

ISSR Analysis of Variability of Cultivated Form and Varieties of Pomegranate (*Punica granatum* L.) from Azerbaijan

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Abstract—The article presents the results of a study of genetic polymorphism for the first time carried out on pomegranate varieties and forms of Azerbaijan origin using molecular markers. In total, 102 PCR fragments were identified, of which 80 were polymorphic. The high level of polymorphism (75.5%) and the rich genetic diversity were identified among the studied pomegranate collection. As a result of data analysis and on the basis of the values of the basic parameters (PIC, EMR, MI, RP, MRP) determining informativeness of markers, all 14 ISSR primers were suitable for genotyping pomegranate accessions. The most effective markers (UBC808, UBC811, UBC834, and UBC840) were identified among the set of primers tested. A dendrogram was constructed on the basis of the data obtained, which made it possible to group genotypes into 16 major clusters. The genetic similarity index ranged from 0.032 to 0.94. The study of the genetic relationship of different pomegranate varieties confirms the effectiveness of the ISSR method, which makes it possible to determine the level of genetic diversity, as well as to establish the relationship among the studied pomegranate accessions.

Keywords: pomegranate (*Punica granatum* L.), molecular markers, ISSR primers, genetic polymorphism, cluster analysis

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