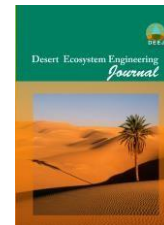




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Using Direct Gradient Analysis for the Identification of Environmental Factors Morphological characteristics plant medicinal *Verbascum songaricum* Schrenk

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Abstract

The main objective of current study was application of direct gradient analysis, to identify the most important environmental factors affecting the Morphological characteristics in plant medicinal *Verbascum songaricum*. In this study species were collected from Rangeland, Howz Vally, Gahiz, Semeiroom intrance and Ghadam places in Isfahan province as well as Dena in Kohgiloye and Boyer Ahmad province. All locations are in the range of morphological, climatic, physiographic and soil physic-chemical properties were investigated. To investigate the plant index and environmental factors were processed and ordination was done using redundancy analyses (RDA). The result show Acidity of the soil, limestone soil and southern longitude first axis order species - environment has a strong correlation (respectively $r = 0/87$, $r = 0/80$, $r = 0/86$) are. Sandy loam of the second axis - the moderate correlation ($r = 0/54$) is. The average annual rainfall, the average annual number of frost days, damping coefficient and the average height above sea level of the core, Emberger Humidity Index correlation ($r = 0/90$) are. Clay content and cation exchange capacity of the fourth axis - medium (respectively $r = 0/74$ and $r = 0/54$) and moderate to strong correlations. In the current study the result of RDA show the relationship among plant indices of the species with ecological circumstances of the area Overall the survey results showed there are a significant positive correlation between plant indices and environmental factors. Awareness of the relationship between environmental factors and indicators of rangeland vegetation to help us to apply these findings, in the management, restoration and development of pharmaceutical and industrial crops, in endangered species.

Keywords: Direct Gradient Analysis, morphology, species of medicinal and industrial, *Verbascum songaricum* Schrenk

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