight (0.530) with high significance. However, significant negative association was observed for fruit length with hundred seed weight (-0.148). On other hand fruit width was positively correlated with average fruit weight (0.473). Fruit shape index was significantly and positively associated with average fruit weight (0.33) with high significance. Fruit shape index is important trait which decides the parental fruit shape inheritance in segregating generations. Fruits shape had role in determining sex type in melon crops, musk melon were andromonoecious and fruits were round shape, whereas Mangalore melon are monoecious and fruits shape were ovate to oblong. A significant and positive association was observed for sex ratio was with flesh thickness (0.145). Days to first harvest was significantly and negatively associated with TSS (-0.318), shelf-life (-0.200), average fruit weight (-0.152), number of seeds per fruit (-0.163) and flesh thickness (-0.168). Average fruit weight significantly and positively associated with number of seeds per fruit (0.147), TSS (0.196). On other hand hundred seed weight was significantly and positively associated with TSS (0.171). Number of seeds per fruit showed significant positive association with shelf-life (0.261). Flesh thickness was significantly and positively associated with TSS (0.157). On other hand TSS significantly and positively associated with shelf-life (0.217). However, it showed significant negative association with seed cavity length (-0.251). Vine length, number of fruits per vine, seed cavity length, seed cavity width and shelf-life did not show significant positive association with any other components (Table 1). The results accordance with Choudhary *et al.* (2011); Reddy *et al.* (2013); Reddy *et al.* (2017); Pasha *et al.* (2019) in muskmelon.

B. Path coefficient analysis

Correlation coefficients were partitioned into direct and indirect effects by path coefficient analysis. The direct and indirect effects of component traits on fruit yield in F_2 populations of cross Haramadhu × MS-78 are presented in Table 2.

The average fruit weight exhibited the highest positive direct effect (0.756) on fruit yield per vine followed by number of fruits per vine (0.609), fruit shape index (0.292), fruit width (0.135), sex ratio (0.011), TSS (0.019) and seed cavity width (0.009). Fruit length (-0.316), hundred seed weight (-0.044), shelf-life (-0.043), vine length (-0.031), flesh thickness (-0.026), seed cavity length (-0.007), days to first harvest (-0.004) and number of seeds per fruit (-0.002) was negative direct effect on fruit yield per vine (Table 2). Similar results were also observed by findings of Choudhary *et al.* (2019); Singh and Lal (2005); Rukam *et al.* (2008); Thanet *et al.* (2022) in musk melon.

Vine length had neither direct effect (-0.031) nor indirect effect through other character on fruit yield resulting in its low negative association of this trait with yield (0.061). Sex ratio had neither direct effect (0.011) nor indirect effect through other character on fruit yield resulting in its low negative association of this trait with yield (-0.015). Days to first harvest had neither direct effect (-0.004) nor indirect effect through other character on fruit yield resulting in its low negative association of this trait with yield (-0.115).

Table 1: Phenotypic correlation coefficients among fruit yield & its components in F_2 generation of the cross Haramadhu × MS-78, N= 200.

Traits	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	X_{16}
X_1	-0.099	-0.130	-0.025	-0.040	-0.011	-0.006	-0.035	-0.060	-0.033	0.145*	-0.011	0.041	0.046	0.041	-0.015
X_2	1.000	0.064	0.049	0.056	0.045	0.105	0.003	-0.117	0.072	-0.063	-0.092	0.056	-0.049	-0.067	0.061
X_3		1.000	0.014	-0.066	0.051	-0.152*	-0.005	-0.041	-0.163*	-0.168*	-0.318**	0.010	-0.051	-0.200**	-0.115
X_4			1.000	0.517**	0.856**	0.530**	-0.100	-0.148*	0.055	0.118	-0.024	0.001	-0.084	0.070	0.340**
X_5				1.000	0.018	0.473**	-0.102	-0.116	0.045	0.134	0.022	-0.084	0.044	0.031	0.272**
X_6					1.000	0.330**	-0.063	-0.128	0.034	0.083	-0.037	0.044	-0.113	0.061	0.231**
X_7						1.000	-0.042	0.006	0.147*	0.030	0.196**	-0.058	0.050	0.057	0.721**
X_8							1.000	0.068	-0.046	0.019	-0.017	0.001	-0.069	0.064	0.569**
X_9								1.000	-0.031	-0.058	0.171**	-0.124	-0.103	0.113	-0.001
X_{10}									1.000	-0.033	0.061	-0.099	0.105	0.261**	0.072
X_{11}										1.000	0.157*	0.043	0.012	-0.031	0.024
X_{12}											1.000	-0.251**	0.133	0.217**	0.142*
X_{13}												1.000	-0.147	-0.108	-0.047
X_{14}													1.000	0.013	0.013
X_{15}														1.000	0.043

