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RESEARCH ARTICLE

RAPD assisted diversity analysis of scented geranium lines (DNA finger printing)

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SUMMARY

Scented geranium (*Pelargonium* spp.: Geraniaceae) is an important, high value aromatic crop of South African origin. Due to high demand and price for the oil, an excellent potential exists for increasing cultivated area in India. An attempt was made here to evaluate and characterize the available accessions of scented geranium based on their molecular (genetic) diversity. The present study was done using 14 accessions of scented geranium for RAPD analysis. Twenty arbitrary 10-mer oligonucleotide primers amplified 220 markerks, out of which 119 were polymorphic. Each primer amplified on an average five polymorphic bands. The total number of bands produced by each primer ranged from 7 to 16 with an average of 11 bands per primeramong which, The primers OPF-2, OPF-4, OPG-11, OPG-18, OPX-9, OPX-11, OPX-13, OPX-14 and OPX-15 proved much more useful in differentiating the accessions. The different accessions used in the investigation were grounded into two major clusters. Group I comprises of 13 accessions where it has been further subdivided into two subgroups. Subgroup I comprises of PG-1, PG-7, Kolar-C, CIMAP, Hemanti, Kunti, Kodaikanal Bourbon, PG-12, Bipuli and Kolar-N. Among these, PG-12 and Bipuli are closely related at a linkage distance of approximately 15, Kolar-N is related to these two, whereas PG-1 and PG-7 are related by a linkage distance of approximately 24, which are linked to Kolar-C and CIMAP. Kunti and Kodiakanal Bourbon formed a cluster and are linked by a distance of approximately 43. Subgroup II of Group I consists of PG-8, PG-10 and PG-11. Among these, PG-8 and PG-10 originated from a single node with a linkage distance of approximately 37, whereas, PG-11 is related to these two. Kelkar, which stood apart in a separate node in comparison with the remaining 13 acccessions. The linkage distance among the accessions as revealed by distance matrix ranged from 15 to 164. The cluster analysis (Dendrogram) using ward's method also revealed that, PG-12 and Bipuli are more related to each other and KN appears to be related to these two. PG-1 and PG-7, which were closely related, showed similarly in leaf morphology and growth pattern. Kolar-C and CIMAP are linked to these two. Hemanti' was linked with PG-1 PG-7, KC and CIMAP. The principal component analysis (PCA) also clearly shows the distinctiveness of the accession Egyptian (Kelkar) from the rest, while the grouping of different accessions is similar to the one, which is obtained in dendrogram.

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