



MOLECULAR CHARACTERIZATION OF APRICOT GENOTYPES DETERMINED BY SSR MARKERS



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ABSTRACT:

In the last few years, the release of an increasing number of new apricot cultivars from different breeding programs is resulting in an important renewal of plant material worldwide. The new cultivars are replacing traditional and local varieties in many situations. However, local varieties constitute a source of genetic traits of interest and conserving and analyzing this genetic pool allows to preserve traits of interest. In order to study the current diversity and determine genetic relationships among genotypes, fifty apricot cultivars have been analyzed, including traditional and new cultivars from breeding programs of different countries. Molecular characterization has been carried out using 7 microsatellite loci (SSRs), which produced polymorphic repeatable amplification patterns. The obtained SSR profiles allowed us to distinguish 48 unique genetic profiles, identifying three synonymies. Different analyses have been carried out to study the genetic relationships and population structure. UPGMA cluster analysis based on Nei's genetic distance was used for analyzing the similarity relationships. Cultivars were classified in two large groups according mainly to the geographical origin of the cultivars and/or the breeding program. The first group comprised traditional cultivars from Spain and North America, whereas the second group included the majority of new apricot cultivars from the different breeding programs. No clear population differentiation was observed after the analyses performed to study the genetic structure of the populations. These results are consistent with the use of common parental genotypes in the different breeding programs since they share similar breeding objectives, resulting in the increase of inbreeding and, consequently, in a decrease of the genetic variability in cultivated apricot worldwide.



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