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(TWINSPAN)

pH EC

*Salsola richteri*-*Aelorupes littoralis*;

*Zygophyllum eurypterum*-*Haloxylon ammodendron*; *Artemisia sieberi*-*Zygophyllum eurypterum*; *Ammodendron*  
(PCA) *Artemisia aucheri*-*Amygdalus scoparia* *persicum*-*Stipagrostis pennata*

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E-mail: Jafary@ut.ac.ir

Two-Way Indicator Species Analysis (TWINSPAN)

- Principal Component Analysis (PCA)

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pH

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*Artemisia sieberi* *Zygophyllum eurypterum*

TWINSpan

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*Zygophyllum*

*Haloxylon ammodendron eurypterum*

*Salsola richteri*

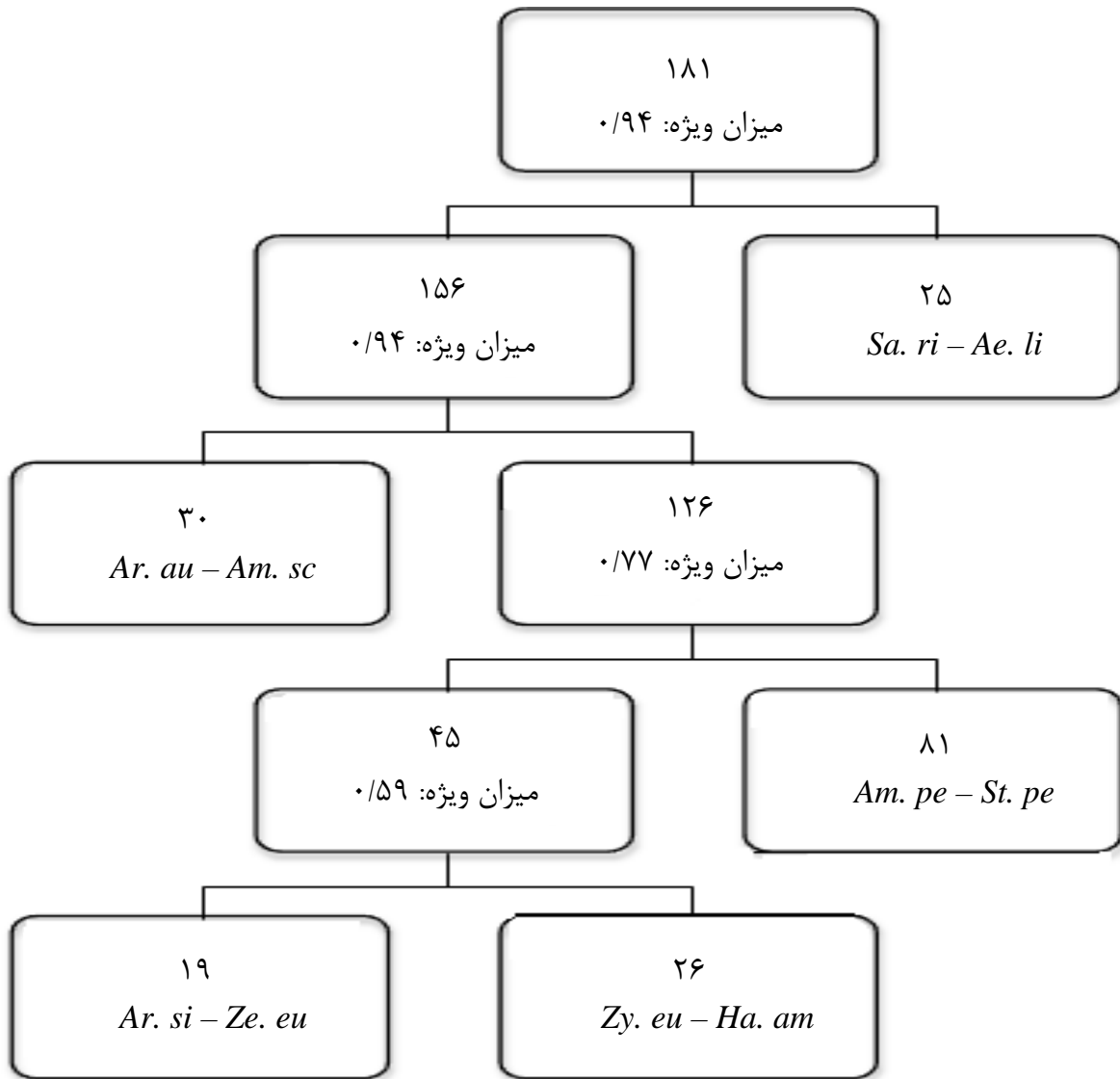
*Aeluropus littoralis*

*Artemisia aucheri*

*Amygdalus scoparia*

*Ammodendron*

*Stipagrostis pennata persicum*



**TWINSpan**

*Salsola*

*Aeluropus littoralis richteri*

*Zygophyllum*

*Haloxylon ammodendron eurypterum*

( / ) EC

(% / ) pH (

*Artemisia aucheri* : % ( % / )

