

Abstract:

To evaluate the morphological and physiological characteristics of different varieties of tomatoes, an experiment was done in a completely randomized design with three replications in research greenhouse at the University of Zabol in the the year of 94. For this purpose, 14 varieties (field and greenhouse) were studied and compared. The results showed that different varieties in terms of germination percentage, root and shoot length, chlorophyll a, chlorophyll b, carotenoids, catalase, ascorbic peroxidase and guaiacol peroxidase traits were significant at level of 5 percent, but based on the number of lateral branches and fresh weight were not significant. In order to study the genetic variation between studying genotypes of young leaves sampling was done of 30 days leaves. DNA was extracted by Dellaporta, PCR was performed using markers RAPD and ISSR. The electrophoresis was done by agarose gel and staining was done with ethidium bromide. Average of Polymorphism mean and genetic similarity coefficient in RAPD and ISSR were obtained (0/84, 0/621) and (0/852,0/506), respectively. Cluster analysis and principal component analysis were conducted and figures were in RAPD and ISSR and combined in three clusters. Also, among the 20 used primers, UBC808 and UBC872 primers of ISSR markers and BB17 and BA02 primers of RAPD markers the 20 showed superiority to detection of genetic diversity of tomatoes. According to both markers information, the lowest level of the similarity was obtained of figures Iranian Anbari and Keshideh y. RAPD and ISSR markers could well recognize the relationship between Persian and French tomato cultivars. In total, Iranian Anbari in many cases with American figures were the best cultivars that according to statistics released by Iran in the production of tomatoes in the sixth demonstrate that tomato breeders have been able to the modified plant species with great success.

Key words: Genetic variation, *Lycopersicon esculentun*, ISSR, RAPD



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**Study of genetic diversity and morphological and physiological
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