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Studies on genetic variability for productivity traits in finger millet

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SUMMARY

Attempts were made for studying genetic variability in 178 genotypes of Finger Millet for fifteen quantitative characters. Significant differences among the genotypes were recorded for all the characters. The estimates of genotypic variances showed a considerable range of variation for most of characters. High heritability coupled with high genetic advance as per cent of mean was observed for number of tillers, productive tillers, days to 50 per cent flowering, fingers number per ear, length of ear head, length of finger, florets number per spikelet, spikelet density, ear weight, test weight, straw yield and grain yield indicating the presence of additive genetic effects for the manifestation of these characters. Plant height, days to maturity and flag leaf length exhibited high heritability with moderate genetic advance which indicates the presence of both additive and non additive genetic effects for these characters.

Key words : Finger millet, Genetic Variability, Productivity traits, Genetic advance, Heritability.

Finger millet (*Eleusine coracane* Gaertn*)* is one of the staple foods for million inhabiting the arid and semi arid tropics of the world. Finger millet is a third important food crop of Karnataka occupying an area of 1.02 million hectares with a production of 1.87 million tones accounting to 53.95 per cent area and 44.94 per cent production of crop in India (Anon., 2002) . Due to its greater tolerance, plasticity and adaptability to different ecological condition, quick rejuvenation after moisture stress release, better suitability for different cropping systems and contingent plans, it is cultivated on varied soil and climatic conditions compared to other cereals (Ashoka and Halikatti, 1997). Ragi is indispensable to Indian Agriculture as a source of grain and straw in vast dry land agriculture. It is commonly called as “nutritious millet” as the grains are nutritiously superior to many cereals providing fair amount of proteins, minerals, calcium and vitamins in abundance to the people. Its green forage is readily eaten by all kinds of livestock. In spite of these important attributes, this has been neglected by the plant breeders and no significant break through has been made so far in this crop. Therefore, the farmers are growing their own traditional low productive land varieties. So there is a need for identify the promising genotypes for grain yield and other yield attributes. In the recent years, new diverse finger millet germplasm has been collected and conserved at various national and international institutes. The important pre requisite for the utilization of the new germplasm is the assessment of there true genetic potential. So that this crop could be further improved and made economically more viable and competitive in the present dry land situation. Therefore, an attempt was made in the present investigation to gather information on the extent of genetic variability present in 178 genotypes of this crop for fifteen quantitative characters for their further utilization in the crop improvement programme.

MATERIALS AND METHODS

The material used in present study consists of 178 diverse finger millet genotypes collected from different parts of world obtained from ICRISAT, Hyderabad. These genotypes were evaluated at Agricultural Research Station, Hanumanamatti, University of Agricultural Sciences, Dharwad, during *kharif* 2002, under irrigated condition. The randomized block design was followed with two replications. Each entry was transplanted in two rows of three meters length with inter row spacing of 22.5 cm and intra row spacing of 10 cm. All recommended package of practices were followed to raise good crop. Five plants in each entry were tagged randomly in each entry to record the observation on fifteen quantitative characters namely plant height, number of tillers per plant, productive tillers per plant, days to 50% flowering, days to maturity, number of fingers per ear, length of ear head, length of finger, flag leaf length, florets number per spikelet, spikelet density, ear weight per plant, test weight, straw yield per plant and grain yield per plant. The observed variability on different characters was partitioned into its components following the standard statistical methods as suggested by Panse and Sukhatme (1967). Phenotypic, genotypic and environmental variances were estimated following Comstock and Robinson (1952) and

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