

Studies on variability, correlation and path coefficient in safed musli

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SUMMARY

Significant variations were recorded among the accessions for various morphological and yield traits studied. High values for phenotypic coefficient of variation (PCV) and genotypic coefficient of variation (GCV), heritability (%) in broad sense and genetic advance as per cent of mean (GA) were recorded for fresh fasciculated root yield per plant, number of fresh roots per plant, number of leaves per plant, leaf width and leaf length, suggesting the possibility of improving fresh fasciculated root yield per plant through direct selection. Fresh fasciculated root yield per plant through direct selection. Fresh fasciculated root yield per plant showed positive significant correlation with number of fasciculated roots per plant and number of leaves per plant. The number of leaves per plant also having positive and significant association with number of fresh roots per plant, revealing that the plant having more number of leaves per plant have more fasciculated root per plant. The result of path coefficient analysis showed that the number of fresh roots per plant had highest positive direct effect on fresh root yield per plant, followed by leaf width and root diameter.

Key words : Association, *Chlorophytum borivilianum*, Correlation, Path coefficient, Variability.

Chlorophytum borivilianum Santh. Et. Fernased, commonly known as Safed Musli, is one of the important medicinal plants of Liliaceae family, valued for dried fasciculated storage roots. About 250 species of *Chlorophytum* are found under tropical regions of the world. Among these seven species of medicinal importance are found in India and *C. borivilianum* is highly demanded due to its greater medicinal values. The demand of Safed Musli in the world has increased health consciousness but the supply from the natural resources of wild habitat and forest is reducing day by day. The total production is about 5000 t/year, but the demand is 35000 t/year. The increase in demand is at the rate of 10% per year. Being huge demand of Safed Musli in the market, the breeding work for improvement in this species is of great importance as less efforts have been made in this direction. Hence the present investigation aimed at assessing the extent of genetic variability, inter-character association and their effects on or fresh fasciculated root yield in Safed Musli.

MATERIALS AND METHODS

Eleven accessions namely MCB-405, MCB-412, MCB-414 (Mandsor), RC-7, RC-67(Udaipur), CBI-7, CBI -39 (Indore), HCB-1, HCB-2, HCB-3 (Akot) and HCB-4 (Jabalpur) were evaluated in randomized complete block design with three replications during 2003-2004 at research farm of Chaudhary Charan Singh Haryana

Agricultural University, Hisar. Each plot consisted of 2 rows of 2 meters length spaced 30 cm. Apart. A spacing of 15 cm. Between plants was maintained. Five randomly selected plants were taken from each entry and replication; and observation were recorded on number of leaves per plant, leaf length (cm), leaf width (cm), number of fasciculated roots per plant, fasciculated root length, fasciculated root diameter (cm), fresh fasciculated root yield per plant (g). Data obtained were subjected to analysis of variance and covariance followed by estimation of variation components as well as phenotypic and genotypic correlations as suggested by Singh and Chaudhary (1996) and path coefficient as described by Dewey and Lu (1959),

RESULTS AND DISCUSSION

Variability parameters :

The analysis of variance revealed that genotypes were significantly different for all the traits studied, which indicated the scope for further genetic studies.

The mean, range, phenotypic coefficient of variation (PCV) and genotypic coefficient of variation (GCV), estimates of heritability in broad sense and genetic advance as per cent of means (GA) are presented in Table 1. All characters studied showed wide range for all the characters, except fasciculated root diameter. As expected the traits with wide range also had high estimates of phenotypic and genotypic coefficient of variation.

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