

P-158 (144)**POLYMORPHISM STUDYING IRANIAN IRIS SPECIES USING MORPHOLOGICAL AND RAPD MARKERS**

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Amplified Polymorphic DNA is a fast technique, requires a little DNA and is often used in phylogenetic and genetic population studies. Iris is one of the most important cut flowers in Iran and in the world. Iranian Iris is from the Iridaceae family. The aim of study was to identify the genetic diversity of 18 Iris species collected from different parts of Iran according to morphological and molecular characteristics. Thus, 15 quantitative traits, 30 qualitative traits and 10 arbitrarily primed (RAPD) markers were applied. Cluster analysis based on quantitative traits classified all species into two main groups. The first group consisted of tall Irises and the second of dwarf Irises either with rhizomes or bulbs and based on qualitative traits classified all species into two main groups mostly according to flower color, bud color and scent. High genetic diversity was evident among species. Totally, 255 RAPD polymorphic bands were detected for 10 random primes. Numbers of polymorphic bands ranged from 19 to 31. PIC varied between 0.152 and 0.193. Cluster analysis based on molecular data revealed six different clusters. *I. Spuria* and hybrid irises (*I. germanica* and *I. imbricata*) were separated from other species and placed in different clusters. The highest similarity coefficient (0.307) was estimated between *I. meda* and *I. iberica* species and the lowest (0.025) was estimated between *I. aucheri* and *I. pseudacaucaasica*. Finally *I. spuria* was segregated from the others. Clear relationship was not found between species in relation to geographical distribution.

Keywords: Amplified Polymorphic DNA, genetic diversity, Iranian Iris, Cluster analysis.