

Determination of genetic diversity in lentil germplasm based on quantitative traits

ABSTRACT

Genetic diversity present in a gene pool is an important determination for breeding programs and characterization is useful of building crop plant collections primarily based on the knowledge of the presence of valuable genes and traits. In Bangladesh, one of the most common problems in lentil is the narrow genetic base, which must be broadened to enhance production. So, a detailed morphological study based on quantitative traits was under taken to assess the genetic diversity in 110 lentil germplasm, including landraces, popular varieties, phenologically adapted exotic lines and selected advanced lines of lentil of diverse origin. The main aim was to identify superior genotypes to be used for future breeding program in Bangladesh. The experiments were carried out during 2006-07 and 2007-08 and eight quantitative characters were studied under international standard of characterization. The UPGMA dendrogram segregated lentil accessions into six clusters. Genotypes fell in different clusters irrespective of their origin and accessions. The accession from ICARDA gene bank showed high diversity. Group B3, B4 and F were important as they comprised accessions with higher yield per plant, higher number of pods per plant and higher number of seeds per pod separated by higher inter cluster distance, which warrant their use in the breeding program.

Keyword: Genetic diversity; Lentil accessions; Quantitative characters; UPGMA dendrogram; Varietal improvement