

Genetic divergence studies in pumpkin (*Cucurbita* spp.)

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SUMMARY

A study on genetic divergence was carried out on nineteen growth, earliness, yield and quality traits in fifty seven genotypes of pumpkin (*Cucurbita* spp.). These fifty seven genotypes were grouped into fifteen clusters. Yield per vine contributed maximum to total genetic diversity followed by leaf size, cavity size, carotene content, number of seeds per fruit and hundred seed weight. Intra-cluster distance was maximum among cluster XIV, I, XIII and XII. Maximum Inter-cluster divergence was observed between clusters X and XIV followed by cluster XI and XIV, cluster XIV and XV and cluster IV and XIV. Cluster XV recorded highest mean values for yield per vine, number of seeds per fruit, fruit length, average fruit weight and least mean value for days to first female flower, cluster XIV recorded highest mean value for leaf size, cluster XIII recorded highest mean values for fruit number, carotene content, TSS and least mean value for cavity size, cluster VIII recorded maximum mean values for hundred seed weight, flesh thickness and fruit circumference, cluster IV noticed least mean values for days to first harvest and nodes upto first female flower.

Key Words : Earliness, Genotypes, Genetic divergence, Carotene content, TSS, Flesh thickness

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Pumpkin (*Cucurbita* spp.) is an important cucurbitaceous vegetable, grown under wide range of agro-climatic conditions all over the world. High productivity, low cost of production, good storability, long period of availability, better transport qualities, excellent response to forcing and comparatively high content of carotene (a precursor of vitamin A) in fruits, have enhanced the importance of this crop. Genetic diversity has been considered as a pre-requisite for obtaining high yielding progenies through hybridisation. For getting high heterosis or for recovering transgressive segregants, parents chosen for hybridisation need to be genetically diverse or distant. The cultivars from widely separated localities have

been usually included in the hybridisation programme, presuming the presence of genetic divergence and maximum likelihood of recovering promising segregants. As per expectations, in practice, this has not yielded very satisfactory and consistent results. Eco-geographical diversity has been regarded as a reasonable index of genetic diversity (Vavilov, 1926). However, it was reported later that, there does not exist any parallelism between geographic distribution and genetic diversity (Peter, 1975 in tomato). To arrange the diversity in the germplasm the D^2 statistics is the useful tool which measures the degree of diversification of genotypes and also determines the relative contribution of each component character to the total divergence. Hence, the available 57 pumpkin genotypes were subjected to D^2 to know the diversity in the germplasm for further use in breeding programme.

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MATERIALS AND METHODS

The present investigation comprised of fifty seven genotypes of pumpkin laid out in a randomised block design with two replications during the year 2009-10 with row to row distance of 2 m and plant to plant distance of 0.9 m. The