Journal of Plant Sciences 5 (4): 402-413, 2010
ISSN 1816-4951

Evaluation of Genetic Diversity in Omani Banana Cultivars (*Musa* cvs.) using AFLP Markers

[1]Nadiya A. Al-Saady, [2]Abbas H. Al-Lawati, [1]Ali M. Al-Subhi and [1]Akhtar J. Khan
[1]Department of Crop Sciences, College of Agricultural and Marine Sciences, Sultan Qaboos University, P.O. Box-34, Al-Khod 123, Sultanate of Oman
[2]Laboratory of Plant Biotechnology, Directorate General of Agricultural and Livestock Research, Ministry of Agriculture, Rumais, Sultanate of Oman

Abstract: The aim of the present study was to investigate the genetic diversity among eighteen banana cultivars collected from Al-Batinah, Al-Dhakhliya and Dhofar regions of the Sultanate of Oman using AFLP markers. Eleven AFLP primer combinations were used to develop banana DNA fingerprints. Unweighted Pair Group Method with Arithmetic mean (UPGMA) cluster analysis yielded three distinct taxa. Banana cultivars, Bahri, Omani, Maisori Fardh, Sokari and Zanzibar from Al-Dhakhliya region grouped in cluster 1, whereas cultivars from Dhofar, Dwarf spotted Cavendish, Somali, Abubaker Philipino, Maisori Fardh, Milk Banana, Plantain Kenya and Sawara Red grouped in cluster 2 and Williams, Somali, Malindi, Red Banana, Maisori Fardh and Nagal cultivars from Al-Batinah region grouped in cluster 3. Multivariate analysis (NTSYS 2.2) of genetic data yielded a total of 1397 alleles, of which 1322 (94.68%) appeared to be polymorphic. The primer combination E-ACT/M-CAC produced 98.15% polymorphic alleles, whereas E-ACA/M-CTG primers showed 160 alleles, the highest number as compared to all other primers used in this study. AFLP based fingerprinting clearly indicated high genetic diversity among banana cultivars grown in different regions of the Sultanate of Oman.

Key words: AFLP, Omani banana, *Musa* sp., genetic diversity, polymorphism