*,** Significant at P= 0.05 and P= 0.01 respectively

X_1- Sex ratio (%), X_2- Vine Length (cm), X_3- Days to first harvest, X_4- Fruit length (cm), X_5- fruit width (cm), X_6- Fruit shape index, X_7- Average Fruit weight (g), X_8- Number of fruits /vine, X_9- 100 seed weight (g), X_{10}- Number of seeds/fruit, X_{11}- Flesh thickness (cm), X_{12}- TSS (^{o}Brix), X_{13}- Seed cavity length (cm), X_{14}- Seed cavity width (cm), X_{15}- Shelf life (days) , X_{16} - Fruit yield per vine (g).

Table 2: Genotypic direct (diagonal) and indirect effects of different quantitative traits in F_2 generation of cross Haramadhu × MS-78.

Traits	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	'r'with yield
X_1	**0.011**	0.003	0.000	0.008	-0.005	-0.003	-0.004	-0.021	0.003	0.000	-0.004	-0.000	-0.000	0.000	-0.002	-0.015
X_2	-0.001	**-0.031**	-0.000	-0.015	0.008	0.013	0.079	0.002	0.005	-0.000	0.002	-0.002	-0.000	-0.000	0.003	0.061
X_3	-0.001	-0.002	**-0.004**	-0.005	-0.009	0.015	-0.115	-0.003	0.002	0.000	0.004	-0.006	-0.000	-0.000	0.009	-0.115
X_4	-0.000	-0.001	-0.000	**-0.316**	0.070	0.250	0.401	-0.061	0.006	-0.000	-0.003	-0.000	0.000	-0.001	-0.003	0.340
X_5	-0.000	-0.002	0.000	-0.163	**0.135**	0.005	0.357	-0.062	0.005	-0.000	-0.003	0.000	0.001	0.000	-0.001	0.272
X_6	-0.000	-0.001	-0.000	-0.271	0.003	**0.292**	0.249	-0.039	0.006	-0.000	-0.002	-0.001	-0.000	-0.001	-0.003	0.231
X_7	-0.000	-0.003	0.001	-0.168	0.064	0.096	**0.756**	-0.026	-0.000	-0.000	-0.001	0.004	0.000	0.000	-0.002	0.721
X_8	-0.000	-0.000	0.000	0.032	-0.014	-0.018	-0.032	**0.609**	-0.003	0.000	-0.001	-0.000	-0.000	-0.001	-0.003	0.569
X_9	-0.001	0.004	0.000	0.047	-0.016	-0.037	0.005	0.042	**-0.044**	0.000	0.002	0.003	0.001	-0.001	-0.005	-0.001
X_{10}	-0.000	-0.002	0.001	-0.017	0.006	0.010	0.111	-0.028	0.001	**-0.002**	0.001	0.001	0.001	0.001	-0.011	0.072
X_{11}	0.002	0.002	0.001	-0.037	0.018	0.024	0.023	0.012	0.003	0.000	**-0.026**	0.003	-0.000	0.000	0.001	0.024
X_{12}	-0.000	0.003	0.001	0.008	0.003	-0.011	0.148	-0.011	-0.007	-0.000	-0.004	**0.019**	0.002	0.001	-0.009	0.142
X_{13}	0.000	-0.002	-0.000	-0.000	-0.011	0.013	-0.044	0.001	0.005	0.000	-0.001	-0.005	**-0.007**	-0.001	0.005	-0.047
X_{14}	0.001	0.002	0.000	0.027	0.006	-0.033	0.038	-0.042	0.004	-0.000	-0.000	0.003	0.001	**0.009**	-0.001	0.013
X_{15}	0.000	0.002	0.001	-0.022	0.004	0.018	0.043	0.039	-0.005	-0.000	0.001	0.004	0.001	0.000	**-0.043**	0.043

