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Survey of plant composition and life form in Khalatposhan rangelands at Tabriz-Iran

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Key words: Family dominance index (FDI), Life form, Rangelands, relative dominance (RD), weeds.

Abstract

In this study, plant species in Khalatposhan rangeland were identified. A total of 100 plant species belonging to 83 genus, and 20 families were recorded within these rangelands. Ranking of the plant families according to family dominance index (FDI) showed that Poaceae, Chenopodiaceae and Asteraceae with 99.84, 38.95, and 37.17% were respectively most important families in this area. Vegetation ranking by relative dominance (RD) index showed that bulbous bluegrass (*Poa bulbosa* L.), Russian thistle (*Salsola kali* L. subsp. *Tragus* (L.) Nyman), Ceratocarpus (*Ceratocarpus arenarius* L.), and downy brome (*Bromus tectorum* L.) with 65.04. 30.92, 27.62 and 18.25%, respectively were dominant species in mention rangelands. Results of this survey indicated that Khalatposhan rangelands were heavily infested with weeds, because in RD calculations, the relative contribution of weeds was higher than rangelands palatable species (263.25:400 (RD total for all species)). In order to life form vegetation, therophytes and hemicrypthophytes with 43 and 36%, respectively were abundant plants. However, chamophytes and cryptophytes with 15 and 6% of plants respectively had minimum frequency in this region. Higher frequency of therophytes in one district indicates a dry climate of their and lower frequency of cryptophytes duo to their incompatibility and intolerance to mention condition.

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Introduction

Iran is one of the centers of plant diversity is considered old world so that nearly 22% of the 8000 plant species of this country flora are endemic (Ghahreman, 1994), also it has a variety of ecosystems, as acquaintance with these ecosystems is necessary to maintain their stability, because otherwise the interferences by human we will see spread deserts and low efficiency rangelands. The knowledge of vegetation of any district is essential for the study of biodiversity and understanding the environment of that area. So, identifying vegetation has serious role for determining features and management of the region (Ghahrmaninejad and Nafisi, 2012). Recognizing of plants grown in an area and survey of their diversity has especially important in quick and easy access to specific plant species in a specified place and time (Stace Clive, 1989), determination potential and capability growth in the region, possibility to increase the number of species in terms of density, identification of resistant and endangered species, and help to determine vegetation coverage (Rechinger, 1977; Lemee, 1978; Ferrari *et al*, 1993).

Protection of rangeland ecosystems depended to management methodology of indigenous species. Appearance and existence of any plant community is entirely a subject of its floristic composition and the life form spectrum of its individual components (Kranti *et al*., 2012). Life form is good indicator of climate and is assumed to have evolved in response to environmental conditions (Pandit and Puhurkar, 1998). In each rangeland, there are some undesirable plants that may be unpalatable or poisonous to livestock. Species such as *Centaurea solstitialis* and *Acroptilon repens* are toxic to horses (Kingsbury, 1964; Panter, 1991). *Amsinckia intermedia*, *Cynoglossum*, *Echium*, *Heliotropium*, and *Senecio* spp. contain toxic alkaloids to livestock that causing irreversible liver damage (Summers *et al*., 1981; Cheeke, 1998). These unwanted plants as weeds can cause a range of problems likes compete with palatable plants for water, light, and nutrients. According to Andreasen and Stryhn (2012), unwanted plants are key components of ecosystems, providing the primary production upon which fauna food chains build. Weed species not only occupy disturbed sites previously dominated by annual grasses, but also invade relatively undisturbed perennial native plant communities (DiTomaso, 2000). Distribution of weeds, especially noxious ones, not only can be associated with soil disturbance by human activities, but also caused by livestock selecting and overgrazing the annual grasses. This pressure to palatable species in rangelands can support a quick shift in the plant communities and duo to dominant some weed species. So, identifying and survey of weed species composition provide the baseline information for future comparisons and management methods of these plants in rangelands.

The present study aims to determine and record the weed species present besides palatable species in Khalatposhan-Tabriz rangelands, the area infested, density, coverage, and uniformity of weed infestation, ranking of plant species distributed in these rangelands to find dominant species and plant families, classification of plant species with Raunkiaer's life form specifications.

