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SCREENING BY SSR MARKERS REVEALED SYNONYMS AMONG 38 IRANIAN APRICOT SAMPLES PROPAGATED BY NURSERIES

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Based on FAO statistics, Iran, after Turkey, is the second major producer of apricot (*Prunus armeniaca* L.) in the world. The high level of genetic diversity in Iranian apricots is due to sexual reproduction by seeds over the years. Therefore, characterization of germplasm for efficient management and utilization in breeding programs seems inevitable. In Iran, many of apricot local varieties have been relocated between provinces and subsequently, in some case the name of these, have been changed over the years. Hence, to determine the genetically different cultivars and detection of synonyms, screening of apricot germplasm in Iran seems necessary. In this study 38 different samples of apricots (with 5 biological replication), propagated by 14 nurseries in 6 provinces (West Azarbaijan, East Azarbaijan, Semnan, Esfahan, Alborz and Tehran) were collected and studied by 13 SSR primer pairs. Electrophoresis of PCR products was done on 12 percent polyacrylamide gel. To check the genetic identity of saplings with the same name, some cultivars including Jahangiri, Askar abadi, Shamlou, Saltanati, Shahroudi, Shams, Tabarze and Rajabali were collected twice from two different nurseries. Eight SSR markers which showed more diversity were selected and scored. Eight locus produced 124 alleles and the average of allele's number per locus was 15.5. Nei's gene diversity and Shannon's information index were 0.32 and 0.48, respectively which showed high level of diversity in this collection. The most genetic diversity (0.74) was seen between Askar Abadi and Zodras, Mahali Goushti Zodras and Nasiri cultivars. Clustering of samples by Paired group method indicated that some samples including 19 (Shahroudi), 59 (Nakhjavan), 107 (Shahroudi), 127 (Soltani), 137 (Ghavami) and 144 (Tabraze) were off types. For identification of synonyms the data of off type samples were discarded. Cluster analysis by Paired Group algorithm and Euclidean similarity matrix illustrated that some of samples with different names had same genetic backgrounds. Thus, the names of these samples should be unifying in the germplasm. Depicted graph based on Principal Coordinate Analysis demonstrated that the 38 collected groups of apricots are genetically 26 distinct cultivars and there are some duplicates in the germplasm. Surprisingly, the results showed that Nasiri, Tabraze and Shahroudi which were sampled twice from distinct nurseries and provinces, despite of identical names, had different genetic backgrounds. Totally, although Iran has considered as the second producer of apricot in the world, the results of the study showed that there are serious deficiencies in apricot germplasm and nursery management in the country.

Keywords: Apricot, SSR marker, Synonym, nursery management, Cluster analysis.