

Floristic Study of Marakan Protected Region (West Azerbaidgan Province)

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Abstract: Marakan protected region with an area of 105069 ha, is located in North West of Iran (west Azerbaidgan province), between 38° 42' to 39° 6' north latitude and 45° 5' to 45° 37' east longitude. In this study flora of this region was determined by using available references. We encountered 282 Species that belongs to 167 Genera and 47 Families. The largest families of region are: *Asteraceae* with 43 species, *Fabaceae* with 28 sp., *Poaceae* with 26 sp. and *Rosaceae* with 25 sp. The life form spectrum was characterized according Raunkier's system. The life form spectrum observed was: Therophyte 31.91%, Hemichryptophyte 26.95%, Chamaephyte 16.31%, Phanerophyte 15.06% and Cryptophyte 9.26%. The phytocorya distribution of species are as follow: IT 65.25%, Es 5.31%, Med 1.06%, IT, Es 19.15%, IT, Med 2.85%, Es, Med 1.78%, Endm 4.25%, Cosm 0.35%.

Key words: Flora, plant species, life form, Marakan, Iran

INTRODUCTION

The diversity of plant life is an essential underpinning of most of our terrestrial ecosystems. Humans and most other animals are almost totally dependent on plants, directly or indirectly. Another important role of plant life is the provision of ecosystem services the protection of water sheds, stabilization of slopes, improvement of soils, moderation of climate and the provision of a habitat for much of our wild fauna.

While it is generally accepted today that the conservation of all biodiversity should be our goal, understanding the natural distribution of plants (Floristic studies) is central to conserving biodiversity and managing ecosystems for long-term viability and sustainability. Iran is a country with high divers Climate and Topography, which leads to diversity in natural and biological resources. Therefore, for management in order to conservation of this diversity, prevention from destruction of habitats, determining the native and resistant species and endangered species and supporting them, recognition of medicinal plants for proper use of them, Floristic studies is necessary. Nowadays, many studies in this field have been doing by researchers, such as: plant species of Vanak-Semirom-Isfahan (Parishani, 2003), Floristic study of Palangdarreh-Qom (Mirzaei, 2001), Floristic study of Dalamper-West Azerbaijan (Shaikhi, 2005), Floristic study of National park of Urmia Lake (Biabani, 2000), Floristic study of

Ghasemeloo (Shohada) Valley, Forest reservoir (Malekmohammady, 2006). While this sort of studies is very useful for planning with refer to protection, reclamation and management of valuable species, present study was done in Mirabad region in 2005-2006.

MATERIALS AND METHODS

Marakan protected region with 105069 ha area, is located in North West of Iran (West Azerbaidgan province). This region is situated between 38° 42' to 39° 6' north latitude and 45° 5' to 45° 37' east longitude. Northern boundary of this region, limited with the Aras boundary river that lies between Iran and Azerbaijan Republic. From west it leads to Garaziaadin and from east to main road that, branches from Jolfa. And the southern portion of this region is erosive plains of Goturchay River. The altitude in this region is varying between 830 m in eastern portion and 2054 m in northern portion. The mean annual rainfall is: 281.1 mm and mean annual temperature is 11°C. In order to presentation the Flora of Marakan, at first related information such as: Meterological statistics, Topographic maps, results of other studies and etc. were gathered. Then the specimens were collected in different seasons. The samples transferred to the herbarium and were pressed and recognized according to the Flora of Iran; Assadi (1988-2002), Flora of Iran, Rechinger (1963-2000) Flora of Iran, Parsa (1943-1950) Flora of Turkey, Davis (1965-1988) Colored Flora, Ghahreman

