Life forms and rangeland for many habitats of Jarjar oma in Al- Jabal Al- Akhdar on Mediterranean sea

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Abstract: The present study was carried out during 2010 to 2011 to determine the important plants of in Jarjar oma in Al- Jabal Al- Akhdar-Libya, which includes about 179 species belonging to 51 families and 144 genera. They are represented by 75 perennial, 101 annual and 3 biennial species. Most characteristic families are Asteraceae containing 28 species, the dominance of Asteraceae indicates the range deterioration and dominance of unpalatable species. Fabaceae represented by 22 species, Poaceae including 18 species, Asparagaceae by 7 species, Brassicaceae by 6 species, Caryophyllaceae by 6 species, Euphorbiaceae by 6 species saline and rocky. Apiaceae, Lamiaceae and Polygonaceae including 5 species. Noticed that 56.2 % of species was annuals and 42.1 % was perennials and 1.7 % was biennials. Whereas autumn and summer increase perennials to reach 100 % more than spring and winter wherein increase annuals species to attain 55 %, to display disappear biennial in autumn and summer seasons in all habitat except rocky habitat in autumn. Out of the surveyed, Kinds of Forbs gave 109 species followed shrubs by 38 species, Grass 26 species, Trees 6 species. Of the most dominant species was broad-leaved (Forbs) plant species found in the region. According to palatability 107 species were palatable and 72 species were unpalatable. For annuals, 61 species were palatable and 40 species were unpalatable, while perennial, 44 species were palatable and 31 species were unpalatable. The species belongs to six different life forms. Therophytes 58.7%, is represented by the largest number of species, while, Geophytes represents about 14% of the flora, Hemicryptophytes has a moderate value of 10.6%, Chamaephytes has 10.1% of the flora Jarjar oma area, Phanerophytes contains 11 species, which are *Pistacia lentiscus*, *Rhus tripartite*, *Tamarix tetragyna*, *Ceratonia siliqua* and *Nitraria retusa*. Hydrophytes record on species *Posidonia oceanica* found in sand formation. The relationship life forms with seasons in Jarjar oma habitat increase Therophytes reach 30-57% in winter and 50% in spring. Chamaephytes highly during season summer of 30-50%. Hemicryptophytes low in all seasons. Geophytes highest during autumn season in sandy beach, while Phanerophytes high during summer season.
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Keyword: Rangeland, habitats and life forms.

1. Introduction

The Mediterranean region covers some 2.3 million km^2 that represents some 1.6% of the land surface yet contains about 10% of the world's flowering plants (Quézel, 1985; Greuter, 1991; Heywood, 1991 and Quézel and Medail, 1995). Al-Jabal Al- Akhdar is located in the north-eastern part of Libya and extends along the coast of the Mediterranean Sea for a distance of 250 km and 50 km width. Habitats that are still poorly studies, also survey and identify possible links between a species and its habitat. Habitat structures are assessed according to the habitat type, generally using biotic and abiotic criteria (Schröder *et al.,* 2006).

Life form of the analysed taxa was classified following Raunkiaer (1934), this system emphasized that the growth of higher plants depends on the initiation of tissues at apices. He classified plants according to their 'life forms' defined by the way in which their meristems were located and protected. Chamaephyte, a perennial plant that sets its dormant vegetative buds just at or above the surface of the ground; Geophyte, a perennial plant that propagates by underground bulbs or tubers or corms; Hemicryptophyte, the surviving buds or shoot apices are situated in the soil surface; Phanerophyte, the surviving buds or shoot apices are borne on shoots which project into the air; Therophyte, plants that complete their life cycle from seed to seed and die. Lightly grazing sites had a greater diversity in terms of evenness of all life forms. dispersal morphologies and reproductive modes (Mclntyre *et al*.,1995).

