

Abstract

to evaluate genetic diversity among plant populations is many different methods that Molecular marker were used to investigate of genetic diversity and similarity among different species. Microsatellite markers are based on PCR which identify areas with high diversity. The objective of this research was to investigate the genetic variation at molecular level using SSR marker among 10 genotypes of *Cumin* (five of which were *cuminum cyminum* and the rest were *Bunium persicum*) collected from different region of Iran. DNA was extracted from leaf of 20-day seedling based on Dellaporta methods. To evaluation of quality and quantity of DNA was used agarose gel and spectrophotometry and after that was used 12 SSR markers for DNA analysis of all genotype. All 12 SSR markers generated 59 bands that were different from 3 to 8 band per primer with average 4.9 bands. the average of diversity index and Genetic similarity among *Cuminum cyminum* was respectively 0.61 and 0.292 and also was 0.61 and 0.311 respectively for *Bunium persicum*. According to cluster analysis, all genotype were clustered into three groups and the results of PCA showed that 65% of total variance were conducted by three of primary components analysis. Results of this study indicated that, based on microsatellite marker were not significant different between *cuminum cyminum* and *Bunium persicum*.

Keywords: Cumin, SSR marker, Microsatellite, Diversity



University of Zabol

Graduate school

Faculty of Agriculture

Department of Plant Breeding and Biotechnology

**The Thesis Submitted for the Degree of Master of Science (M.Sc.) in
Plant Breeding**

**Genetic diversity of different populations of *Cuminum
cyminum* and *Carum carvi* using microsatellite
markers**

Supervisor

Dr. L. Fahmideh

Advisors

Er. Bahman Fazeli-Nasab

By

Z. Ahmand

Jun 2016