Residual effect 0.11387

X_1- Sex ratio (%), X_2- Vine Length (cm), X_3- Days to first harvest, X_4- Fruit length (cm), X_5- fruit width (cm), X_6- Fruit shape index, X_7- Average Fruit weight (g), X_8- Number of fruits /vine, X_9- 100 seed weight(g), X_{10}- Number of seeds/fruit, X_{11}- Flesh thickness (cm), X_{12}- TSS (^{o}Brix), X_{13}- Seed cavity length (cm), X_{14}- Seed cavity width (cm), X_{15}- Shelf life (days) , X_{16} - Fruit yield per vine (g).

Fruit length recorded negative high direct effect (-0.316). Its significant positive association with fruit yield (0.340) was due to high indirect effect through fruit shape index (0.250) and average fruit weight (0.450). Fruit width showed a high positive direct effect (0.135) which was responsible for its high significant positive association with fruit yield (0.272). Its indirect effects through average fruit weight (0.357) noticed positive on fruit yield but other characters were very low. The direct effect of fruit shape index is high (0.292). Its positive association with yield (0.231) was due to high indirect positive effect through average fruit weight (0.249) and indirect negative fruit length (-0.271). Average fruit weight recorded positive direct effect (0.756) which resulted in positive association with fruit yield (0.721). The direct effects of other characters via this trait were negligible. Number of fruits per vine registered high positive direct effect (0.609) on fruit yield which resulted in positive association with fruit yield (0.569). Similar results were found by Karadi *et al.* (2016); Shivaprasad *et al.* (2017); Yadagir *et al.* (2017); Karthick *et al.* (2019); Pasha *et al.* (2019); Kumar *et al.* (2020).

Hundred seed weight had neither a direct effect (-0.044) nor indirect effect through other characters on fruit yield resulting in negative correlation with fruit yield (-0.001). Number of seeds per fruit had neither a direct effect (-0.002) nor indirect effect through other characters on fruit yield resulting in low positive correlation with fruit yield (0.072). Flesh thickness had neither a direct effect (-0.026) nor indirect effect through other characters on fruit yield resulting in low positive correlation with fruit yield (0.024). TSS recorded low direct effect (0.019). Its significant positive association with yield (0.142) was due to moderate indirect effect through average fruit weight (0.148). Seed cavity length had neither a direct effect (-0.007) nor indirect effect through other characters on fruit yield resulting in low negative correlation with fruit yield (-0.047). Seed cavity width recorded low positive direct effect (0.009) which resulted in positive association with fruit yield (0.013). The direct effects of other characters *via* this trait were negligible. Shelf-life had neither a direct effect (-0.043) nor indirect effect through other characters on fruit yield resulting in low positive correlation with fruit yield (0.043). It indicates little advantage over generation for fruit yield with shelf life. The results were accordance with Prashanth *et al.* (2003); Koppad *et al*. (2017); Pasha *et al.* (2019); Thanet *et al.* (2022).

The residual effect permits precise explanation about the pattern of interaction of other possible components of yield. In other words, residual effect measures the role of the possible independent variables which were not included in the study on the dependent variable. In the present study, the residual effect at phenotypic level is 0.11 indicating that the characters included in present investigation are contributing more than 89 per cent of variability pertaining the dependent variable *i.e.,* yield.

CONCLUSION

Low fruit yield in intraspecific segregating generations derived from muskmelon and Mangalore melon is due to the interaction of many genes with environment and linkage drag, it may not be desirable for direct selection. The selection criterion in breeding to improve a crop plant's inherent producing capacity may be yield or some of the morphological factors that affect yield. Effective crop improvement programmes require a knowledge of the method of inheritance of the yield and yield components. Yield is dependent on various characters which are mutually related. These will in turn impair the true association existing among the components and fruit yield. A change in any one factor is likely to disturb the whole network of cause and effect. Average fruit weight showed high positive direct effect at both levels on fruit yield per vine. This trait showed positive significant correlation and had high positive direct effect on yield per vine and hence direct selection through this character would be effective.