Table 1: Floristic list of Marakan

Scientific name	Life form	Chorotype	Medicinal use
<i>Amaranthaceae</i>			
<i>Amaranthus retroflexus</i> L.	Th	IT	
<i>Amaryllidaceae</i>			
<i>Ixiolirion tataricum</i> (Pall.) Herb.	Cr	IT	
<i>Anacardiaceae</i>			
<i>Pistacia atlantica</i> Desf.	Ph	IT	*
<i>Pistacia mutica</i> Fisch. and C.A.Mey.	Ph	IT	
<i>Rhus coriaria</i> L.	Ph	IT	
<i>Asteraceae</i>			
<i>Achillea millefolium</i> L.	Cr	IT,ES	*
<i>Achillea setacea</i> Waldst and Kit	He	IT,ES	
<i>Achillea tenuifolia</i> Lam.	He	IT	*
<i>Anthemis tinctoria</i> L.	He	IT	*
<i>Anthemis triumfettii</i> (L.) All.	He	IT	*
<i>Anthemis haussknechtii</i> Boiss. and Reut	Th	IT	
<i>Artemisia fragrans</i> Willd.	Ch	IT	*
<i>Artemisia incana</i> (L.) Druce	Ch	IT	*
<i>Artemisia scoparia</i> Waldst and Kit	Ch	IT,ES	*
<i>Artemisia spicigera</i> C. Koch.	Ch	IT	
<i>Artemisia vulgaris</i> L.	Ch	IT,ES	*
<i>Carthamus oxyantha</i> M.B.	Th	IT	*
<i>Centaurea albonites</i> Turill	He	IT	
<i>Centaurea aucheri</i> (DC.) Wagenitz	Th	IT	
<i>Centaurea depressa</i> M.B.	Th	IT	
<i>Centaurea virgata</i> Lam.	He	IT	
<i>Chardinia orientalis</i> (L.) DC.	Th	IT	
<i>Cichorium intybus</i> L.	He	ES	*
<i>Cirsium alatum</i> (S.G.Gmelin) Bobrov	He	IT	
<i>Cirsium arvense</i> (L.) Scop.	He	ES	
<i>Cirsium congestum</i> Fisch and C.A.Mey ex DC.	Th	IT	
<i>Cirsium echinus</i> (M.B.) H and - Mzt	Th	IT	
<i>Cirsium rhizocephalum</i> C.A.Mey	He	IT	
<i>Cousinia calocephala</i> Jaub and Spach	He	IT	
<i>Cousinia macroptera</i> C. A. Mey	He	IT	
<i>Cousinia purpurea</i> C.A.Mey	Th	IT	
<i>Echinops pungens</i> Trautv.	He	IT,ES	
<i>Echinops orientalis</i> Trautv.	He	IT	
<i>Gundelia tournefortii</i> L.	He	IT	
<i>Helichrysum armenium</i> DC.	Ch	IT	
<i>Helichrysum gl and uliferum</i> Schulz-Bip.	Ch	IT	
<i>Helichrysum plicatum</i> DC.	Ch	IT	
<i>Inula aucheriana</i> DC.	Cr	IT	
<i>Senecio vernalis</i> Woldst. and Kit	Th	IT	
<i>Senecio mollis</i> Willd.	He	IT	
<i>Tanacetum polycephalum</i> Schult-Bip.	He	IT	
<i>Tanacetum uniflorum</i> (Fisch. and C.A.Mey.	Ch	IT	
<i>Taraxacum syriacum</i> Boiss.	He	IT	
<i>Tragopogon graminifolius</i> Dc.	Th	IT	
<i>Xanthium spinosum</i> L.	Th	IT,Med	*
<i>Xanthium strumarium</i> L.	Th	IT,Med	*
<i>Xeranthemum longipapoum</i> Fisch. and C.A.Mey.	Th	IT	
<i>Xeranthemum squarrosum</i> Boiss.	Th	IT	
<i>Berberidaceae</i>			
<i>Berberis vulgaris</i> L.	Ph	IT,ES	
<i>Boraginaceae</i>			
<i>Alkanna orientalis</i> (L.) Boiss.	Th	IT	
<i>Anchusa italica</i> Retz.	Th	IT,ES	*
<i>Anchusa ovata</i> Lehm.	Th	IT,ES	
<i>Caccina macranthera</i> (Banks and Sol and.) Br and	He	IT	
<i>Cerinthe minor</i> L.	He	ES	
<i>Heliotropium dissitiflorum</i> Boiss.	Ch	Endm	
<i>Heliotropium ellipticum</i>	Ch	IT	*
<i>Heliotropium suaveolens</i> MB	Th	ES	
<i>Heliotropium szovitsii</i> (Stev.) Bunge	Ch	IT	
<i>Lappula barbata</i> (M.B.) Gurke	Th	IT	
<i>Nonnea anchusoides</i> Boiss. and Buhse	Th	IT	
<i>Nonnea caspica</i> (Willd.) G.	Th	IT	