*Amygdalus scoparia*

( )

*Zygophyllum* :

%

*Artemisia sieberi eurypterum*

*Stipagrostis pennata Ammodendron persicum*

( / c)

( / mm)

(% / )

TWINSpan

(C°)	(mm)		%	( )	pH	EC ds/m	%	%	%	%	%	%	%	
/	/	S	/		/	/	/	/	/	/	/	/	/	
/	/	SE	/		/	/	/	/	/	/	/	/	/	
/	/	W	/		/	/	/	/	/	/	/	/	/	
/	/	NW	/		/	/	/	/	/	/	/	/	/	
/	/	N	/											

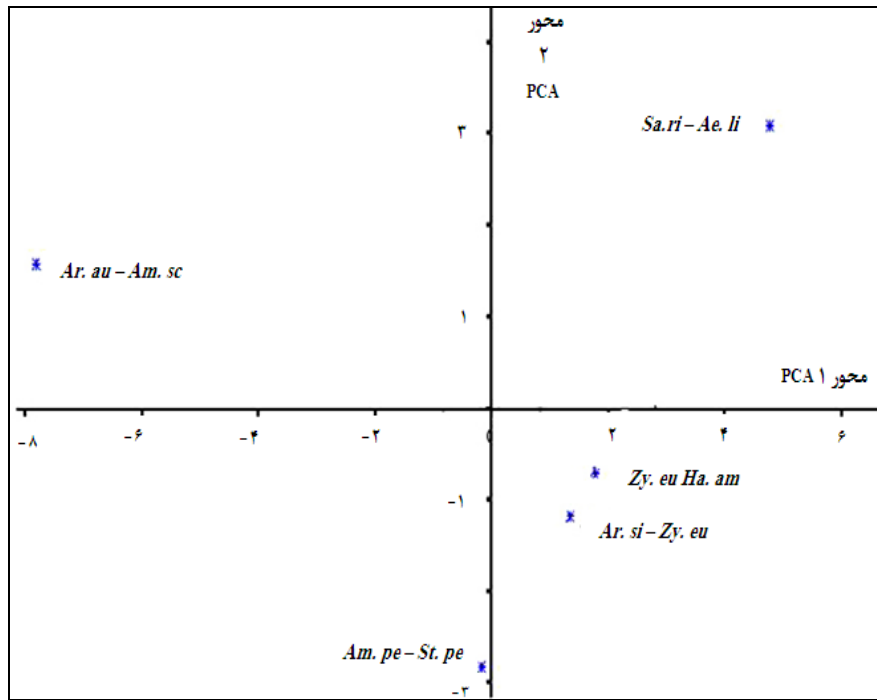
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TWINSpan

PCA

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PCA

TWINSpan

TWINSpan

*Artemisia aucheri*-*Amygdalus* )

( )

(*scoparia*

pH

*Salsola richteri*-)

