

Abstract:

Medicinal plants are valuable natural resources that have value and importance in public health promotion and prevention of diseases. Medicinal plants of Cumin have a special place which included two black and green varieties. Determine of relationship and genetic distance between varieties of black and green cumin is the aim of this research. This study was done in biotechnology laboratory and institute of Zabol university (Biocenter) in 1393. The aim of this research was survey on genetic diversity of 10 cumin varieties (5 varieties of green cumin and 5 varieties of black cumin) using RAPD and ISSR markers. DNA extraction was done by 20 days leaves and delaporta method. Resulted DNA was amplified by 10 RAPD primers and 10 ISSR primers. Amplified products using 2% agarose gel and ethidium bromide were visualized. Average of polymorphism index and genetic similarity coefficient by RAPD and ISSR for green cumin were 0.79, 0.364, 0.787 and 0.0323, respectively. Average of polymorphism index for black cumin and by RAPD marker was 0.71, by ISSR was 0.769 and genetic similarity coefficient by RAPD was 0.268 and by ISSR was 0.376. Following that clustering analysis and principal component analysis were done that cluster analyzing results for studied genotypes by RAPD and ISSR were coupled in three clusters. The results of principal component analysis for green cumin was three components and three components for the black cumin that were justified more than 85% of total variance. Results of this study showed that genetic variation among green cumin was more than black cumin.

Key words: Cumin, DNA extraction, genetic variation, marker.



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**The Thesis Submitted for the Degree of Master of Science (M.Sc)
(In the field of modification of garden plants Science)**

**Effects of drought stress and nano iron chelated
on vegetative growth and antioxidant enzymes
activity of chamomile (*Matricaria chamomile* L.)
genotypes**

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