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ISHS Acta Horticulturae 798: III International Symposium on Fig

MOLECULAR CHARACTERIZATION OF APULIAN FIG (*FICUS CARICA* L.) GERMPLASM COLLECTION USING FLUORESCENCE-BASED AFLP MARKERS

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Keywords: AFLP fingerprinting, polymorphism, similarity, UPGMA

Abstract:

Accurate germplasm characterization and elucidation of the genetic relationships among the accessions maintained in a plant collection serve as essential links between the conservation and appropriate utilization of plant genetic resources. The present study was undertaken to assess polymorphism and relationships among 24 Apulian fig accessions using fluorescence-based AFLP (amplified fragment length polymorphism) markers. Five selective primer pairs resulted in 553 amplification products of which 535 were polymorphic among the analysed genotypes. A high degree of polymorphism was revealed by these primer combinations that ranged from 91.6 to 100%. The genetic relationships among the studied figs were estimated using the Dice similarity index that was calculated between each pair of genotypes. The pairwise genetic similarities ranged from 0.30 to 0.88 with a mean value of 0.60, thus showing a good degree of inter-cultivar genetic diversity at the DNA level. Intra-cultivar diversity was also investigated in the two cultivars San Giovanni (0.78) and Dottato (0.84), for which three and two different accessions were analysed, respectively. Dendrogram constructed using UPGMA cluster analysis showed that cv. Potentino separated from the other 23 genotypes at a genetic similarity value of 0.35 pointing out a relatively high genetic divergence of this cultivar from the others. The remaining 23 genotypes formed two principal clusters diverging at a genetic similarity value of 0.59. The results of this study will help in the formulation of appropriate strategies for conservation and cultivar improvement in Apulian figs, for which limited knowledge of the genetic diversity is available.