Table 1: Continued

Scientific name	Life form	Chorotype	Medicinal use
<i>Onosma sericeum</i> Willd.	He	IT	
Brassicaceae			
<i>Allyssum bracteatum</i> Boiss. and Buhse	He	Endm	*
<i>Capsella bursa-pastoris</i> L.	Th	Cosm	*
<i>Cardaria draba</i> L.	He	Med	*
<i>Conringia orientalis</i> (L.) and rz	Th	Med	
<i>Descurainia Sophia</i> (L.) Schur.	Th	IT	*
<i>Lepidium vesicarium</i> L.	Th	IT	
<i>Malcolmia Africana</i> (L.) R.Br.	Th	IT	
<i>Sisymbrium loeselii</i> L.	Th	IT	*
Campanulaceae			
<i>Campanula glomerata</i> L.	He	IT,ES	
<i>Campanula stevenii</i> M.B.	He	IT	
Caryophyllaceae			
<i>Acanthophyllum acerosum</i> Sosn.	Ch	IT	
<i>Acanthophyllum squarrosum</i> Boiss.	Ch	IT	
<i>Allochrysa persica</i> (Boiss.) Boiss.	He	Endm	
<i>Arenaria graminea</i> C.A.Mey	Ch	IT,ES	
<i>Dianthus cyri</i> Fisch. and C.A.Mey.	Th	IT,ES	
<i>Dianthus orientalis</i> Adams.	He	Endm	
<i>Dianthus szowitsianus</i> Boiss.	He	Endm	
<i>Gypsophila rusifolia</i> Boiss.	Th	IT,ES	
<i>Minuartia hamata</i> (Hausskn.) Mattf.	Th	IT	
<i>Paronychia kurdica</i> Boiss.	He	IT	
<i>Saponaria viscosa</i> C.A.Mey.	Th	IT,ES	
<i>Silene dichotoma</i> Ehrh.	Th	IT	
<i>Silene eremitica</i> Boiss.	He	IT	
<i>Silene arenosa</i> C. Koch	He	IT	
<i>Tunica phachygona</i>	Th	IT	
<i>Vaccaria liniflora</i> (Boiss. and Hausskn.) Bornm.	Th	IT	
Chenopodiaceae			
<i>Atriplex tatarica</i> L.	Th	IT	
<i>Atriplex verrucifera</i> M.B.	Ch	IT	
<i>Beta corolliflora</i>	He	IT	
<i>Bienertia cycloptera</i> Bunge	Th	IT	
<i>Ceratocarpus arenarius</i> L.	Th	IT	
<i>Chenopodium album</i> L.	He	IT,ES	*
<i>Chenopodium botrys</i> L.	Th	IT	*
<i>Halocnemum strobilaceum</i> M.B.	Ch	IT	
<i>Halothamnus glaucus</i> (Bieb.) Botsch	Ch	IT	
<i>Noaea mucronata</i> (Forssk.) Aschers. et Schweinf	Ch	IT,ES	
<i>Salsola crassa</i> M.B.	Th	IT	
<i>Salsola dendroides</i> Pall.	Ph	IT	
<i>Salsola ericoides</i> M.B.	Ch	IT	
<i>Salsola kali</i> L.	Th	IT	*
<i>Saudea altissima</i>	Th	IT	
<i>Spinacia tetr. and ra</i> Stev.	Th	IT	*
Convolvulaceae			
<i>Convolvulus arvensis</i> L.	Cr	IT	*
Crassulaceae			
<i>Sedum album</i> L.	He	IT,ES	*
Cupressaceae			
<i>Juniperus exelsa</i> M.B.	Ph	IT,ES	*
<i>Juniperus polycarpus</i>	Ph	ES	*
Elaeagnaceae			
<i>Elaeagnus angustifolia</i> L.	Ph	ES	*
Ephedraceae			
<i>Ephedra procera</i>	Ph	IT	*
Equisetaceae			
<i>Equisetum arvense</i> L.	He	ES	*
Euphorbiaceae			
<i>Chrozophora tinctoria</i> (L.) Jass.	Ph	IT	
<i>Euphorbia falcata</i> L.	Th	IT,Med	
<i>Euphorbia helioscopia</i> L.	Th	IT,Med	*
<i>Euphorbia heteradenia</i> Jaub. and Spach.	He	IT	
Fabaceae			
<i>Alhagi camelorum</i> Fisch.	Ch	IT	*