Materials and methods

Survey of area

Khalatposhan rangelands are located at 8 km Tabriz-Basmenj road in Tabriz-Iran. Plant species assessments were performed following a 20 m × 40 m grid pattern, resulting in a total of 176 sampling units of these rangelands. At each node, the number of plants and their cover percentage were counted in a 0.5 m × 0.5 m micro plots for subsequent data entry and analysis. Identification of plants was done in plant's herbarium at University of Tabriz and by using some references (Rechinger, 1963-2007; Davis, 1965-85). Plant phenotypes were determined according to the Raunkiaer's life form specifications (Raunkiaer, 1934), so that these species were located in four classes (chamephyte, cryptophyte, hemicryptophyte, and therophyte).

Estimation Relative Dominance (RD) Index

The data were summarized using some quantitative measures, four measures (relative frequency, relative uniformity, relative mean density) as outlined by Thomas (1985) and relative mean cover as outlined by Hassannejad (2011).

The Frequency (F) value was the percentage of plots infested by a species k, at least in one quadrate per plot.

$$F_k = \frac{\sum_1^n Yi}{n} \times 100$$

Where F_k the frequency value of species k, Yi is the presence (1) or absence (0) of species k in plot i, and n is the number of plots surveyed.

The Uniformity (U) value indicates the percentage of quadrates infested by a species. This measure is an estimate of the area infested by a plant species.

$$U_k = \frac{\sum Xij}{n} \times 100$$

Where U_k is the plot uniformity value of species k, X_{ij} is the presence (1) or absence (0) of species k in quadrate j in plot i, and n is the number of plots surveyed.

The Mean Density (MD) value indicates the number of plants per square meter for each species averaged. This measure was used to magnitude of the infestation in all plots surveyed.

$$MD_k = \frac{\sum Dki}{n} \times 100$$

Where MD_k is the mean plot density of species k, Dki is the density (numbers per square meter) of species k in plot i, and n is the number of all plots surveyed.

The Mean Cover percentage (MC) value indicates the cover of plants per square meter for each species averaged.

$$MC_{ki} = \frac{\sum Cki}{n} \times 100$$

Where MC_{ki} is the mean plot cover k, Cki is the cover percentage of species k in plot i, and n is the number of plots surveyed.

Relative dominance (RD) index calculated from relative frequency, relative uniformity, relative density, and relative coverage (Hassannejad and Porheidar Ghafarbi, 2012).

RD= RF+ RU+ RMD+ RMC

Estimation of Family Dominance Index (FDI)

In order to compare the relative contribution of each taxonomic family to plant species composition, we used family dominance index (FDI) introduced by Hassannejad and Porheidar Ghafarbi (2012) as follow:

$$\text{Relative Diversity} = \frac{\text{Number of species in family}}{\text{Total number of species}} \times 100$$

$$\text{Relative Density} = \frac{\text{Number of individuals in family}}{\text{Total number of individuals}} \times 100$$

$$\text{Relative Coverage} = \frac{\text{Coverage of individuals in family}}{\text{Total coverage of individuals}} \times 100$$

FDI= Relative Diversity + Relative Density + Relative Coverage

Results and discussion

Weed species ranking by relative dominance (RD)

A total of 100 plant species from 20 plant families was identified in Khalatposhan rangelands at Tabriz-Iran. Among these species, 83 and 17% of plants were dicotyledonous and monocotyledons, respectively. Due to the higher relative contribution of weeds compare to rangeland species (65.81:34.19) and the higher relative dominance (RD) index of weeds (263.25 out of 400) than rangeland species (136.75 out of 400) indicated that these rangelands are heavily infested with weeds. Ranking vegetation cover of the case study area according to the relative dominance (RD) index showed that bulbous bluegrass (*Poa bulbosa* L.) as a monocotyledonous species with 65.04 RD, was dominant weed species in these rangelands. This weed with relative mean density 34.87% and relative mean coverage 15.24% had highest uniformity in distribution, so it was observed in 11.99% of quadrats in each pieces (Table 1). Russian thistle (*Salsola kali* L. subsp. *Tragus* (L.) Nyman), with 30.92 RD was dominant

dicotyledonous weed species in this area. Higher frequency of these two species than others (100:400) represent of their heavy infestation in these rangelands. Also weed species like Ceratocarpus (*Ceratocarpus arenarius* L.), needle grass (*Stipa* sp.), downy brome gras (*Bromus tectorum* L.), alyssum (*Alyssum dasycarpum* Steph. ex Willd.), and milfoil (*Achillea Biebersteinii* Afan) with RD equal 100 were another dominant species in this area (Table 1).

