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Seed protein profiles for genetic diversity assessment in fenugreek (*Trigonella* spp.) genotypes

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ABSTRACT : Presence of genetic diversity and relationships within genotypes is a prerequisite and important step in the development of new cultivars. The electrophoresis of proteins is a tool to study the genetic variation and to classify plant varieties .A quantitative categorization of seed proteins profiles of 18 genotypes of *Trigonella* spp. was performed by Sodium Dodecyl Sulphate Polyacrylamide Gel Electrophoresis (SDS-PAGE). This technique was utilised to explore the level of genetic discrepancy in *Trigonella* spp. Total soluble proteins were resolved on 12.5% resolving gel. The seed protein profile of 18 germplasm lines of fenugreek could be resolved into total 12 protein bands distributed into 3 distinct zones i.e. A, B and C. Zone 'A' has 2 bands, Zone 'B' has 6 bands and Zone 'C' has 4 bands. The eighteen genotypes were classified into 8 different groups based on their protein profiling. The dendrogram showed that the genotype PFG-34 was most dissimilar from other genotypes. Thus, the electrophoretic bands of seed storage proteins can provide an important tool to determine genetic variation and relation among genotypes. The specific bands of seed storage protein profiles may be used as markers for identification of the genotypes.

Key Words : Genotype, SDS-PAGE, Seed Protein, *Trigonella* spp.