Palatability is a very complex notion, very difficult to generalize as it is linked to many variables in time and space; some of these variables are linked to the plant, others to the animal while a third category depends on various environmental factors. For a given species palatability for a given type of animal varies with the phenological stage, the organ concerned and the season. The abundance of palatable species attained the maximum in spring season and to the minimum in summer one, while it was about equal and moderate either in winter or autumn season. It may be elucidated to fine weather and wet soil due to fall in winter season which permitted to flourish of plant life in spring season. On the contrary, the abundance of

unpalatable species declined in spring compared with the palatable ones (Abou-Deya and Salem, 1990). Current management of much of the world's grazing lands based on species composition criteria may lead to erroneous conclusions concerning the long-term ability of a system to sustain productivity (Milchunas and Lauenroth, 1993).

Grazing can also induce retrogressive succession, as palatable grasses, forbs, and shrubs succumb to repeated defoliation and are eventually replaced by other growth and life-forms. Grasslands are able to tolerate a moderate degree of grazing intensity However, as grazing intensity is increased or becomes continuous, tall and mid-grasses eventually give way to short-statured perennial grasses, which, in turn, give way to annuals and unpalatable perennials (Archer and Smeins, 1991).

Halophytes represent in fact a heterogeneous ecological group of plants; not only had the high salinity represented the single factor "building" the history of these plants during the evolution (Grigore *et al.,* 2010). This is mainly due to the absence of up-to-date information on the halophytes and the interest of most botanists and ecologists in the rich flora of low-salt or salt-free habitats. Saline lands are widely distributed globally and make up about 10 % of the Earth's terrestrial surface (O'Leary and Glenn, 1994). Compared to studies of coastal marshes, little attention has been paid to inland saline landscapes (Adam, 1990 and Krüger and Peinemann, 1996). One of the most important attribute of halophytes is their salinity tolerance. This property of halophytes seems to offer for euhalophytes real advantages for the competition with sensitive plants (glycophytes) (Koyro, 2006).

The main objective of the present work is to examine the survey and study plant species to the flora of Jarjar-oma of Al Jabal Al Akhdar in Libya include within five habitats to: Sandy beach, Sand formation, salt march, Saline land and Rocky. Determination of the most palatable species for grazing and life forms to observation of characteristic species that occur at five different habitats

The study area

Location: The study area is located in the Mediterranean Coast of Libya Jarjr-oma between latitude 32°, 47′, 49.8″ N and longitude 21°, 26′, 40.6″ E. distance 28 km west Al Baida city (Figure 1). Three transect were investigated from north to south. Distance Jarjr-oma 300 m of the sea with altitude 1 m.

Geology: Indicate geologically area Jarjr-oma to exposure to sediments Quaternary consists soil from rocks Eocene, which consists of Nummulitic Limestone in Cretaceous and present sediment Quartet coastal area, and up the highest elevation of the valley Jarjr-oma altitude 385 meters, and at least until it reaches the level of the sea, an area study.

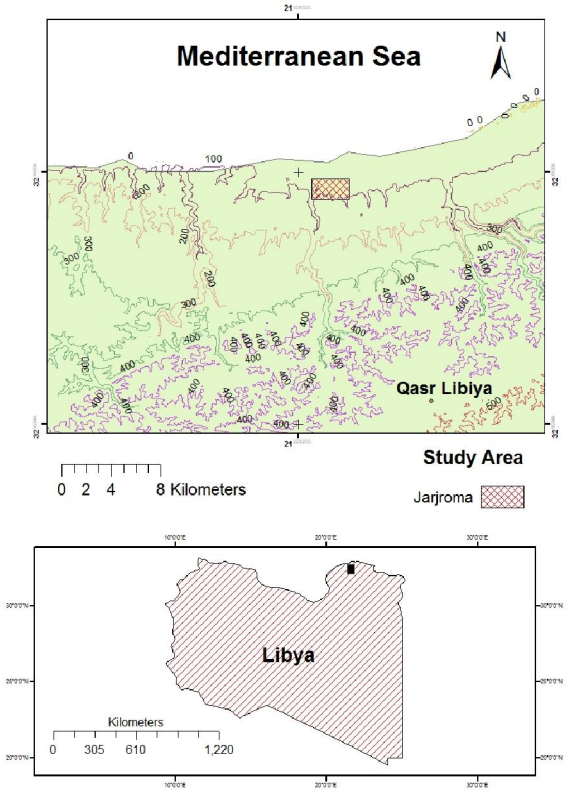


Fig. 1. Map of the Western Mediterranean sea coast region of Libya indicating the location Jarjr oma area in Al- Jabal Al- Akhdar.