Table 1. Order, Scientific Name, Family Name, Relative Frequency (RF), Relative Uniformity (RU), Relative Mean Density (RMD), Relative Mean Coverage (RMC), and Relative Dominance (RD) of Khalatposhan rangelands in Tabriz county.

Order	Scientific Name	Family Name	RF	RU	RMD	RMC	RD
1	*Poa bulbosa* L.	Poaceae	2.93	11.99	34.87	15.24	65.04
2	*Salsola kali* L. subsp. *Tragus* (L.) Nyman	Chenopodiaceae	2.93	10.92	6.83	10.23	30.92
3	*Ceratocarpus arenarius* L.	Chenopodiaceae	2.93	6.95	8.76	8.97	27.62
4	*Stipa sp*.	Poaceae	2.93	4.78	5.23	5.37	18.32
5	*Bromus tectorum* L.	Poaceae	2.93	4.33	7.09	3.89	18.25
6	*Alyssum dasycarpum* stapf	Bracicaceae	2.93	5.36	5.66	3.24	17.20
7	*Achillea microntha* Wild.	Asteraceae	2.93	5.30	3.41	4.74	16.39
8	*Bromus arvensis* L.	Poaceae	2.60	3.97	4.13	4.55	15.27
9	*Bromus sterilis* L.	Poaceae	2.93	2.86	5.43	3.08	14.31
10	*Salvia nemerosa* L.	lamiaceae	2.93	4.10	1.74	4.07	12.85
11	*Lepidium vesicarium*	Bracicaceae	2.61	2.87	0.77	2.84	9.082
12	*Allium ampeloprasum* L.	Alliaceae	2.61	2.71	0.57	1.37	7.264
13	*Euphorbia falcata* L.	Euphorbiaceae	2.61	1.82	1.07	1.63	7.13
14	*Astragalus (Tragacantha*) parrowianus.	Papilionaceae	2.61	1.51	0.35	2.15	6.611
15	*Acroptilon repens* L.	Asteraceae	2.61	1.56	0.44	1.18	5.793
16	*Onobrychis Hohenackeriana* C.A.MEY.	Papilionaceae	1.3	1.98	0.95	1.37	5.606
17	*Linum usitatissimum* L.	Linaceae	1.95	1.63	0.52	1.08	5.183
18	*Agropyron repens* L.	Poaceae	1.63	0.94	1.2	1.33	5.099
19	*Alkana bracteosa* Boiss.	Boraginaceae	1.95	1.42	0.25	1.47	5.095
20	*Verbascum kurdicum* Hub.Mor.	Scrophulariaceae	1.3	1.48	0.15	2.1	5.027
21	*Erodium cicutarium* (L.) L'Her.	Geraniaceae	1.95	1.08	0.61	0.88	4.514
22	*Senecio vulgaris* L.	Asteraceae	2.28	1.2	0.27	0.67	4.426
23	*Alhagi persarum* Boiss. & Buhse.	Papilionaceae	1.95	0.92	0.1	1.01	3.978
24	*Ferula Behboudiana*(Rech. F.& Esfand.) Chamberlain	Apiaceae	1.63	0.86	0.09	0.87	3.45
25	*Salsola dendroides* pallas.	Chenopodiaceae	1.63	0.96	0.19	0.64	3.422
26	*Descurainia Sophia* L.	Bracicaceae	2.28	0.64	0.08	0.41	3.405
27	*Chenopodium album* L.	Chenopodiaceae	1.63	0.76	0.11	0.88	3.387
28	*Onobrychis atropatana* Boiss.	Papilionaceae	1.63	0.68	0.39	0.57	3.268
29	*Aegilops ovata* L.	Poaceae	0.65	0.94	0.79	0.82	3.207
30	*Lolium rigidum* Gaudin	Poaceae	0.33	0.42	1.52	0.49	2.753
31	*Pimpinella aurea* DC.	Apiaceae	0.65	0.78	0.09	1.21	2.734
32	*Stachys inflata* Benth.	lamiaceae	1.3	0.47	0.51	0.43	2.715
33	*Nonnea persica* Boiss.	Boraginaceae	1.63	0.54	0.11	0.4	2.684
34	*Ziziphora tenuir* L.	lamiaceae	0.98	0.5	0.62	0.54	2.634
35	*Noaea Mucronata* (Forsk.) Aschers.	Chenopodiaceae	1.63	0.46	0.26	0.24	2.591
36	*Jurinea lptoloba* DC.	Asteraceae	0.98	0.79	0.21	0.61	2.59
37	*Ersimum persicum* Boiss.	Asteraceae	1.3	0.44	0.34	0.45	2.54
38	*Dianthus orientalis* Adams	Caryophyllaceae	0.65	0.55	0.38	0.58	2.162
39	*Achillea Wilhelmsii* C.koch.	Asteraceae	0.65	0.46	0.18	0.7	1.99

