

Correlation and path analysis studies in radish

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ABSTRACT

Correlation and path analysis in 24 genotypes of radish indicated that root yield per plant was closely associated with number of leaves per plant at harvest, fresh weight of leaves, root length, total plant weight, chlorophyll content of leaves and days required to harvest. Path analysis revealed positive direct effect on root yield through total plant weight, root length, days required to harvest, number of leaves per plant at harvest and chlorophyll content of leaves. Hence, these characters may be given consideration while making selection for the improvement of radish.

Key words : Radish, Correlation, Path analysis

Radish (*Raphanus sativus* L.) is one of the major root vegetable crop in the country. Root yield is complex character and is jointly or individually contributed by many other traits. Selection for root yield is more effective when it is based on component characters which are highly heritable and positively correlated. When more number of variables are considered in correlation, the association becomes more complex and less obvious. The path analysis is useful under such circumstances. This gives clear picture of the direct and indirect and indirect effects of the various traits on root yield. Relationship with yield of seventeen characters in radish was studied and is reported in this text.

MATERIALS AND METHODS

The experiment was laid out at field of College of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola with 24 genotypes of radish. The sowing was done on the 4th November 2007 in Randomized Block Design (RBD) with three replications. The row to row distance was 45 cm and plant to plant distance was 10 cm. Observations were recorded for fifteen traits on five randomly selected plants per replication for each genotype. Correlation coefficient was computed by using the formula of Johnson *et al.* (1955) and path coefficient by Deway and Lu (1959).

RESULTS AND DISCUSSION

The phenotypic and genotypic correlation coefficient between different pairs of characters presented in Table 1 revealed higher estimates of genotypic correlation coefficients than the phenotypic thereby, suggesting an

inherent association between various characters. The character root yield per plant showed positive and significant association with root length, similar results were reported by Muthukrishnan and Arumugam (1977) and Khan *et al.* (1983).

Root yield per plant had also positive and significant correlation with days required to harvest and total plant weight at both genotypic and phenotypic levels. Similar findings were reported by Khan *et al.* (1983). Root yield per plant also showed positive and significant correlation with number of leaves per plant at harvest and fresh weight of leaves. Similar results were reported by Khan *et al.* (1983) and Murali *et al.* (1998). The character number of leaves per plant at harvest showed positive and significant correlation with chlorophyll content of leaves, root length, days required to harvest, root yield per plant, total plant weight and fresh weight of leaves at both genotypic and phenotypic levels. While root length showed positive and significant correlation with root yield per plant, days required to harvest, chlorophyll content of leaves and fresh weight of leaves at both levels. The root diameter showed positive and significant genotypic correlation with chlorophyll content of leaves and leaves root ratio. Total plant weight showed positive and significant correlation with fresh weight of leaves, days required to harvest, root yield per plant and chlorophyll content of leaves. The days required to harvest showed positive and significant correlation with chlorophyll content of leaves and root yield per plant.

Path analysis have indicated the importance of root yield contributing characters like total plant weight followed by root length, days required to harvest, number