Climatic: The maximum rainfall was Meteorological station Al Baida actress for Jarjr-oma region, 131.3 and 191.6 mm in December and January, respectively. The average rainfall 550.5 mm / year in Al Baida station for the period from 1999 to 2009. The lowest monthly average of rainfall 1.2 mm in July in Al Baida station.

Temperature in the study area, the dry period extends from June to Augustus. The highest mean temperature meteorogical station Al Baida imitation Jarjr-oma for years 1999 to 2009 about 24 C° through Augustus month. The lowest mean temperature in Al Baida 10 and 9.7 C° in January and February, respectively.

Characterized land area Green Mountain generally high proportion of gravel and reveal the original material rock where he found that more than 45% of the soils Green Mountain severe rocky and nearly 50% of which has been characterized by shallow soil sector where less soil depth effective 50 cm due to high viability of soil erosion runoff water especially if they removed their natural vegetation cover.

Dunes cohesive Calcarenite arise dunes result weathering physical and erosion by wind rocks era

tripartite era Cretaceous Supreme south coast at the top of the mountains and valleys and firmed this dune by materials carnivorous limestone and can be dubbed the dunes cohesive or rocks Calcarenite that exist along the coastal strip Green Mountain especially among Al Hania and Hamama and Jarjr-oma area (Al-Jabal Al-Akhdar south project, 2005).

Deposits Marshes and swamps, can be defined Sabkha in the study area as harassing and low extended very close to the coastal strip of the sea and isolated him by steeplechase natural, and is filled with these marshes seawater from time to time by storms Navy and also by some groundwater late destined to the sea, and exposed these areas drought and evaporation higher continuously over the year, which led to the formation sediments marshes such salts halite, gypsum, Alanaedraat and some red clay with thin layers very sand and repigment sediments Alosbach for oxides of sodium, potassium and extends this marshes between Jarjr-oma even Al-derseah and Al-Akoreah along the coastal strip.

Sea sand, spread the sand along the coastline between sea and land surface, is characterized by the sand as soft to medium grained incoherent which often consists of structures limestone objects molluscan minute found on beaches and nearby areas and also the product did carve wind to some rocks high and some limestone rocks slopes dunes cohesive Calcarenite and chemical components of calcium carbonate granules and other calcareous compounds (Al-Jabal Al-Akhdar south project, 2005).

Jerjr-oma in west arranged according to their habitat preferability into five habitats of salt marsh, rocky land, saline land, sand formation and beach land.

2. Material and Methods

Vegetation study was undertaken during the autumn 2010 and winter, spring and summer 2011. A total of 24 stands in all season were sampled of Jarjr-oma from Al- Jabal Al-Akhdar (Figure 1). Stands and sites were selected as to represent the variation of vegetational, climatic and edaphic characteristics prevailing in the study area so that the location of stands was based on visual changes in habitats and plant communities along the transect. Examples of habitat classes include habitat types derived from Electric Conductivity (EC) classification schemes, habitat salinity EC from 6 – 9 ms/cm and habitat saltmarch from 11-36 ms/cm.

Sample collection: The floristic categories and chorology of species recorded in the study area were made with their characteristic distribution terms, the plant life forms of the species were identified according to Boulos (1999, 2000, 2002 and 2005) and Jafri and El-Gadi (1977).

Three line transects at Jarjr-oma were chosen for this study. The take 500 meters for each transect the number of three transects and all transect four stands with an area of 5 × 5 m^2. In these stands, the quadrate method was used and the size of each analytic quadrate area was 1 m^2. The stands were selected on the basis of visual difference and change in their vegetation coverage. The species in each quadrate were listed. The number of individual of each species was counted.

Used Raunkiaer's system to classify in life-forms the vascular plants present in random 25 m^2 quadrats into habitats of Jarjar-oma site (Raunkiaer's, 1934). All plants species of each transect were classified into annual, biennial and perennial and their relative proportion was determined.