Table 1: Continued

Scientific name	Life form	Chorotype	Medicinal use
<i>Astragalus chartaceus</i>	He	IT	
<i>Astragalus chrysosatachys</i>	Ch	IT	
<i>Astragalus comptoceras</i>	Th	IT	
<i>Astragalus effuses</i> Bge.	Ch	IT	
<i>Astragalus ovinus</i> Boiss	He	IT	
<i>Astragalus oxyglettis</i>	Th	IT	
<i>Astragalus tawilicus</i>	He	IT	
<i>Astragalus tribuloides</i>	Th	IT	
<i>Coronilla varia</i> L.	He	Endm	*
<i>Glycyrrhiza glabra</i> L.	Ch	Endm	*
<i>Lathyrus tuberosus</i> L.	He	IT	
<i>Lotus gebelia</i> Vent.	Ch	IT	
<i>Medicago rigidula</i> (L.) All.	Th	IT	
<i>Medicago sativa</i> L.	Th	IT	*
<i>Melilotus officinalis</i> (L.) Desv.	Th	IT	*
<i>Onobrychis corunta</i> (L.) Desv.	Ch	IT,ES	
<i>Onobrychis depauperata</i> Boiss.	Ch	IT,ES	
<i>Sophora alopecuroides</i> L.	He	IT,ES	
<i>Trifolium fragiferum</i> L.	Th	IT,ES	
<i>Trifolium hybridum</i> L.	He	IT,ES	
<i>Trifolium pretense</i> L.	He	IT,ES	
<i>Trifolium repens</i> L.	He	IT,ES	
<i>Trigonella capitata</i> Boiss.	Th	IT	
<i>Trigonella monantha</i> C.A.Mey	Th	IT	
<i>Vicia hyrcanica</i> Fisch. and C.A.Mey	Th	IT,ES	
<i>Vicia monantha</i> Retz.	Th	IT	
<i>Vicia truncatula</i> Fischer ex M.B.	He	IT,ES	
<i>Fumariaceae</i>			
<i>Fumaria aspala</i> Boiss.	Th	IT	
<i>Geraniaceae</i>			
<i>Erodium cicutarium</i> (L.) LHer	Th	IT	*
<i>Geranium divaricatum</i> Ehrh	Th	IT,ES	
<i>Hypericaceae</i>			
<i>Hypericum scabrum</i> L.	He	IT	*
<i>Iridaceae</i>			
<i>Gladiolus atroviolaceus</i> Boiss.	Cr	IT,Med	
<i>Gladiolus segetum</i> Ker.-Gawl	Cr	ES,Med	
<i>Iris acutiloba</i> C.A.Mey.	Cr	IT	*
<i>Iris spuria</i> L.	Cr	IT	*
<i>Jugl and aceae</i>			
<i>Juglans regia</i> L.	Ph	IT,ES	*
<i>Lamiaceae</i>			
<i>Marrubium parviflorum</i> Fisch	Ch	IT	
<i>Mentha longifolia</i> (L.) Hadson	Cr	ES	*
<i>Mentha spicata</i> L.	He	ES	*
<i>Nepeta humilis</i> Benth.	Th	Endm	
<i>Nepeta involucre</i>	He	IT	
<i>Nepeta meyeri</i>	Th	IT	
<i>Nepeta racemosa</i> Lam.	He	IT	
<i>Phlomis olivieri</i> Benth.	He	Endm	
<i>Salvia hydrangea</i>	Ch	IT	*
<i>Salvia limbata</i>	He	IT	
<i>Salvia nemorosa</i> L.	He	ES	*
<i>Salvia suffruticosa</i> Montbr. and Auch.ex Benth	He	IT	*
<i>Satureja laxiflora</i> C. Koch.	Th	IT	*
<i>Satureja macrantha</i>	Ch	IT	*
<i>Scutellaria araxensis</i>	Ch	IT	
<i>Scutellaria pinnatifida</i> A.Hamilt.	Ch	IT	
<i>Stachys inflata</i> Benth.	Ch	IT	*
<i>Stachys lav and ulifolia</i> Vahl.	Ch	IT	*
<i>Teucrium orientale</i> L.	Ch	IT	*
<i>Teucrium polium</i> L.	Ch	IT,Med	*
<i>Thymus kotschyanus</i> Boiss.	He	IT	*
<i>Thymus pubescens</i> Boiss. and Kotschy ex celak	Ch	IT	*
<i>Ziziphora capitata</i>	Th	IT,ES	*
<i>Ziziphora clinopodioides</i> Lam.	Ch	IT	*

