

Molecular Characterization of Egyptian Date Palm Cultivars: *RAPD Fingerprints*

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ABSTRACT

RAPD fingerprints were performed on DNA extracted from the internal leaves of the offshoots of five date palm cultivars (Samanie, Seaweae, Hyeane, Amhat and Zaghloul). Four random primers (OPC2, OPD16, OPJ1 and OPM16) out of 200 random primers were selected on the basis of the number and frequency of polymorphic bands produced. Distinguishable RAPD fingerprints among the different varieties were obtained if suitable primers were used and PCR conditions were optimized. Genetic relationships of the different cultivars and the efficiency of RAPD as a simple molecular technique for cultivar identification were discussed.

Key words: Date palm, PCR, RAPD, cultivars identification

INTRODUCTION

Improvement of date palm is very difficult due to its long life cycle, highly heterozygous nature and impossibility to determine sex at early stages of development (Moursy and Saker, 1996). Most of the published studies on genetic characterization, detection of genetic variations and gene mutations were concentrated on the variations in chromosome numbers, isozyme polymorphism and biochemical diversity. Unfortunately, palm chromosomes are numerous and small, meanwhile mitotic examination of tissue culture derived palm plants are unreliable (Carpenter and Ream, 1976 and Corley *et al.*, (1976).

Employment of isozyme polymorphism as a descriptive marker in date palm programs was reported by many workers, among them,

Al-Jibouri and Adham (1990). They noticed marked intercultivar, but not intracultivar, differences in a number of isozymes, Rf values and intensity of banding. Genetic diversity of date palm using isozymes polymorphism as biochemical markers was also reported by Torres (1989). In this context, Booij *et al.*, (1995) distinguished nine cultivars out of 13 palm cultivars using enzyme polymorphism. Various zygograms were obtained for five of the ten enzymes tested.

On the other hand, biochemical classification of date palm male cultivars has been reported. Quafi *et al.*, (1988) mentioned that flavonoids from acid hydrolysates of palm leaves could be used in taxonomy and classification of palm cultivars. They found that the presence of individual flavonoids and their level allowed the identification of cultivars from each other.

Recently, RAPD fingerprints (Randomly Amplified Polymorphic DNA) developed by