

B-119

Stage specific seed nutritional quality attributes and DNA-SCoT profiling of Indian vegetable and grain type soybean genotypes

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Diversity of food-grade soybeans is critical for utilization of genetic resources in cultivar development, germplasm enhancement, and end product commercialization. The objective of this study was to assess seed quality attributes, phenotypic variability and molecular diversity among 30 vegetable and grain type cultivars. The results showed greater genetic diversity of green pod yield per plant, 100 beans weight, 100 seed weight, number of green pod per plant, plant height, days to maturity, sugar content, chlorophyll content, protein content, oil content, seed hardness, taste, texture, aroma and other mineral quality traits in soybean genotypes evaluated under this study.

Micronutrient analysis revealed that R6 stage found to be best suited for the micronutrient contents than the R8. The molecular profiling were assessed using twenty ScoT primers with 58.9% polymorphism. The Polymorphism Information Content (PIC) of 20 ScoT loci ranged from 0.27 to 0.70 with an average value of 0.41. The dendrogram was constructed based on DNA ScoT profiling and soybean genotypes were grouped into three clusters based on similarity matrix and arithmetic average (UPGMA) cluster. The ScoT markers were found to be helpful in determining the genetic diversity among the genotypes studied. The characterization of diverse soybeans will expedite parent selection in specialty soybean breeding.