Table 1: Continued

Scientific name	Life form	Chorotype	Medicinal use
<i>Liliaceae</i>			
<i>Allium ampeloprasum</i> L.	Cr	IT	*
<i>Allium rubellum</i> M.B.	Cr	IT	*
<i>Allium stamineum</i> Boiss.	Cr	Med,ES	*
<i>Bellevia saviczii</i> Woron.	Cr	IT,Med	
<i>Colchicum soboliferum</i> (Fisch. and C.A.Mey)	Cr	IT	
<i>Gagea bulbifera</i> (Pall.) Schultes and Schultes	Cr	IT,ES	
<i>Tulipa biflora</i> (Pall.)	Cr	IT,ES	
<i>Linaceae</i>			
<i>Linum densiflorum</i> P.H.Davis	Th	IT	
<i>Malvaceae</i>			
<i>Alcea ficifolia</i> L.	He	Endm	*
<i>Alcea koelzii</i> L.Riedl	He	Endm	
<i>Malva neglecta</i> Wallr	Th	IT,ES	*
<i>Moraceae</i>			
<i>Morus alba</i> L.	Ph	IT	*
<i>Morus nigra</i> L.	Ph	IT	
<i>Oleaceae</i>			
<i>Fraxinus excelsior</i> L.	Ph	IT,ES	*
<i>Papaveraceae</i>			
<i>Papaver bracteatum</i> Lindl.	He	IT	
<i>Papaver decaisnei</i> Hochst. and Steud.ex Boiss.	Th	IT	*
<i>Papaver dubium</i> L.	Th	ES	
<i>Papaver orientale</i> L.	He	IT	*
<i>Plantaginaceae</i>			
<i>Plantago lanceolata</i> L.	He	ES	*
<i>Plumbaginaceae</i>			
<i>Acantholimon bracteatum</i> (Girard)Boiss.	Ph	IT	
<i>Acantholimon olivieri</i> (Jaub and Spach.) Boiss.	Ph	IT	
<i>Acantholimon venustum</i> Boiss.	Ph	IT	
<i>Acantholimon araxnum</i>	Ph	IT,ES	
<i>Poaceae</i>			
<i>Aegilops cylindrica</i> Host	Th	IT	
<i>Agropyrum caespitosum</i> C.Koch	Cr	IT,ES	
<i>Agropyrum intermedium</i> (Host.) P.Beauv.	Cr	IT,ES	
<i>Agropyrum trichophorum</i> (Link) Richter	Cr	Med,ES	
<i>Alopecurus myosuroides</i> Hudson	Th	IT	
<i>Bromus danthonii</i> Trin	Th	IT	
<i>Bromus tectorum</i> L.	Th	ES	
<i>Bromus tomentellus</i> Boiss.	He	IT	
<i>Cynodon dactylon</i> (L.) Pers.	Cr	IT	*
<i>Dactylis glomerata</i> L.	He	IT,ES	*
<i>Eremopyrum confusum</i> Melderis	Th	IT	
<i>Eremopyrum distans</i> (C.Koch.) Nevski	Th	IT	
<i>Festuca arundinaceus</i> schred	Cr	ES	
<i>Hordium bulbosum</i> L.	He	ES,Med	
<i>Hordium leporinum</i> Link	Th	ES,Med	
<i>Hordium marinum</i> Hudson	Th	IT	
<i>Hordium spontaneum</i> C.A.Mey	Th	IT,Med	
<i>Phragmites australis</i> (Cav.) Trin.ex	Cr	IT	
<i>Poa bulbosa</i> L.	Cr	ES	
<i>Poa pratensis</i> L.	Th	IT,ES	
<i>Poa trivialis</i> L.	Ch	IT,ES	
<i>Secale cereale</i> L.	Th	IT	
<i>Secale montanum</i> Gass.	Th	IT	
<i>Setaria glauca</i> (L.) P. Beauv.	Th	IT	
<i>Stipa barbata</i> Desf	He	IT	
<i>Triticum polonicum</i> L.	Th	IT	
<i>Polygonaceae</i>			
<i>Atraphaxis spinosa</i> L.	Ch	IT	*
<i>Polygonum aviculare</i> L.	Th	IT	*
<i>Polygonum thymifolium</i> Jaub and Spach	Ch	IT	
<i>Rheum ribes</i> L.	Ch	IT	*
<i>Rumex scutatus</i> L.	Ch	IT	
<i>Resedaceae</i>			
<i>Reseda lutea</i> L.	Th	IT	*

