

Research Article

**GENETIC VARIABILITY AND CORRELATION ANALYSIS
IN F₇ GENERATION OF PUMPKIN (*Cucurbita moschata* Duch
Ex. Poir)**

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ABSTRACT

The study on genetic variability in F₇ generation of pumpkin (*Cucurbita moschata* Duch Ex. Poir) for yield and quality was conducted at AICRP on Vegetable Crops, Department of Horticulture, MPKV, Rahuri during the year 2020-2021. The aim of the present study is to develop high yielding and good quality fruits of pumpkin. The five selected pumpkin progenies derived from cross-1 (RHR PK-18-3-1-2-12 × RHR PK-09-4-6 3-3) along with parents used for this study. The present study was laid out in Randomized Block design (RBD) with three replications. The results revealed that moderate GCV, PCV and high heritability along with high genetic advance as percentage of mean recorded for the characters *viz.* final vine length, number of primary branches per vine, length of fruit, diameter of fruit, yield per vine, yield per hectare, fruit flesh thickness, number of ridges per fruit, seed cavity length, seed cavity width, number of seeds per fruit, 100 seed weight and TSS. Regarding correlation studies, fruit yield per vine was significantly and positively correlated with vine length, number of primary branches per vine, number of fruits per vine, weight of fruit, length of fruit, diameter of fruit and flesh thickness. Significant and negative correlation observed between fruit yield per vine and days to first male flower appearance, days to first female flower appearance, node at which first female flower appeared and days to first harvest at both phenotypic and genotypic levels.

KEYWORDS: Pumpkin, GCV, PCV, Heritability, Genetic Advance and Correlation

CONCLUSION

Moderate GCV, PCV, high heritability with high genetic advance as per cent of mean were observed for characters *viz.* final vine length, number of primary branches per vine, length of fruit, diameter of fruit, yield per vine, yield per hectare, fruit flesh thickness, number of ridges per fruit, seed cavity length, seed cavity width, number of seeds per fruit, 100 seed weight and TSS. These findings indicate presence of additive gene action and these traits were less influenced by environment and selecting the genotypes based on such characters could be effective. Fruit yield per vine recorded positive and significant correlation with vine length, number of primary branches per vine, number of fruits per vine, weight of fruit, length of fruit, diameter of fruit and flesh thickness. Negative and significant correlation was observed for most of the flowering characters. Thus, association of these traits should be considered for improvement.

REFERENCES

- [1] Alekar, A. N., Shinde, K. G. and Khamkar, M. B. 2019. Studies on genetic variability, heritability, genetic advance and correlation in bitter melon (*Momordica charantia* L.) *International J. Chem. Studies* 7(3): 1155-1159.
- [2] Anonymous, 2022. National Horticulture Database. National Horticulture Board, Ministry of Agriculture, Govt. of India. National Database.
- [3] Burton, G. W. and De Vane, E. H. 1953. Estimating heritability in tall fescue (*Festuca arundinaceae* L.) from replicated clonal material. *Agron. J.* 45: 478-481.
- [4] Chaudhari, S. P. 2019. Genetic studies of F₃ and F₄ generation in bitter melon (*Momordica charantia* L.). M.Sc. (Hort.) Thesis, submitted to Vasant Rao Naik Marathwada Krishi Vidyapeeth, Parbhani, M.S., India.
- [5] Gaikwad, S. D. 2016. Genetic studies in F₅ and F₆ generation of musk melon (*Cucumis melo* L.). Ph.D. Thesis, submitted to Mahatma Phule Krishi Vidyapeeth, Rahuri, M.S., India.

- [6] Ingole, V. S., Bhalekar, M. N. and Kagane, B. V. 2021. Assessment of genetic variability in F₄ generation of pumpkin (*Cucurbita moschata* Duch ex. Poir) *The Pharma Innovation Journal* **10**(12): 1858-1861.
- [7] Kanal, T., Krishnamoorthy, V., Beulah, A. and Anand. G. 2019. Genetic variability studies in F₄ generation of pumpkin (*Cucurbita moschata* Duch ex. Poir). *Int. J. of Chemical Studies* **7**(3): 1962-1965.
- [8] Kumar, V., Mishra, D. P., Yadav, G. C and Dwivedi, D. K. 2017. Genetic diversity assessment for morphological, yield and biochemical traits in genotypes of pumpkin. *JPP*, **6**(3): 14-18.
- [9] Lush, R. L. 1949. Heritability of quantitative characters in farm animals. *Hereditas (Suppli.)*. **35**: 365-387.
- [10] Mali, M. D., Musmade, A. M. and Bhalekar, M. N. 2015. Genetic studies in F₃ progenies of muskmelon (*Cucumis melo* L.). *BIOINFOLET - A Quarterly J. Life Sci.* **12**(3b): 739-744.
- [11] Muttur, M. S., Mulge, R., Gasti, V. D., Mastiholi, A. B., Koulagi S. and Nagesh G. C. 2017. Genetic variability studies in F₄ generation of pumpkin (*Cucurbita* spp.). *Intl. J. of Agric. Sci.*, **9**(1):3603-3605.
- [12] Naik, M. L. and Prasad, V. M. 2016. Genetic variability, heritability and genetic advance in pumpkin (*Cucurbita moschata* Duch. Ex Poir.) *Environment & Ecology* **34**(2): 569—572.
- [13] Pradhan, P., Tripathy, P., Sahu, G. S., Tripathy, B. And Sourabh, S. 2021. Assessment of genetic variability in F₄ segregating population of bitter gourd (*Momordica charantia* L.). *J. Pharma. Phytochem.* 2021; **10**(2): 1452-1455.
- [14] Sampath. S. and Krishnamoorthy. V. 2017. Genetic variability, correlation and path analysis in pumpkin (*Cucurbita moschata* Duch. Ex. Poir). *Int. J. Curr. Microbiol. App. sci.* **6**(6): 3027-3035.
- [15] Shrikanth, M., Bharad, S. G., Tulasiram, L. B. and Potdukhe, N. R. 2017. Studies on genetic variability, heritability and genetic advance in pumpkin (*Cucurbita moschata* Duch ex Poir.) *Int. J. Curr. Microbiol. App. Sci* **6**(6): 1416-1422.
- [16] Snedecor, G. W. and Cochran, W. G. 1967. *Statistical Methods*, 6th Edn., Oxford and IBH, Publ. Co. Bombay.
- [17] Sultana, S., Kawochar, M. A., Naznin, S., Siddika, S. and Mahmud, F. 2015. Variability, correlation and path analysis in pumpkin (*Cucurbita moschata* L.) *Bangladesh J. Agril. Res.* **40**(3): 479-489.
- [18] Vijayakumar, R., Rajamanickam, C., Beulah, A. and Arunachalam, P. 2020. Genetic Variability, correlation and path analysis in F₆ generation of ridge gourd (*Luffa acutangula* (Roxb) L.) for yield and quality. *Int. J. Curr. Microbiol. App. Sci.* **9**(7): 1012-1019.