Plant communities on rangelands typically are composed of a mixture of grasses, forbs, and shrubs. Some rangelands, such as many ponderosa pine forests or pinyon-juniper woodlands, have an overstory of trees and an understory of grasses, forbs, and/or shrubs. All plant communities, regardless of their location, change across time — a process called plant succession. The changes may be in species composition, life-forms (grasses, forbs, shrubs, trees) and life cycles (annual, biennial, perennial).

Statistical analysis

Classification and ordination of communities (stands) followed two trends of multivariate analysis. The applied classification technique here was the Two-Way Indicator Species Analysis (TWINSPAN), a CAP Program (Henderson and Seaby, 1999). Excel program 2007 was used in the organization and presentation of data statistically.

3. Results

Floristic analysis

a. Characteristic families

About 179 species belonging to 51 families and 144 genera were recorded in Jarjar oma area. They are represented by 75 perennial, 101 annual and 3 biennial species.

As shown in figure 2 most characteristic families are Asteraceae (15.7%) containing 28 species such as in rocky habitat *Calendula arvensis*, *Centaurea alexandrina*, *Cynara cornigera*, while sandy beach habitat by *Cichorium spinosum*, however saline and rocky habitat *Leontedon tuberosus*, *Onopordum cyrenaicum* and *Phagnlon ropestre*. Fabaceae (12.4 %) represented by 22 species, from these species in saline and rocky habitat *Lotus ornithopodioides*, while, salt march *Medicago polymorpha*, sand formation *Retama raetem* and rocky habitat *Trigonella stellata*. Poaceae (10.1%) including 18 species by sandy beach habitat *Cynodon dactylon*. Asparagaceae (3.9 %) by 7 species contains

rocky *Asparagus stipularis* saline and rocky by *Bellevalia sessiliflora* and *Drimia maritima* and rocky habitat *Scilla peruviana*, Brassicaceae (3.4 %) by 6 species such as saline *Sinapis alba*. Caryophyllaceae by 6 species saline and rocky habitat was *Polycarpon tetraphyllum*. Euphorbiaceae by 6 species saline and rocky was *Mercurialis annua*. Apiaceae (2.8 %) including 5 species sandy beach was *Ammi visnaga* and rocky *Torilis nodosa*. Lamiaceae 5 species saline and rocky were *Phlomis floccosa* and *Prasium majus* and rocky was *Teucrium barbeyanum* and Polygonaceae 5 species by saline and rocky was *Polygonum equisetiforme* and saline *Rumex bucephalophorus*.

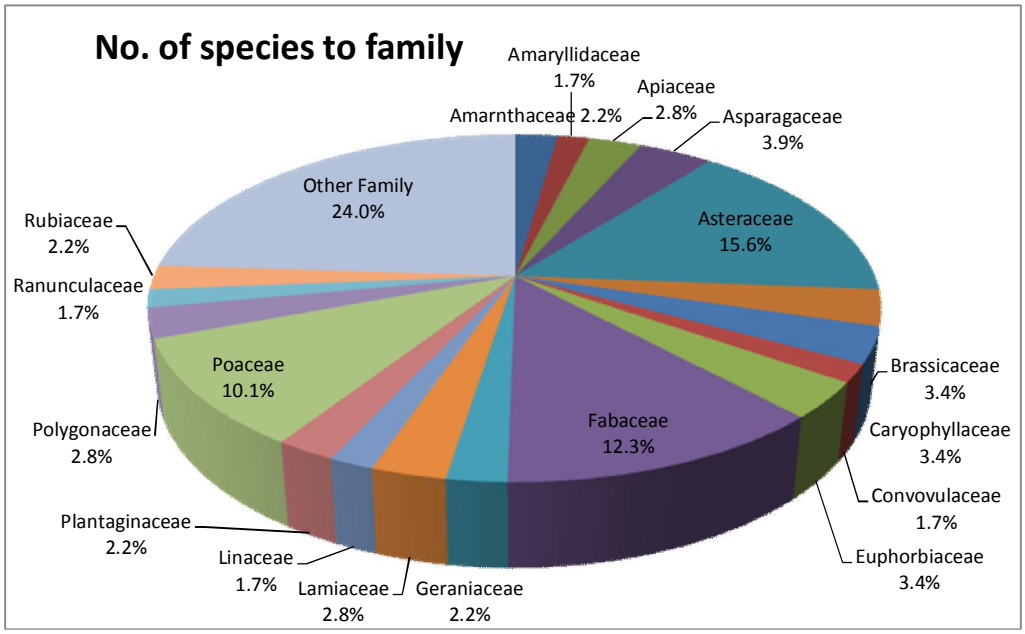


Fig. 2 . Families percentage recorded in Jarjar oma in Al- Jabal Al- Akhdar.