40	*Scariola orientalis* (Boiss.) Sojak	Asteraceae	0.65	0.52	0.09	0.45	1.718
41	*Tribulus terresteris* L.	Zygophyllaceae	0.65	0.22	0.23	0.53	1.621
42	*Astragalus (Hymenostegis)* lagopoides Lam.	Papilionaceae	0.98	0.24	0.04	0.34	1.603
43	*Crepis foetida* L.	Asteraceae	0.98	0.28	0.06	0.18	1.492
44	*Pimpinella saxifraga* L.	Apiaceae	0.33	0.35	0.28	0.44	1.392
45	*Peganum Harmala* L.	Zygophyllaceae	0.65	0.21	0.11	0.33	1.3
46	*Sisymbrium altisimum* L.	Bracicaceae	0.65	0.33	0.03	0.26	1.275
47	*Artemisia fragrans* Willd.	Asteraceae	0.33	0.09	0.66	0.2	1.272
48	*Artemisia sp*.	Asteraceae	0.33	0.35	0.15	0.4	1.219
49	*Astragalus (Grammocalyx)* grammocalyx Boiss.&hohen.	Papilionaceae	0.65	0.22	0.13	0.15	1.159
50	*Verbascum nudica*ule (WYDL.)TAKHT.	Scrophulariaceae	0.65	0.21	0.09	0.17	1.122
51	*Atrriplex tata*rica L.	Chenopodiaceae	0.65	0.22	0.02	0.23	1.121
52	*lactuca scariola* L.	Asteraceae	0.65	0.22	0.03	0.14	1.041
53	*Heliotropium lasiocarpum* fich. C.A. Mey	Boraginaceae	0.65	0.18	0.03	0.14	1.006
54	*Centaurea virgata* Lam.	Asteraceae	0.33	0.2	0.1	0.24	0.874
55	*Cynodon dactylon* L.	Poaceae	0.33	0.09	0.21	0.2	0.82
56	*Dianthus crinitus* SM.	Caryophyllaceae	0.33	0.2	0.08	0.19	0.8
57	*Artemisia splendens* Willd.	Asteraceae	0.33	0.11	0.21	0.12	0.766
58	*Fumaria asepala* Boiss.	Fumariaceae	0.33	0.23	0.03	0.16	0.751
59	*Scrophularia striata* Boiss.	Scrophulariaceae	0.33	0.09	0.05	0.25	0.714
60	*Bromus japonicus* Thub	Poaceae	0.33	0.14	0.13	0.11	0.704
61	*Rochelia macrocalyx* Bge.	Boraginaceae	0.33	0.14	0.15	0.06	0.677
62	*Muscari tenuiflorum* Tausch	Liliaceae	0.33	0.17	0.07	0.08	0.647
63	*Erygnium coeruleum* Bieb.	Apiaceae	0.33	0.11	0.03	0.18	0.64
64	*Couisnia urumiensis* Bornm.	Asteraceae	0.33	0.09	0.01	0.2	0.623
65	*Xeranthemum squarrosum* Boiss.	Asteraceae	0.33	0.1	0.07	0.11	0.612
66	*Echinops pachyphyllus* Rech.f.	Asteracea	0.33	0.18	0.02	0.08	0.604
67	*Gypsophila bicolor* (freyn&sint) Grosh.	Caryophyllaceae	0.33	0.12	0.01	0.15	0.602
68	*Lappula barbata* (M.B.) Gurke	Boraginaceae	0.33	0.12	0.02	0.13	0.587
69	*Erysimum repan*dum L.	Bracicaceae	0.33	0.12	0.01	0.13	0.577
70	*Hordeum spontaneum* C. Koch	Poaceae	0.33	0.1	0.04	0.11	0.575
71	*Moltkia longiflora* (Bertol.)wettst	Boraginaceae	0.33	0.07	0.05	0.1	0.55
72	*Teucrium polium* L.	labiateae	0.33	0.12	0.02	0.08	0.537
73	*Hordeum glaucum* Steud.	Poaceae	0.33	0.12	0.03	0.06	0.535
74	*Astragalus sp*.	Papilionaceae	0.33	0.1	0.05	0.05	0.528
75	*Hyoscyamus pusillus* L.	Solanaceae	0.33	0.11	0.01	0.08	0.526
76	*Medicago sativa* L.	Papilionaceae	0.33	0.12	0.02	0.06	0.525
77	*Linaria lineolata* sonsu. Groossh.	Scrophulariaceae	0.33	0.1	0.02	0.08	0.523
78	*Thesium arvence* Horvatovsky	Santalaceae	0.33	0.12	0.01	0.06	0.514
79	*Ferula szowitsiana* Dc.	Apiaceae	0.33	0.07	0.03	0.08	0.502
80	*Capsella bursa-pastoris* (L.)	Bracicaceae	0.33	0.1	0.02	0.06	0.501
81	*Solanum nigrum* L. Var nigrum	Solanaceae	0.33	0.12	0.01	0.04	0.489
82	*Euphorbia Szovitsii* Fisch. Et Mey.	Euphorbiaceae	0.33	0.11	0.01	0.04	0.479
83	*Onopordon acanthium*	Asteraceae	0.33	0.12	0.01	0.03	0.477
84	*Thymus Kotschyanus* Boiss.& Hohen.	Lamiaceae	0.33	0.03	0.02	0.08	0.451
85	Salsola sp.	Chenopodiaceae	0.33	0.03	0.07	0.02	0.445
86	*Lycium ruthenicum* Murray	Solanaceae	0.33	0.07	0.01	0.03	0.438
87	*Sonchus oleraceus* L.	Asteraceae	0.33	0.07	0.01	0.02	0.424
88	*Astragalus (Onobrychium)* effusus.	Papilionaceae	0.33	0.07	0.01	0.02	0.423
89	*Senecio glaucus* L.	Asteraceae	0.33	0.0	0.01	0.05	0.418

