

## Abstract

*Zygophyllum atriplicoides* is one of the most important species of Iran country range and by its value of dispersion, the presence of covering by accumulation of plant keeps the soil against the erosion of water and wind and it is important to provide the one part of forage for domesticated in spring and summer seasons. The area that is studied in Isfahan Province is 106179 Km<sup>2</sup> extent and geography special features 30° 42' to 34° 30' north width, 40° 36' to 55° 54' east width. Height intense changes from less than 700 to more than 4000 meter that causes different climates sovereignty from hyper arid to humid around the province, and has provided different habitats for *Z. atriplicoides*. This research is going to study the most important factor affecting the dispersal of *Z. atriplicoides* by using statistical methods in Isfahan Province. So the number 69 climate variable in order to ecological requirement of these species were investigated and the factors that are affecting on species dispersion are studied in Factor Analysis, four factors cooling temperature, precipitation, cloudy and wind are determined, It is allocated 34.45, 29.43, 11.79 and 9.07 the percent of variance variable sequential, that repeat 84.74 percent of changes totally. The average of factor score and climate variables are determined in 3 types of *Z. atriplicoides* as prevailing species, *Z. atriplicoides* as a follow and the area that are clean of *Z. atriplicoides*. Also Factor score matrix was used as input data of Hierarchical cluster analysis (ward) and the number of 6 climate zones was identified in Province. By combination of vegetation map and factors and climatic zonation maps in the GIS environment, the most important factors that are affecting on *Z. atriplicoides* distribution were determined, and beside the climatic factors the effect of altitude from the sea surface is also analyzed the result showed that temperature factor is the most important affective climate factor on *Z. atriplicoides* distribution in Isfahan Province, and after precipitation factor affected species distribution, also we cannot ignore the altitude effect from the sea surface, soil saltiness on *Z. atriplicoides* types analyze.

**Keywords:** Multivariate Statistical Methods, *Zygophyllum atriplicoides*, Factor Analysis, Cluster Analysis, GIS, Isfahan Province.



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**The Thesis Submitted for the Degree of  
M.Sc (in the field of Combat Desertification Science)**

**Study of Phyto-bioclimatic of  
*Zygophyllum atriplicoides* using  
multivariate statistical methods and  
GIS in Isfahan Province**

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October 2012