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Study on genetic variability, heritability, genetic advance and cluster analysis in French bean (*Phaseolus vulgaris* L.)

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ABSTRACT : The present investigation was carried out to study the genetic variability, heritability and genetic advance for 18 traits in French bean . The experimental material comprised of fifteen genotypes of French bean (*Phaseolus vulgaris* L.*)*. Wider variability was observed for Pod yield/Plant, Number of Leaves, Pod Flesh Thickness (cm), pods per plant (cm), single pod weight (g), clusters per plant, seeds per pod, pods per cluster, primary branches per plant, pod width (cm), pod length (cm), plant height, days to germination ,plant spread (cm), germination percentage, seed index, days to first pod picking, and days to 50% flowering. All these characters also recorded high heritability and genetic advance. Hence selection will be effective for these traits and genotypes were grouped into four cluster. Maximum number of genotypes (6) was grouped into cluster 1 followed by (4) in cluster 3. The inter cluster distance was higher than intra cluster distance indicating wide genetic diversity among the genotypes. Maximum inter-cluster distance was calculated between cluster II and III (4688.674) followed by cluster II and IV (4137.214), cluster I and IV (3029.85), cluster I and II (2392.382), cluster III and IV(2059.792), cluster I and III (2057.825). The genotypes Kashi Sampanna,Arka Anoop,Arka Komal,Arka Suvidha are superior genotypes based on mean green pod yield per plant and can be used as parent for hybridization programme to develop variety with higher yield potential.

Key Words : Genetic variability, heritability, diversity and cluster.