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(*Astragalus gossypinus* Fischer)

(*A.verus* Oliver)

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(*Astragalus gossypinus* Fischer)

(*A.verus* Oliver)

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$$Y = b_0 + b_1(X_1) + b_2(X_2) + \dots + b_p(X_p)$$

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$b_p \dots b_1 b_0$  (

X  $X_p \dots X_1$

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$$N = \frac{t \alpha \cdot S}{k \bar{x}}$$

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Bioclimatic  
Typic Haplocalcids

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- Euclidean Distance Relativized
  - Minimum Variation Method's (Ward's , 1963)
  - Cluster Analysis
  - Dendrogram
  - One-Way ANOVA
  - Duncan Method's
  - Factor Analysis
  - Multiple Regression
  - Stepwise Method's
  - Simultaneous Method's



( ) (II I) / III II I / /

(*Artemisia aucheri* Boiss.)

( ) *Bromus tomentellus* Boiss.

) *Agropyron trichophorum*

) *A.aucheri* ( ) (Link) Richter

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H<sub>0</sub>

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Thresholds

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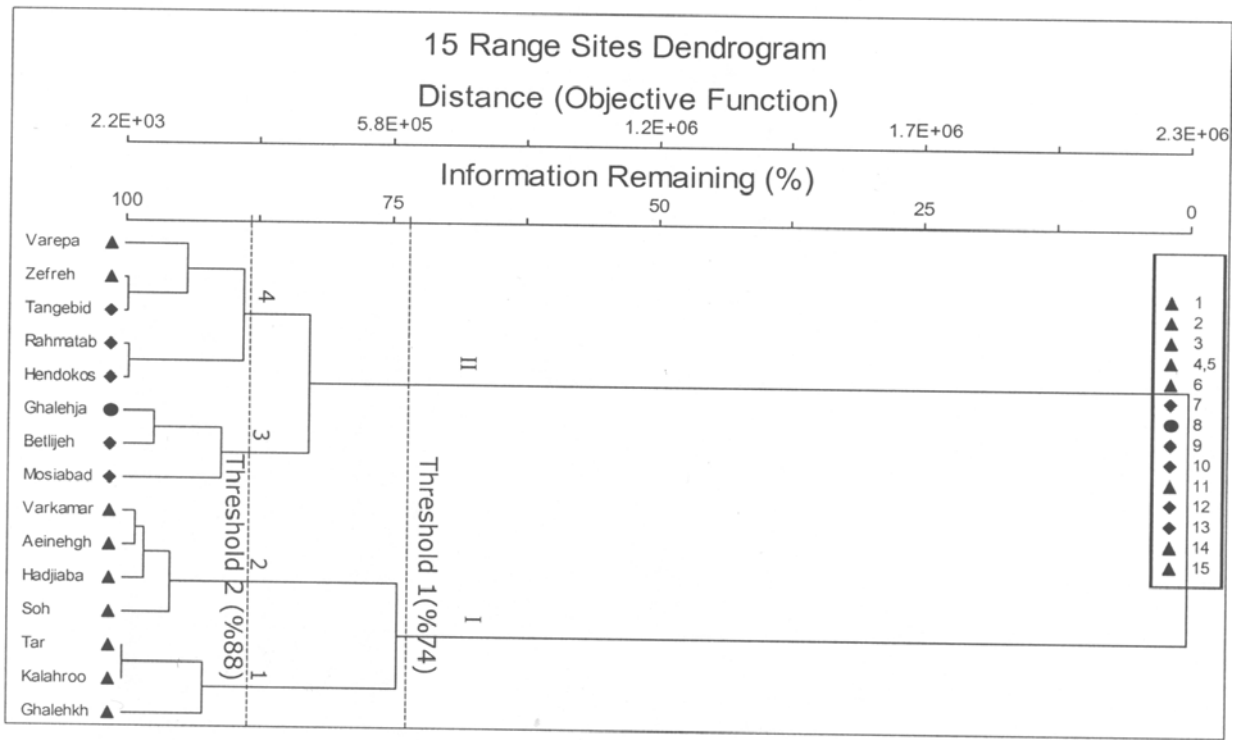
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$Y = / - / X / X / X ( )$	/ *	
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(*Astragalus kyserlingii* Bunge)

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*Astragalus* Willd.

*microcephalus*

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(CEC = / /100grS.)

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*Astragalus microcephalus* wild.

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*Astragalus microcephalus* Willd.

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## Determination of the Most Effective Habitat Indices for Evaluation of Tragacanth Sites in Isfahan Province

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### Abstract

Gum tragacanth is considered as one of the economically important byproducts of related rangeland ecosystems in Central Zagross region of Iran. However, there is not an appropriate method available for ecological evaluation of tragacanth habitats. The objective of this research is to determine proper evaluating indices for habitat of *Astragalus gossypinus* Fischer. and *A. verus* Oliver. Therefore, based on the determined indices, different habitats could be classified and evaluated in view of their potentiality as well as utilization. This research has been undertaken on 15 randomly selected rangeland sites, located in the above mentioned habitats in Isfahan Province. Rangeland sites were indicative of poor to good quality and quantity in view of Astragal species condition and production. Most important ecological characteristics of rangelands were determined by the following criteria: climate, soil, physiography and vegetation. To classify rangeland sites, cluster analysis was employed for determining the most effective habitat indices, then regression analysis being performed based upon cluster analysis results. According to dendrogram obtained from cluster analysis, 15 rangeland sites were separated into 4 groups by 12 environmental factors and in a similarity level of 88 percent. From among the total incorporated variables, drought period, organic matter, gravel (in case of *Astragalus gossypinus*) and total canopy cover, shrub height, freezing period, site slope, De Martonne aridity index as well as, cation exchange capacity (in case of *A.verus*) displayed the effective roles on tragacanth product. For *Astragalus gossypinus* product, organic matter was indicated to be of a high relative importance. Total canopy cover and freezing period showed maximum relative importance while site slope and shrub height showed a lower relative importance for *A. verus*. Suggested models for Astragal species estimate the Gum product at a 0.05 significance level, and in an appropriate manner.

**Keywords:** *Astragalus gossypinus*, *Astragalus verus*, Gum tragacanth, Habitat indices, Cluster analysis, Central Zagross, Isfahan, Iran