90	*Taeniatherum crinitum* (Shreb.) Nevski.	Poaceae	0.33	0.03	0.03	0.02	0.417
91	*Melilotus officinalis* (L.) Pall.	Papilionacea	0.33	0.07	0.01	0.01	0.415
92	*Tragopogon kotsschys* boiss	Asteraceae	0.33	0.03	0.02	0.03	0.409
93	Allyssum sp.	Bracicaceae	0.33	0.03	0.003	0.04	0.401
94	*Astragalus (Tragacantha)* strictifolius	Papilionaceae	0.33	0.03	0.003	0.02	0.382
95	*Iris barnumae* Baker	Iridaceae	0.33	0.03	0.01	0.02	0.382
96	*Camelina rumelica* Velen. Subsp. *rumelica*	Bracicaceae	0.33	0.03	0.003	0.02	0.379
97	*Centaurea pulchella* ledeb.	Asteraceae	0.33	0.03	0.003	0.01	0.371
98	*koelpinia linearis* Pall.	Asteraceae	0.33	0.03	0.003	0.01	0.371
99	*Lepidium perfoliatum* L.	Asteraceae	0.33	0.03	0.003	0.004	0.367
100	*Trigonella fischeriana* Ser.	Papilionaceae	0.33	0.03	0.003	0.004	0.367

Our survey showed that noxious weeds of this rangeland can be annuals (e.g., *Chenopodium album* L., *Sisymbrium altisimum* L.and *Bromus tectorum*), biennials (e.g., *Erygnium coeruleum* Bieb. and *Onopordum acanthium*), long-lived herbaceous perennials (e.g., *Convolvulus arvensis*, *Alhagi persarum* Boiss. & Buhse., *Acroptilon repens* L. and *Cirsium arvense*) or shrubs (e.g., *Lycium ruthenicum* Murray) Table 1.

Table 2. Order, Family Name, Number of Species, Relative Diversity, Relative Density, Relative Coverage, and Family Dominance Index (FDI) of Khalatposhan rangelands in Tabriz county.

