

## Genetic variability studies in pea (*Pisium sativum* L.)

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Pea is important vegetable crop grown in India as a winter vegetable in the plains of North and as a summer vegetable in the hills of India. The pre-requisites for launching a breeding programme in any crop is the presence of genetic variability and genetic divergence in the breeding material. Effectiveness of selecting better genotypes is dependant upon the degree of variation in the population. The better genotype gives better yield along with quality grains. For this purpose, it was necessary to generate information regarding genetic variability, genetic diversity, association of yield contributing characters, extent of variability and genetic advance for different genetic parameters and association of different characters was reviewed here under suitable headings.

Peas is one of the most important and popular vegetables grown in India and abroad. It has been looked upon by many early workers including Mendel as an interesting genetic material. Pea is highly nutritive vegetable containing high percentage of digestible proteins along with carbohydrates and vitamins. Large proportion of peas is processed (Canned, frozen or dehydrated) for consumption in off-season. Being a proteinous vegetable it forms a valuable dish in the vegetarian diet. In India, it is grown as a winter vegetable in the plains of north and as a summer vegetable in the hills. It is an excellent food for human consumption taken either as a vegetable or in soup.

Essential pre requisites for launching a breeding programme in any crop is the presence of genetic variability and genetic divergence in the breeding material. Effectiveness of selecting better genotypes in a segregating population is

mainly dependent upon the degree of genetic variability between the parents selected and the magnitude of genetic distance in the selected genotypes. Identification of genotypes with high variability and heritability for desirable characters is a pre requisite in the development of new varieties with increased yield potential. A knowledge of inter relationship between yield and its components is useful in identifying the characters which are highly correlated with plant yield and it enables the breeders to plan the breeding programme accordingly. Although a lot of work on this aspect has been carried out in India, it is limited to the material that enjoys long and favorable growing season in plains of north and northern hills of the country. Systematic studies on genetic divergence and variability are still lacking in respect of the material which can respond to short growing season. Therefore, it is necessary to generate information regarding genetic variability, genetic diversity, association of characters, extent of heritability and advance for further improvement of pea. The published literature on evaluation of varieties for different characters, genetic diversity, genetic variability and association of characters in reviewed here under suitable headings.

### **Concept of divergence:**

The concept of  $D^2$  statistics for measuring the divergence between population was introduced by Mahalobnis (1936). It gives results based on the magnitude of divergence and is independent of the size of samples. The utility of  $D^2$  analysis in discriminating populations belonging to diverse genetic and geographic origins has been discussed by several workers