

GENETIC VARIABILITY AND SELECTION PARAMETERS FOR YIELD ATTRIBUTES IN RADISH (*Raphanus sativus* L.)

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Accepted : November, 2007

ABSTRACT

Twenty three genotypes of radish (*Raphanus Sativus* L) were evaluated at Experimental farm of Division of Olericulture, SEKUAST-K, Shalimar, Srinagar and the date of sowing was 22.03.2002. The analysis of variance revealed highly significant differences among genotypes for all the traits. Both phenotypic as well as genotypic coefficients of variation were high for all the characters except for days to maturity, total dry matter content and vitamin-C content of roots. Heritability in broad sense was high for all the characters. Genetic gain was maximum for root length followed by shoot to root ratio.

Key words: Genetic variability, PCV, GCV, Heritability, Genetic gain.

Radish is an important root vegetable, widely grown in both tropical and temperate regions. Root and leaves are rich in Vitamin A, Vitamin C, Mineral and carbohydrates. The role of genetic variability in a crop is of paramount importance in selecting the best genotypes for making rapid improvement in yield and related characters as well as to select most potential parents for making the hybridization programme successful. The success of breeding programme depends on the availability of genetic variability present in the available germplasm. The study of biological parameters is often considered to be a useful step in the study of genotypic variability. Since most of the plant characters of economic importance are polygenic in nature and are highly influenced by environment, it is necessary to work out whether the observed variability is heritable or due to environment. This suggests the imperative need to work out the phenotypic variation into heritable and non-heritable components. Genotypic and phenotypic coefficients of variability help to access the divergence of the characters. Selection would be more meaningful for characters which exhibit high variability and heritability along with moderate to high genetic gain. Realizing the importance of the crop, there is urgent need to isolate such breeding lines having desirable horticultural traits, better quality coupled with high yield potential. Under such situation, an attempt was made in the present investigation to analyze variability to its components with hope that the

result might be of practical use to the plant breeder to achieve desirable level of improvement in this crop.

MATERIALS AND METHODS

The experiment consisted of twenty three genotypes of radish, was carried out at Vegetable Experimental Farm of Division of Olericulture, SEKUAST-K, Shalimar in RBD design with three replications. Each treatment consisted of a single row of 2m length with a spacing of 30x15 cm. Ten plants in each genotype were selected in each replication for recording data on days to maturity, leaf number, leaf weight (g), root length (cm) root diameter (cm), root weight (g), shoot to root ratio, total dry matter (%), vitamin C (mg/100g) and total soluble solids (⁰Brix). TSS was determined by using ERMA hand refractometer while vitamin-C was estimated by 2,6-Dichlorophenol indophenol visual titration method of A.O.A.C (1975).

The mean data for the design (RBD) was statistically analyzed. The genotypic and phenotypic coefficients of variability were worked out as per the method suggested by Burtan and Devane (1953). Heritability in broad sense and genetic gain were estimated as per formula given by Burtan and Devane 1953 and Johnson *et al.*, 1955.

RESULTS AND DISCUSSION

The analysis of variance exhibited the presence of significant differences among twenty three genotypes under study in respect of all traits (Table-1). The estimates of genotypic and phenotypic coefficients of variability are of greater use in determining the extent of variability