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Conflict of Interest. None.

REFERENCES

Chen, Y., Li, H., Ding, H., Dong, Z., Niu, D. and J. Li. (2021). Heritability Estimation and Path Analysis for Growth Traits of the Razor Clam *Sinonovacula constricta* under High Salinity. *Aquaculture*, *545,* 737175–737177.

Choudhary, B. R., Singh D. and Saroj, P. L. (2019). Development and Characterization of Intraspecific Hybrids Derived from *Cucumis melo* L. *Bangladesh Journal of Botany, 48*(2), 359-366.

Choudhary, H., Ram, H. H. and Singh, D. K. (2011). Genetic Variability Study in Muskmelon. *Progressive Horticulture*, *43*(2), 231-233.

Dewey, D. R. and Lu, K. N. (1959). A Correlation and Path Coefficient analysis of Components of Crested Wheat Grass Seed Production. *Agronomy Journal*, *51*, 515-518.

Falconer, D. S. (1964). An introduction to Quantitative Genetics. *Oliver and Boyd Publishing Co. Pvt. Ltd.,* Edinburgh, 312-324.

Hanchinamani, C. N. and Patil, M. G. (2009). Correlation Studies in Cucumber (*Cucumis sativus* L.). *The Asian Journal of Horticulture, 4*(1), 121-125.

Karadi, S. M., Ganiger, V. M., Siddappa, Mangi, V. and Bhuvaneshwari, G. (2016b). Character association and path analysis studies in wild melon (*Cucumis melo* sub sp *agrestis*). *Green Farming International Journal*, *7*(3), 666-669.

Karthick, K., Arumugam, T., Rajasree, V., Ganesan, K. N. and Karthikeyan, M. (2019). Studies on Correlation and Path analysis of Yield attributes in Cucumber (*Cucumis sativus* L.). *Journal of Pharmacology Phytochemistry*, *8*(6), 342-345.

Thanet Khomphet, Warin Intana, Athakorn Promwee, Shams Shaila Islam, (2022). Genetic Variability, Correlation, and Path Analysis of Thai Commercial Melon Varieties. *International Journal of Agronomy*, Vol. *2022*, Article ID 7877239, 6 pages, 2022. https://doi.org/10.1155/2022/7877239

Koli, S. P., Murthy, H. K. (2013). Estimation of Phenotypic Divergence in a Collection *of Cucumis melo* From Kerala State, Southern India. *Agricultural Sciences*, *4*(7A).

Koppad, S., Chavan, M. and Hallur, R. (2017). Character Association Studies and Path Coefficient Analysis for Yield and Yield Attributing Traits in Ridge Gourd. *Electronic Journal of Plant Breeding,* 275-281.

Kumar, P. and Singh, M. K. (2020). Correlation and Path Coefficient Analysis Among Different Characters in Germplasm of Ridge Gourd (*Luffa acutangula* L. Roxb.). *European Journal of Molecular and Clinical Medicine*, *7*(7), 2777-2788.

Lleras, C. (2005). Path Analysis. *Encyclopedia of Social Measurement, 3*, 25–30.

Martuscelli, M., Di Mattia, C., Stagnari, F., Speca, S., Pisante, M. and Mastrocola, D. (2016). Influence of Phosphorus Management on Melon (*Cucumis melo* L.) fruit quality. *Journal of the Science of Food and Agriculture*, *96*(8), 2715–2722.

Pasha, S. G., Marker, S. and Sarath Chandra, G. (2019). Genetic Variability, Correlation and Path Analysis Study on Snap Melon (*Cucumis melo* L. var. *Momordica*) farmer's varieties. *International Journal of Bio-resource and Stress Management*.