Table 1: Continued

Scientific name	Life form	Chorotype	Medicinal use
<i>Rosaceae</i>			
<i>Amygdalus communis</i> L.	Ph	IT	*
<i>Amygdalus lyciodes</i> Spach	Ph	IT	
<i>Amygdalus scoparia</i> Spach	He	IT	*
<i>Amygdalus urmiensis</i> (Bornm.) Browicz	Ph	Endm	*
<i>Amygdalus nairica</i>	Ph	IT	
<i>Cerasus incana</i> (Pall.) Spach	Ph	IT	
<i>Cerasus mahleb</i> (L.) Miller-Gard.	Ph	IT	*
<i>Cerasus microcarpa</i> C.A.Mey	Ph	IT	
<i>Cotonoaster morulus</i> Pojark.	Ph	IT	
<i>Cotonoaster numularioides</i> Pojark	Ph	IT	
<i>Cotonoaster ovata</i> Pojark.	Ph	IT	
<i>Crataegus curvisepala</i>	Ph	IT	
<i>Crataegus meyeri</i> A. Pojark	Ph	IT,ES	
<i>Crataegus pontica</i> C. Koch	Ph	IT,ES	
<i>Cydonia oblonga</i> Mill.	Ph	IT	*
<i>Malus orientalis</i> Ugl.	Th	IT,ES	*
<i>Poterium sanguisorba</i> L.	Th	IT,ES	
<i>Prunus domestica</i> L.	Ph	IT,ES	
<i>Prunus spinosa</i> L.	Ph	IT,ES	*
<i>Pyrus elaeagnifolia</i> Pall.	Ph	IT,ES	
<i>Rosa canina</i> L.	Ph	IT	*
<i>Rosa foetida</i> Herrm.	Ph	IT	
<i>Rosa pulverulenta</i> M.B.	Ph	IT	
<i>Rubus caesius</i> L.	Ph	IT,ES	
<i>Rubus saxatilis</i> L.	He	IT	
<i>Rubiaceae</i>			
<i>Gallium verum</i> L.	He	IT	
<i>Rumunculaceae</i>			
<i>Consolida persica</i> (Boiss.) Schrod.	Th	IT	
<i>Delphinium hohenackeri</i> (Boiss.) Grossh.	Th	IT	
<i>Ranunculus illyricus</i> L.	Cr	IT	*
<i>Salicaceae</i>			
<i>Populus alba</i> L.	Ph	IT,ES	*
<i>Populus nigra</i> L.	Ph	IT,ES	
<i>Salix alba</i> L.	Ph	IT,ES	*
<i>Salix wilhmsiana</i> M.B.	Ph	IT	
<i>Scrophulariaceae</i>			
<i>Scrophularia striata</i> Boiss.	He	IT,ES	*
<i>Verbascum agrimonifolium</i> (C.Koch) Hub.-Mor.	He	IT,ES	
<i>Verbascum speciosum</i> Schrad.	He	IT	
<i>Veronica gentianoides</i> Vahl.	Cr	IT	
<i>Solanaceae</i>			
<i>Hyoscyamus pusillus</i> L.	Th	IT	
<i>Solanum nigrum</i> L.	Th	IT	*
<i>Tamaricaceae</i>			
<i>Tamarix rosea</i> Bge.	Ph	IT	
<i>Tymelaceae</i>			
<i>Daphne mucronata</i> Royle.	Ph	IT	*
<i>Umbeliferaceae (Apiaceae)</i>			
<i>Bupleurum rotundifolium</i> L.	Th	Med	
<i>Chaerophyllum bulbosum</i> L.	He	IT	
<i>Echinophora orientalis</i> Hedge and Lamond	He	IT	
<i>Ferula ovina</i> Boiss.	He	IT	
<i>Ferula orientalis</i> L.	He	IT	
<i>Prangos ferulecea</i> (L.) Lindl.	He	IT	
<i>Prangos pabularia</i> Lindl.	He	IT	
<i>Urticaceae</i>			
<i>Urtica dioica</i> L.	Cr	IT,ES	*
<i>Valerianaceae</i>			
<i>Valerianella sclerocarpa</i> Fisch. and C.A.Mey.	Th	IT,ES	
<i>Zygophyllaceae</i>			
<i>Zygophyllum fabago</i> L.	Ch	IT	