b. Life duration

Figs. 3-5 It was noticed that 56.2 % of species was annuals and 42.1 % was perennials and 1.7 % was biennials in Jarjar oma region. Whereas autumn and summer increase perennials to reach 100 % more than spring and winter wherein increase annuals species to attain 55 %, to display disappear biennial in autumn and summer seasons in all habitat except rocky habitat in autumn. Highest annual species recorded in rocky habitat during winter season, while in spring season it was saline and rocky habitat. In sandy formation was perennial 100 % while disappear annual or biennial species.

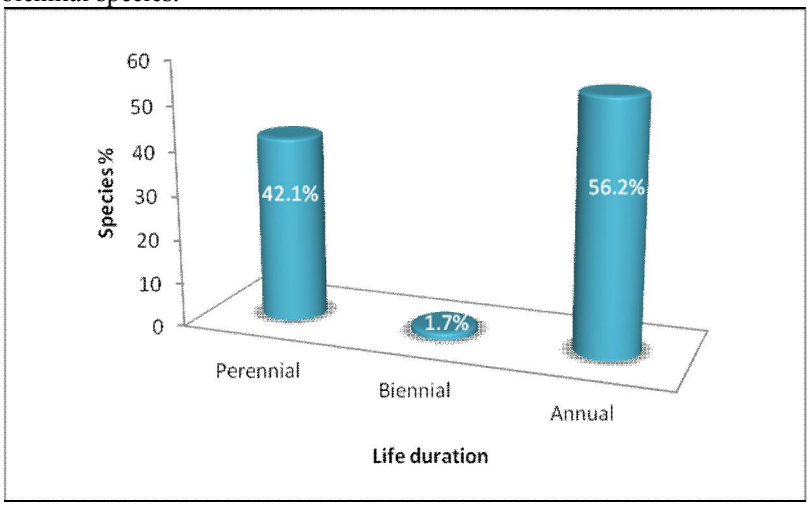


Fig. 3. Life duration of plant species recorded in Jarjr oma region.

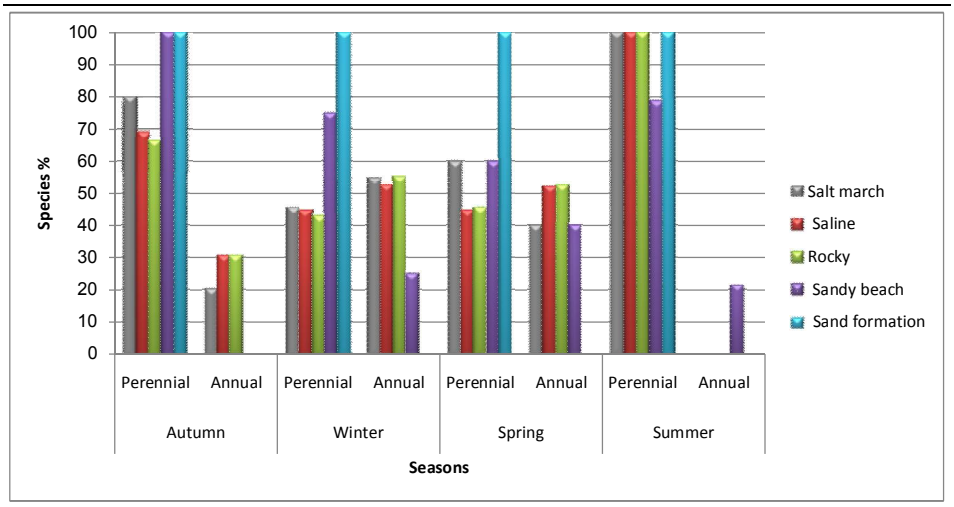


Fig. 4. Life duration of plant species recorded in four seasons include five habitat in Jarjr oma in Al- Jabal Al- Akhdar.

