

## عنوان مقاله:

Genetic Diversity Evaluation of Lemon balm (*Melissa officinalis* L.) Ecotypes Using Morphological Traits and Molecular Markers

## محل انتشار:

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## خلاصه مقاله:

Genetic diversity of ۱۲ lemon balm ecotypes was evaluated using agronomic traits as well as ISSR and RAPD markers. Results of analysis of variance showed high diversity among the studied ecotypes. Cluster analysis using UPGMA method grouped the ecotypes into three different groups based on the agronomic traits. Twelve ISSR primers created ۱۰۶ polymorphic bands among the studied ecotypes. An ISSR primer called UBC۸۱۳ with ۱۶ bands and UBC۸۱۱, UBC۸۱۵ and UBC۸۱۷ primers with ۱۵ bands had the highest number of polymorphic bands and UBC۸۲۵ with ۸ bands had the lowest number of polymorphic bands. In addition, ۱۰ RAPD primers, created ۱۲۷ polymorphic bands, among them OPA-۰۱ with ۲۲ bands and BB۱۳ and OC۴ primers with ۱۹ and ۱۸ bands had the highest number of polymorphic bands. In contrast, OS-۰۳ and OB۲۰ markers had the lowest number of polymorphic bands with ۱۴ and ۱۵ bands, respectively. Polymorphism information content (PIC) value ranged between ۰.۳۳ to ۰.۳۷ for ISSR markers and ۰.۳۱ to ۰.۳۷ for RAPD markers. Marker index (MI) value ranged between ۱.۱۱ to ۴.۳۸ for ISSR markers and ۱.۸۵ to ۵.۲۸ for RAPD markers. Cluster analysis using UPGMA method based on ISSR and RAPD markers results clustered the studied ecotypes into three and two different groups, respectively, by which the percentage of similarity of the two grouping method was about ۵۰%. Grouping the ecotypes based on both molecular markers and agronomic traits matched each other about ۴۰ to ۶۰%.

## کلمات کلیدی:

cluster analysis, Genetic diversity, ISSR, RAPD

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