



Genetic diversity of chickpea (*Cicer arietinum* L.) germplasm in Pakistan as revealed by RAPD analysis

F. Ahmad¹, A.I. Khan¹, F.S. Awan¹, B. Sadia¹, H.A. Sadaqat² and S. Bahadur³

¹Centre of Agricultural Biochemistry and Biotechnology,
University of Agriculture, Faisalabad, Pakistan

²Department of Plant Breeding and Genetics,
University of Agriculture, Faisalabad, Pakistan

³Nursery Division, Desert Group, Dubai, UAE

Corresponding author: F. Ahmad
E-mail: fiazbiotechnologist@gmail.com

Genet. Mol. Res. 9 (3): 1414-1420 (2010)

Received March 29, 2010

Accepted May 20, 2010

Published July 20, 2010

DOI 10.4238/vol9-3gmr862

ABSTRACT. Genetic diversity analysis of chickpea germplasm can provide practical information for the selection of parental material and thus assist in planning breeding strategies. Chickpea seed is a good source of carbohydrates and proteins, constituting 80% of the total dry seed weight. Released cultivars and advanced lines of 30 chickpea genotypes were subjected to RAPD analysis for assessment of genetic diversity. We used 16 RAPD primers. Amplification of genomic DNA of the 30 genotypes yielded 62 fragments that could be scored. The number of amplification products produced per primer varied from two to four, with a mean of three bands. The total number of bands amplified by 16 anchored primers varied from 16 to 34. The primer GLK-15 produced the largest number (N = 4) of fragments, whereas primers GLK-19 and GLD-19 produced the smallest number (N = 1) of fragments. The single

band produced by the GTGTGCCCA primer in the PB-2000 and 07005 genotypes may be attributed to temperature tolerance phenotypes.

Key words: Chickpea; Polymerase chain reaction; Random amplified polymorphic DNA; Genetic diversity