

Phylogenetic tree and genetic relationship of some date palm cultivars using microsatellite

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Abstract

This study done the aim of determining the phylogenetic tree of date palm *Phoenix dactylifera*. L six cultivars, scarce and planted in four different locations of Basra, southern Iraq. During planting season 2019-2020. In this paper, we used a simple sequence repeat (SSR) technique with six primers, to estimate genetic relationships and determine the phylogenetic tree. The results of amplification of DNA samples showed the presence of 86 bands, of which 47 polymorphism, all primers also gave a unique band distinct to cultivar, amounting to 24 bands. The polymorphism percentage was 98.15%. The results of the phylogenetic tree analysis showed relationship of cultivars according to genetic proximity and genetic dimension, two cultivars (Sakri, Abd-alhadi) were associated with each other and recorded a genetic proximity of 0.353. While a genetic dimension of 0.032 was recorded between cultivars (Ashger, Swadani). The results of the Principle Components Analysis gave five components that participated in the total variation, and the highest percentage of the first component was 34.30 of the cumulative total variation. This technique can be adopted to study the genetic relationships between the cultivars resulting from the same origin and to know the genetic differences and the common characteristics between these cultivars.

Keyword: SSR, Date Palm, phylogenetic tree.