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RESEARCH ARTICLE

Assessment of genetic variability and inter- relationship among minicore collection of groundnut (*Arachis hypogaea*)

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SUMMARY

An field experiment was conducted by using groundnut minicore set, comprised of 182 accessions representing *hypogaea* bunch (42), *hypogaea* runner (39), Spanish bunch (63) and *fastigiata* (38) obtained from NRCG, Junagad with nine cultivars (GPBD-4, JL-24, Mutant-III, TGLPS-3, DSG-1, Gangapuri, ICGS-44, GAUG-10 and Kadiri-3) during *Kharif* 2005. Data on days to 50 per cent flowering, pod yield per plant, days to maturity, shelling per cent, sound mature kernels, test weight, Oil content (%), days to maturity, late leaf spot, rust and per cent *Sclerotium* was taken. Heritability estimates were high for oil content, test weight and pod yield per plant in all four botanical types, but test weight was moderate in case of Virginia bunch. Moderate heritability was noticed for shelling per cent, sound mature kernels, late leaf spot, rust and *Sclerotium* and low for days to 50 per cent flowering and days to maturity. High genetic advance was observed for test weight pod yield per plant, late leaf spot, rust and per cent of *Sclerotium*, moderate for shelling per cent, sound mature kernel and oil content and for days 50 per cent flowering and days to maturity it was low. Studies on association of different traits revealed that between most of the traits significant correlation was observed. Pod yield per plant had high positive correlation with test weight, oil content, shelling per cent and sound mature kernels, so by improving these characters we can improve the yield. Late leaf spot, rust and per cent of *Sclerotium* are highly associated with each other which is to be considered when breeding for disease resistance.

Key Words : Monicore, Heritability, Genetic advance, Correlation

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Germplasm resource is a very wide term that covers all the allelic resources spread in types ranging from most primitive wild progenitors to the highly bred cultivated varieties and strains. The main aim of genetic resource maintenance and conservation for their utilization in crop improvement is very important and essential. But the successful utilization of such resources required for the thorough understanding of the genetic diversity, extent of variation and genetic architecture of the plant among these genotypes would help in developing groundnut plant improvement programme. It is a pre-requisite to maintain the genetic variability that allows identification of promising genes in the germplasm collection that can be incorporated in the breeding programmes, to develop promising cultivars.

Germpalsm collection contains a vast reservoir of genetic variability, which would help to broaden the genetic base of the cultivars. The wild *Arachis* species which are not only excellent source of resistance to biotic and abiotic stresses but also provide new gene for yield and yield related attributes (Halward *et al*., 1991). The utilization of exotic germplasm resources in the breeding programmes also enhances the diversity of cultivars. Upadhyaya *et al.* (2003) suggested a strategy for sampling entire and core collections for developing a mini core subset, which contains about one per cent of total

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