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Genetic Relationships between Selected Wild Olive Types and two Cultivars Grown in Moseif Region / Syria using ISSR Technique

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Abstract : This study was carried out in 2015 in the laboratory of biotechnology at the Atomic Energy Commission in Syria in order to study the genetic relationships between four wild olive types selected from Hazour and Shkarah Al Khouri in Mosief region/ Syria and two native olive cultivars Douebli and Safrawi grown in the orchards that are close to the natural forests, these selected wild types have showed a slow growth and a small size when they were evaluated according to the growth characteristics in the collection that is established for evaluating the vigor of some selected wild olives.

The fingerprinting experiment was conducted by using 16 primer of ISSR technique, so the matrix of Percent Disagreement Value (PDVs) and the dendrogram of genetic relationship were created according to Unweighted Pair Group Method with Arithmetic Mean for determining the genetic distance between the studied accessions.

ISSRs technique demonstrated the effectiveness in discrimination the studied wild olive types and cultivars, sixteen ISSR primers produced 438 amplified DNA fragmentsranging in size from 150 -1300 bp. 347 fragments were polymorphic (79.22%) with average of 21.69 polymorphism per primer. All the studied samples could be identified by positive and negative unique bands generated by twelve primers.

The percentage of Percent Disagreement Values PDVs among accessions reached in average 0.36, It was 0.31 between two studied cultivars whereas the lowest value (0.26) among the four selected wild types was between types: D1 and D2 which were selected from the same region, they also displayed a close genetic relationship with the cultivar Doebli PDVs were0.23, 0.26 respectively, the highest value of this percentage (0.47) was between the wild types D3 and D1

The studied accessions were grouped in two main clusters at the value of PVD0.46, the first cluster included two sub clusters the first one contained only the cultivar Al Safrawi and the other contained the cultivar Doebli with the two wild types D1 and D2, while the wild types D3 and D5 were settled in the second main cluster. These results agreed with the data that have been obtained from the evaluation program of growth characteristics which have showed that the two types D3, D5 were distinguished because of having short trunks whereas the other wild type D1 and D2 were faster relatively in growth and moderate in size, therefore this study added a new evidence of the genetic richness in the wild olive *oleaster* in Syria and suggested close relationships between some of them and the native cultivars.

Key words: olive, wild type, cultivar, ISSR, genetic relationship.

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