



Genetic diversity of Palestine landraces of faba bean (*Vicia faba*) based on RAPD markers

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Genet. Mol. Res. 12 (3): 3314-3323 (2013)

Received January 28, 2013

Accepted March 30, 2013

Published September 3, 2013

DOI <http://dx.doi.org/10.4238/2013.September.3.8>

ABSTRACT. Until now, neither phenotypic nor molecular approaches have been used to characterize the landraces of Palestine faba beans (*Vicia faba*). We used PCR-based RAPD markers to determine the genetic diversity and relatedness among 26 Palestinian faba bean landraces (traditional farmers' varieties) from 8 localities in the West Bank, Palestine. In tests with 37 primers, 14 generated no polymorphic bands, 12 exhibited weak and unclear products, and 11 primers produced good amplification products with high intensity and pattern stability. Ninety-four DNA fragments (loci) were detected, with an average of 8.54 loci per primer and size ranging from 160 to 1370 bp. A minimum of 4 and a maximum of 14 DNA fragments were obtained using (OPA-05 and OPA-09) and (BC-261) primers, respectively. The maximum percentage of polymorphic markers was 71.4 (BC-298) and the minimum was 50.0 (OPA-05, -09, -16). The 11 primers exhibited

relatively high collective resolving power (Rp) values of 26.316, and varied from 0.154 for the OPA-09 primer to 5.236 for the BC-261, with an overall mean of 2.392. The primers BC-261, -322, and -298 were found to be the most useful RAPD primers to assess the genetic diversity of Palestinian faba beans, as they revealed relatively high Rp rates (5.236, 3.618, and 3.150, respectively). Based on the Jaccard coefficient, the genetic distance ranged from 0.358 to 0.069, with a mean of 0.213. We conclude that the RAPD technique is useful for determining genetic diversity and for developing suitable fingerprints for faba bean landraces grown in Palestine.

Key words: *Vicia faba*; DNA fingerprinting; Genetic diversity; RAPD