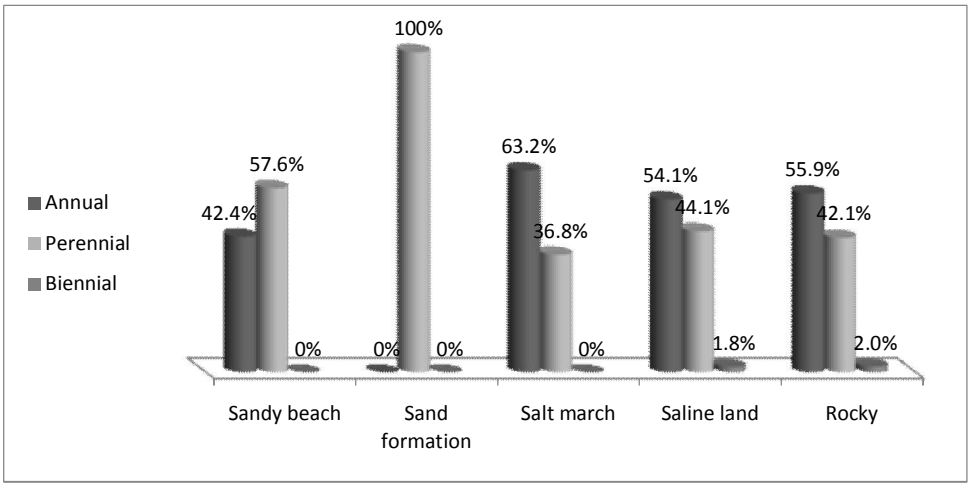


Fig. 5. Life duration of plant species recorded in many habitats of Jarjr oma in Al- Jabal Al- Akhdar.

c. Life form

Figures 6 and 7 shows the life forms of the recorded species according to Raunkiaer (1934). The recorded species belongs to six different life forms in Jarjar oma area. Therophytes (58.7%), is represented by the largest number of species, of these are *Mercurialis annua*, *Lathyrus aphaca*, *Silene colorata* and *Anagallis arvensis*, *Rumex bucephalophorus*. While, Geophytes represents about (14%) of the flora that includes 25 species, from these species are; *Allium roseum, Allium rumherianum, Bellevalia sessiliflora, Juncus acutus*. Whereas, Hemicryptophytes has a moderate value of (10.6%) that includes 19 species, of these are, *Centaurea aegialophila*, *Crepis vesicaria ssp. vesicaria*, *Leontedon hispidulus*, *Elymus farctus* and *Polygonum equisetiforme*.

Chamaephytes has 18 species representing about (10.1%) of the flora Jarjar oma area, from these; *Suaeda vera*, *Fumana thymifolia*, *Sedum sediforme*, *Ononis hispida*, *Frankenia hirsuta* and *Micromeria juliana*. Phanerophytes contains 11 species, which are *Pistacia lentiscus*, *Rhus tripartite*, *Tamarix tetragyna*, *Ceratonia siliqua* and *Nitraria retusa*. Hydrophytes record on species *Posidonia oceanica* found in sand formation.

Figure 8 shows relationship the life forms with seasons in Jarjar oma habitat increase therophytes reach 30-57% in winter and 50% in spring. Chamaephytes highly during season summer of 30-50%. Hemicryptophytes low in all seasons. Geophytes highest during autumn season in sandy beach, while Phanerophytes high during summer season. Figurs 9 a-e shows landscape of five habitats of Jarjar-oma.