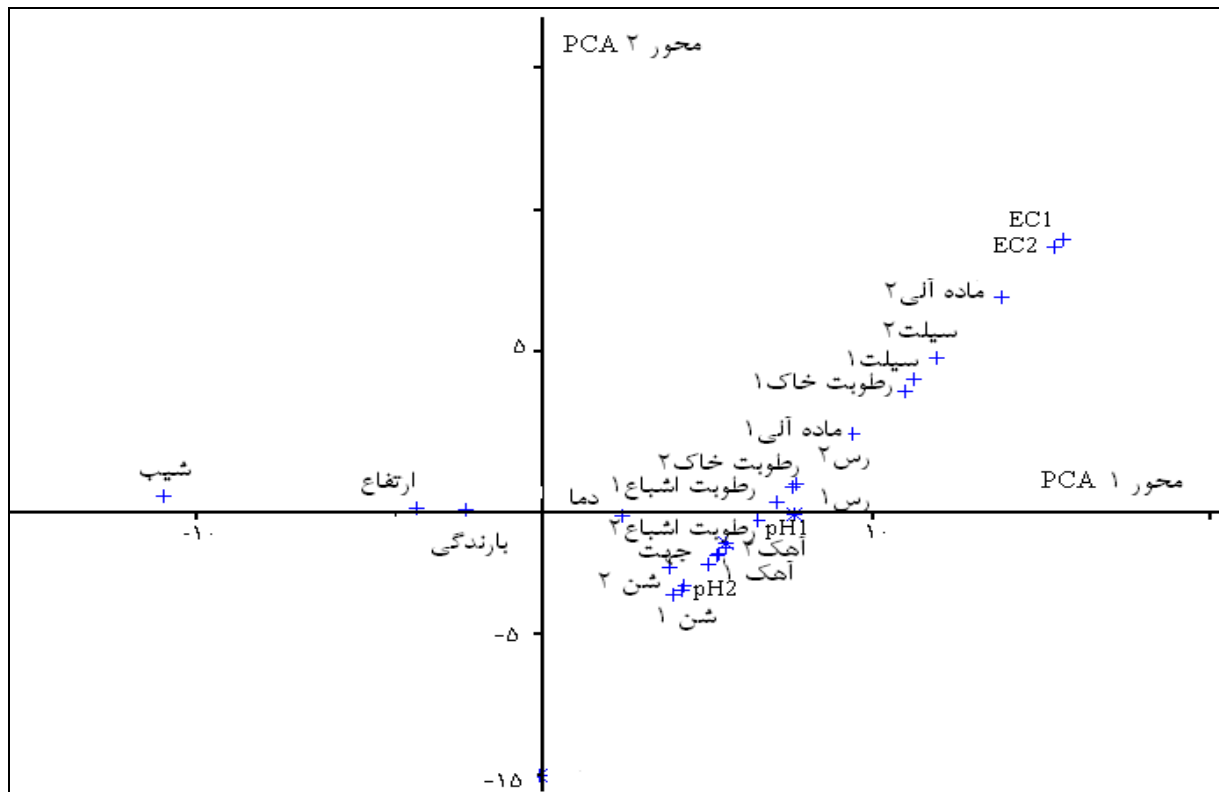
(*Aelorupes littoralis*

*Zygophyllum eurypterum*-*Haloxylon* )

*Artemisia sieberi*-) (*ammodendron*

(*Zygophyllum eurypterum*





PCA

TWINSPAN

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(TWINSPAN)

(PCA)

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% / % /

PCA

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*Zygophyllum eurypterum*-  
*Artemisia* ) (*Haloxylon ammodendron*  
*(sieberi-Zygophyllum eurypterum*  
*(Ammodendron persicum-Stipagrostis pennata* ) ( )

( )  
 ( )

*Haloxylon ammodendron*

pH

( )

(*Salsola richteri-Aelorupes littoralis*)

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( )

*Ammodendron*

*persicum*

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Archive of SID

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( : ) (*Artemisia*) : ( )

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*Ammodendron persicum*

Archive of SID

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## Investigation of environmental factors affecting vegetation distribution in the Zirkouh rangelands of Qaen

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### Abstract

This study was carried out to investigate the effective environmental factors in the distribution of vegetation in Zirkouh rangelands of Qaen. After delimitation of the study area, sampling of soil and vegetation were performed using randomized systematic method. Vegetation cover was recorded by using Braun-Blanquet combined abundance-cover scale in each sample. Within each sample, one profile was dug and soil samples being taken at 0-20 cm and 20-100 cm depths. Physical-chemical characteristics were determined include texture, lime, organic matter, soil moisture content, saturation moisture, EC and pH. Five vegetation groups were identified after the application of TWINSpan method and were named after the characterizing species as follows: *Salsola richteri-Aelorupes littoralis*; *Zygophyllum eurypterum-Haloxylon ammodendron*; *Artemisia sieberi-Zygophyllum eurypterum*; *Ammodendron persicum-Stipagrostis pennata*; *Artemisia aucheri-Amygdalus scoparia*. The results of PCA showed that environmental factors best related with the distribution of this vegetation are texture, lime, organic matter, soil moisture content, saturation moisture, elevation and slope.

**Keywords:** Vegetation-environment relationships, Classification, Ordination, Vegetation groups, Zirkouh rangelands