(1975-2000), Astragalus communities of Iran, (1980-1996). In this manner, geographical plant Masoumirmak (1986-2000) and Flora of Iran, Mobayen distribution also determined according these Flora.

Determining the life form was done by Raunkier's classification (Raunkier, 1934), Endemic species of Iran was determined according to Red data book of Iran. Jalili and Jamzad (1999) and then floristic list of this region provided in a Table 1. The abbreviations used in the text and the floristic list is as follow: Th.: Therophyte, He.: Hemicryptophyte, Ch.: Chamaephyte, Ph.: Phanerophyte, Cr.: Cryptophyte, IT.: Irano-Turanian, ES.: Euro-Siberian, Med.: Mediterranean, Endm.: Endemic.

RESULTS

The results of study show that about 282 species belong to 167 Genera and 47 Families have been recognized. The biggest plant family of the region is *Asteraceae* with 43 species. *Fabaceae* with 28 sp., *Poaceae* with 26 sp. and *Rosaceae* with 25 sp. are in the next order (Fig. 1).

Among the existing genera, there are 101 genera with 1 species, 37 genera with 2 sp., 16 genera with 3 sp., 9 genera with 4 sp., 3 genera with 5 sp. and 1 genera with 8 sp. *Astragalus* with 8 species is the biggest genera (Fig. 2).

The life form spectrum of plant species is as follow: Therophyte 31.91%, Hemicryptophyte 26.95%, Chamaephyte 16.31%, Phanerophyte 15.06% and Cryptophyte 9.26% (Fig. 3).

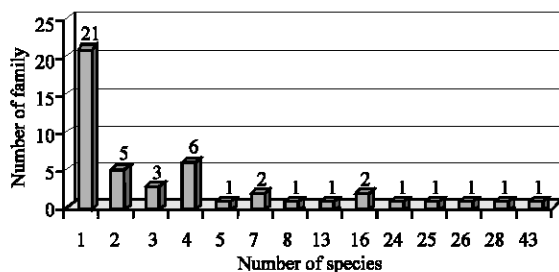


Fig. 1: The column chart of frequency of species in family

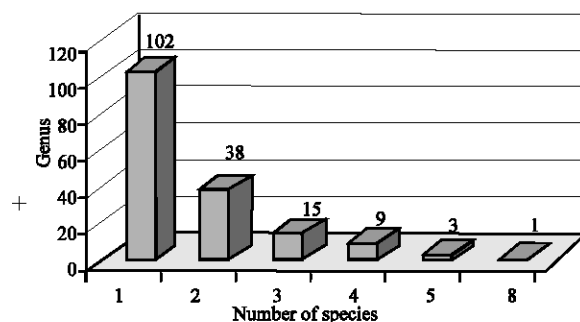


Fig. 2: The column chart of frequency of species in Genus

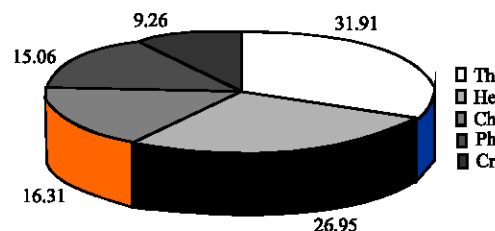


Fig. 3: The pie chart of life form of species of Marakan

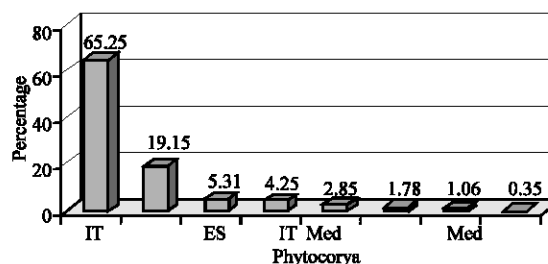


Fig. 4: The column chart of percentage of phytocorya of species in Marakan

The phytocorya distribution of species are as follow: IT 65.25%, Es 5.31%, Med 1.06%, IT,ES 19.15%, IT, Med 2.85%, Es,Med 1.78%, Endm 4.25%, Cosm 0.35% (Fig. 4).