FDI	Relative Coverage	Relative Diversity	Relative Density	Family Name	Order
99.84	26.11	13	60.72	Poaceae	1
38.95	15.71	7	16.24	Chenopodiaceae	2
37.17	7.86	23	6.30	Asteraceae	3
27.72	26.11	1	0.60	Geraniaceae	4
19.74	5.16	8	6.57	Bracicaceae	5
18.31	4.25	12	2.06	Papilionaceae	6
11.75	3.84	5	2.90	Lamiaceae	7
8.31	1.69	6	0.61	Boraginaceae	8
7.56	2.05	5	0.51	Apiaceae	9
6.22	1.92	4	0.30	Scrophulariaceae	10
4.31	1.23	2	1.08	Euphorbiaceae	11
4.15	0.67	3	0.47	Caryophyllaceae	12
3.14	0.11	3	0.03	Solanaceae	13
2.97	0.63	2	0.33	Zygophyllaceae	14
2.59	1.01	1	0.57	Alliaceae	15
2.31	0.79	1	0.51	Linaceae	16
1.67	0.64	1	0.03	Fumariaceae	17
1.12	0.06	1	0.06	Liliaceae	18
1.05	0.04	1	0.01	Santalaceae	19
1.01	0.01	1	0.006	Iridaceae	20

Main plant families according to family dominance index (FDI)

The largest number of noxious weed species belong to Asteraceae family. Asteraceae, Poaceae, and Papilionaceae with 23, 13, and 12 plant species respectively were richness families however according to their density; Poaceae with relative density equal 60.72 had highest density (Table 2). These results showed that only using diversity, density or coverage indices cannot be introducing family importance, therefore we have to use an index consists all three of them. Family dominance

index (FDI) introduced by Hassannejad and Porheidar Ghafarbi (2012) comprising diversity, density, and coverage can be acceptable index for plant families ranking. According to FDI in the formation of plant communities, Poaceae, Chenopodiaceae, and Asteraceae families with 99.84, 38.95, and 37.17 respectively were dominant plant families in these rangelands (Table 2). Dominance of these families can be due to their adaptability to climate and soil characteristics of their habits. So that Ghollassi Moud *et al.* (2007) showed in their investigations, more tolerant of Chenopodiaceae and Asteraceae families to arid and semi-arid climates. Richness of plant species in some families like Poaceae and Asteraceae can be due to high destruction and arid or semiarid of their habits. These results confirm Vakili Shahrbabaki *et al.* (2001) and Ghollassi Moud *et al.* (2007) about Asteraceae family members.

Table 2.

Life form of plant species

Survey the life form of plant species in Khalatposhan rangelands showed that therophytes (43%) and hemicryptophytes (36%) form 79% of total species (Figure1). Also higher fractions of therophytes and hemicryptophytes have been reported for other rangelands in Iran. Jankju *et al.* (2011) researches showed that therophytes and hemicryptophytes were dominant in Northern Khorasan province. Therophytes were the most abundant life forms in Garmsar at Semnan (Iranbakhsh *et al.*, 2008) and Kalat highlands of Gonabad in Khorasan Razavi (Vaseghi *et al.*, 2008). Hemicryptophytes were dominant in Fereizi at Khorasan Razavi (Memariani *et al.*, 2009). High frequency of therophytes can be due to high destruction (Amiri *et al.*, 2009), relatively dry season and a high percentage of weeds in one area (Ashrafi *et al.*, 2004). Because Ashrafi *et al.* (2004) believed that these plants can complete their regeneration cycle before achieve dry. Also abundant of hemicryptophytes indicated of cold climate and mountainous region (Archibold, 1995).

Figure1.

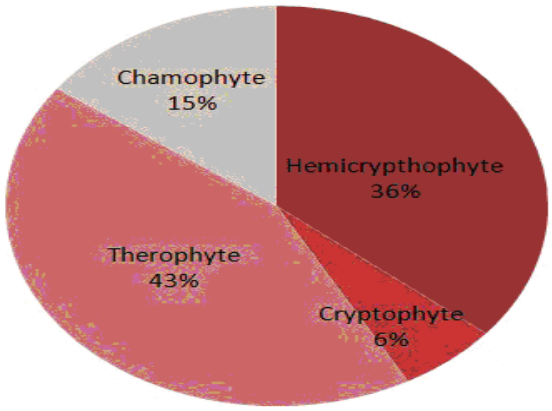

Fig. 1. Biological spectrum of life-forms of present study of Khalatposhan rangelands in Tabriz county.

The results of this study showed that chamaephytes and cryptophytes with 15 and 6% of plants respectively have minimum frequency in this region. Low frequency of cryptophytes due to their incompatibility and intolerance to arid and semi-arid climate in region (Ghollassi Moud *et al.*, 2007) .Some species such as sickle euphorbia (*Euphorbia falcata* L.), *Euphorbia Szovitsii* Fisch. et Mey., and harmel peganum (*Peganum harmala* L.) are unpalatable species and their presence in one district represent of destroy ecosystems (Amirinia and Shakeri, 2002).

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