Prashanth, S. J. (2003). Genetic Variability and Divergence Study in Tomato (*Lycopersicon esculentum* Mill). *M.Sc. (Agri.) Thesis*, *University of Agricultural. Science, Dharwad*, Karnataka.

Ramana, N. V. (2000). Studies on Genetic Divergence in Oriental Pickling Melon. *M.Sc. (Hort.) Thesis*, *Acharya N G Ranga Agricultural University*, Hyderabad.

Rashwan, A. M. A. (2011). Study of Genotypic and Phenotypic Correlation for Some Agro-Economic

Traits in Okra (*Abelmoschus esculents* (L.) *Moench*). *Asian Journal of Crop Science*, *3*(2), 85–91.

Reddy, B. P. K., Begum, H., Sunil, N., & Reddy, M. T. (2013). Variance component analysis of quantitative traits in muskmelon (*Cucumis melo* L.). *Trakia J. Sci.*, *11*(2), 118-124.

Reddy, B. P., Begum, H., Sunil, N. and Reddy, M. T. (2017). Correlation and Path Coefficient Analysis in Muskmelon (*Cucumis melo* L.). *International Journal of Current Microbiology and Applied Science*, *6*(6), 2261-2276.

Renner, S.S., Schaefer, H. and Kocyan, A. (2007). Phylogenetics of Cucumis (*Cucurbitaceae*): Cucumber (*C. sativus*) belongs in an Asian/Australian Clade Far from Melon (*C. melo*). *BMC Evolutionary Biology*, *7*, 58.

Rukam, S., Tomar, G. U., Kulkarni and Kakade, D. K. (2008). Genetic Analysis in Muskmelon. *Journal of Horticulture Science*, *3*(2), 112-118.

Ryan, A. L. and Lipton, W. J. (1979). Handling, Transportation and Storage of Fruits and Vegetables. vol. 1. Vegetables and melons. 2nd ed. AVI, Westport, Corm. practice. *Crop Science*, *48*(2), 391-407.

Schaefer, H., Heibl, C. and. Renner, S. S. (2009). Gourds Afloat: A Dated Phylogeny Reveals an Asian Origin of the Gourd Family (*Cucurbitaceae*) and Numerous Oversea Dispersal Events. *Proceedings of Royal Society of Botany*, *276*, 843-851.

Schober, P., Boer, C. and Schwarte, L. A. (2018). Correlation coefficients. *Anesthesia & Analgesia*, *126*(5), 1763–1768.

Shet, R. M., Shantappa, T., Ashok, Hongal, S., Gunnaiah, R. and Jagadeesha, R. C. (2022). Evaluation of Postharvest Shelf-life of South Indian Culinary Melon (*Cucumis melo* var. *acidulus*) accessions. *Journal of Applied. Horticulture*, *24*(1).

Shivaprasad, M. K., Ganiger, G. M., Halesh, G. K., Buvaneshwari, G., and Vinay, G. M. (2017). Correlation Studies in Muskmelon for Growth, Yield and Quality Attributes. *International. Journal of Pure and Applied Bioscience*, *5*(4), 1913-1916.

Singh, G. and Lal, T. (2005). Genetic Variability, Heritability and Genetic Advance for Yield and Its Contributing Traits in Muskmelon (*Cucumis melo* L.). *Journal Research Punjab Agricultural University*, *42*(2), 168-174.

Subha, M. M., Gopalakrishnan, P. K. and Peter, K. V. (1986). Compatibility among *Cucumis melo* varieties *indorus, conomon, flexuosus, momordica, and utilissimus*. *Cucurbit Genetics Cooperative Report*, *9*, 78-80.

Whitaker, T. W. and Davis, G. N. (2008). Cucurbits: Botany, Cultivation and Utilization, Ajay Book Service, New Delhi, 249.

Wright, S. (1921). Correlation and Causation. *Journal of Agricultural Research*, *20*, 557-585.

Yadagir, J., Gupta, M. K., Tembhre, D. and Verma, S. (2017). Genetic Variability, Correlation Studies and Path Coefficient Analysis in Bitter Gourd (*Momordica charantia* L.). *Journal of Pharmacy Phytocology*, *6*(2), 63-66.

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