DISCUSSION

It is concluded from the results of the study that the study area is very rich with refer to plant diversity. This conclusion is supported by the existence 47 families, 167 genera and 282 species.

Among all plants Th with 31.91% is dominant and He with 26.95% is in the next order. In fact life forms of the plants indicate the possibility of adaptation of plants to environmental factors especially climatic condition. According to Mobayen (1980-1996) the frequency of Th plants is due to Mediterranean climate and the frequency of He is due to cold and temperate climate. On the whole the frequency of Th and He among the plants of the region shows that the effect from two types of climate-Mediterranean and cold temperate- affected them.

Therophyte adapted to the dryness of the region and shortage rainfall. Because these plants spend vegetative period in the form of seed (Asri, 2003).

Hemicryptophyte adapted to condition of area. They adapted and developed themselves to area by using different ways such as: reserving water, using ground water, reducing their water need by loosing their leaves and reduction of vegetative growth.

Dominance of Hemicryptophyte and Therophyte clearly indicate the adaptation of these plants to aridity of area.

The low percentage of Cryptophyte, Champhyte, Phanerophyte shows that they are not adapted to existence climate and edaphical situations. Each plant species has its special ecological area with a known tolerance to life conditions of area. Therefore, the geographical distribution of plant species depending on life conditions of area and adaptation of plants to area (Asri, 2003).

Astragalus diversity with its 8 species in this area which is mountainous shows that Astragalus has adapted to the mountainous conditions.

The phytocorya distribution of plants reflects the climate conditions. Considering to this fact that 65.25% plant species in a region are IT elements, so we can conclude that this region belong to IT.IT (the Irano-Touranian region) is characterized by low rainfall and a long dry season.

The existence endemic species indicate diversity in Iran climate.

The existence of *Asteraceae* family with large diversity is the result of destruction in this region. It is experiently understood that the increasing of the number of some plant families including compositae accompanied with destruction in area; Following studies support the mentioned fact (Vakili *et al.*, 2001; Archibold, 1995). Significantly the presence of these species: *Stachys inflate*, *Teucrium polium*, *Teucrium orientale*, *Phlomis olivieri* and *Euphorbia* sp. Are indication of destruction in no protected portions of this region (Mozaffarian, 2000) According to rich biodiversity of study area which resulted from floristic study, it is quite possible to concentrate the improving practices and reclamate to area again.

About 87 medicinal species were determined in this area that was shown in Table 1. Some of most important species are as follow: *Achillea millifolium*, *Elaeagnus angustifolia*, *Glycyrrhiza glabra*, *Mililotus officinalis*, *Mentha longifolia*, *Stachys lavandulifolia*, *Thymus kotschyanus*, *Ziziphora clinopodioides*, *Descurainia Sophia*.

The number of endemic species of Iran in this region is 12 conclude: *Alcea ficifolia*, *Alcea koelzii*, *Allochrusa persica*, *Allysum bracteatum*, *Amygdalus urmiensis*, *Coronilla varia*, *Dianthus orientalis*, *Dianthus szowitsianus*, *Glycyrrhiza glabra*, *Heliotropium dissittiflorum*, *Nepeta humilis* and *Phlomis olivieri*. The following species naturally form forests in this region: *Amygdalus* sp., *Cotonoaster* sp., *Cerasus* sp., *Cydonia oblonga*, *Malus orientalis*, *Prunus domestica*, *Pr. Spinosa*, *Rosa* sp., *Pistacia mutica*, *Pistacia atlantica*, *Salix alba*, *S. nigra*, *Elaeagnus angustifolia*, *Juniperus* sp., *Morus alba*, *Morus nigra*, *juglans regia*, *Berberis vulgaris*, *Fraxinus excelsior*, *Tamarix rosea*,

Pupulus alba, *Pupulus nigra*, *Zygophyllum fabago*. There are only some cultivated forests near the Aras barrier that is about 354.18 ha. These forest composed of: *Robinia pseudacacia*, *Ulmus procera*, *Catalpa bignoniodes* and *Fraxinus nigra*.

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