

O-26 (254)**STUDY ON GENETIC VARIATION OF IRANIAN SAFFRON CLONES USING MORPHOLOGICAL CHARACTERISTICS AND MOLECULAR TOOLS**

Samad Mobasser, Faculty Member, Agricultural Research, Education Extension Organization, Seed , Plant Certification Registration Institute, Karaj, Iran; sa_mobasser@yahoo.com (Presenting author)
Hossein Jamali, Faculty Member, Agricultural Research, Education Extension Organization, Seed , Plant Certification Registration Institute, Karaj, Iran; jamaly.h@gmail.com
Hamid Reza Tavakoli, Faculty Member, Agricultural Research, Education Extension Organization, Agricultural Natural Resources Research C, Khorasan Razavi Mashhad, Iran; hamidre@gmail.com
Mohammad Hassan Assareh, Faculty Member, Agricultural Research, Education Extension Organization, Seed , Plant Certification Registration Institute, Karaj, Iran; asareh@gmail.com
Fazlollah Safikhani, Faculty Member, Agricultural Research, Education Extension Organization, Seed , Plant Certification Registration Institute, Karaj, Iran; dr.safikhani@yahoo.com
Mohammad Reza Jazaeri, Faculty Member, Agricultural Research, Education Extension Organization, Seed , Plant Certification Registration Institute, Karaj, Iran; mr_jazayeri@yahoo.com
Hassan Mokhtarian, Senior Expert, Agricultural Research, Agricultural Research, Education Extension, Organization, Agri. Natural Resources C., Khorasan Razavi Mashhad, Iran; h.mokhtarian@gmail.com
Elham Farhadi, Senior Expert, Agricultural Research, Education Extension Organization, Seed , Plant Certification Registration Institute, Karaj, Iran; farhadi.elham@yahoo.ie
Maryam Najafian, Senior Expert, Agricultural Research, Education Extension Organization, Seed , Plant Certification Registration Institute, Karaj, Iran; najafian.mm@gmail.com
Leila Sadeghi, Senior Expert, Agricultural Research, Education Extension Organization, Seed , Plant Certification Registration Institute, Karaj, Iran; leilasadeghi94@gmail.com

This study was conducted to evaluate the genetic variation and granting intellectual property right in order to registration of Iranian local ecotypes of Saffron by using molecular and morphological tools. In order to carry out this research, 17 districts from four provinces were selected, according to their historical background of Saffron cultivation and dispersal. The apparent characteristics of 40 traits were examined based on the national guidelines for DUS test of saffron. Considering the ranking nature of the measured variables, no significant variation was observed in most of the analyzed traits of selected ecotypes of Saffron. Moreover, the results of cluster analysis using Ward method showed that all ecotypes studied in this research were divided into two separate clusters which indicated more genetic association or, in other words, a small difference in the traits of the studied ecotypes was observed. In the case of molecular assessments, DNA was extracted from the leaves of the germinated bulbs of each clone. After qualitative and quantitative analysis of extracted DNAs, the analysis was performed by SSR, EST-SSR and AFLP markers. According to the propagation pattern of SSR and EST-SSR primers, no polymorphism was observed among 75 clones of collected saffron from 17 regions. The obtained patterns indicated the uniformity of saffron clones in the reproductive sites of eight microsatellite markers. Also, the AFLP marker, in which many genome regions were multiplied, did not show any variation within and among the specimens of the 17 studied regions. The results of this study indicated that saffron is probably monomorphic and uniform in Iran, which is consistent with the results of most previous studies on Iranian clones. These results confirmed that genetic relationships between clones are either uniform or similar, or in the presence of polymorphism, clones with very low diversity and low levels of polymorphism are very close.

Keywords: Genetic variation, Morphological characteristics, Molecular tools, Saffron