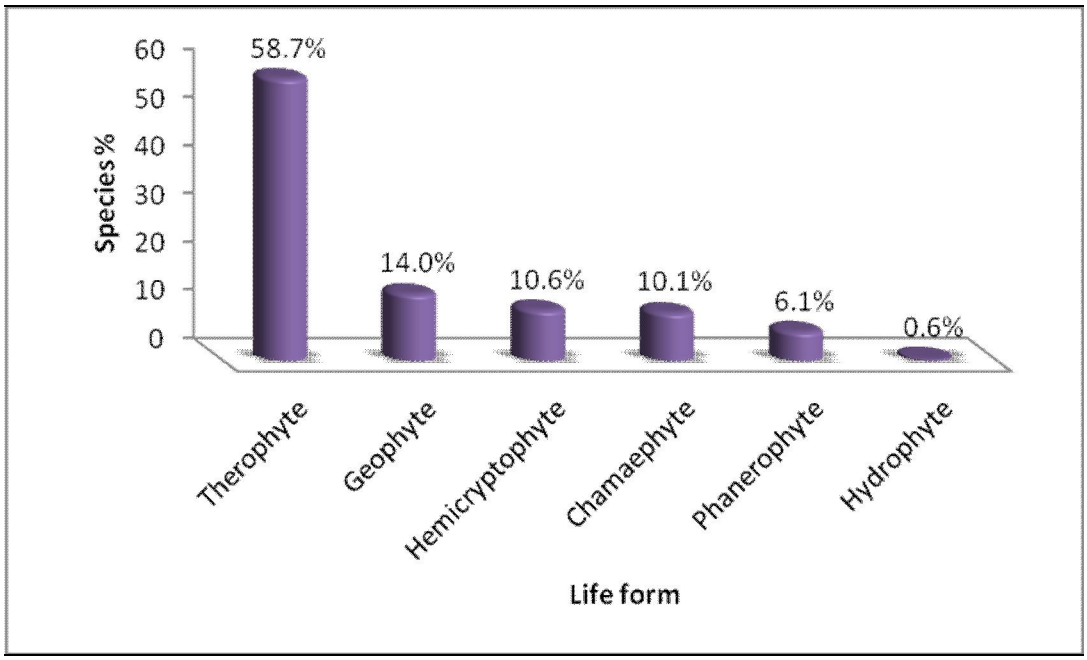


Fig. 6. Plant life forms of the recorded species of Jarjar oma in Al- Jabal Al- Akhdar.

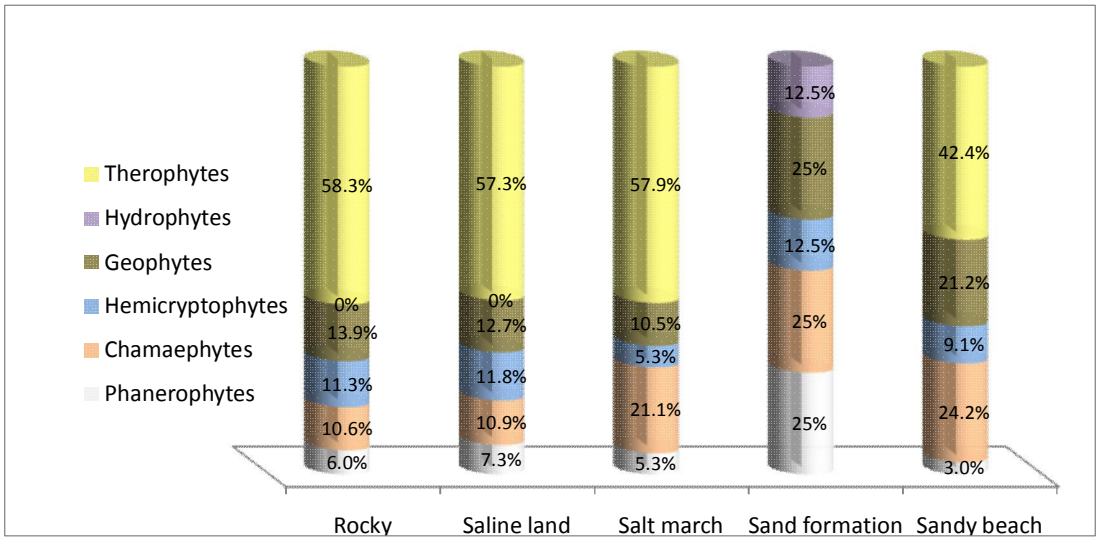
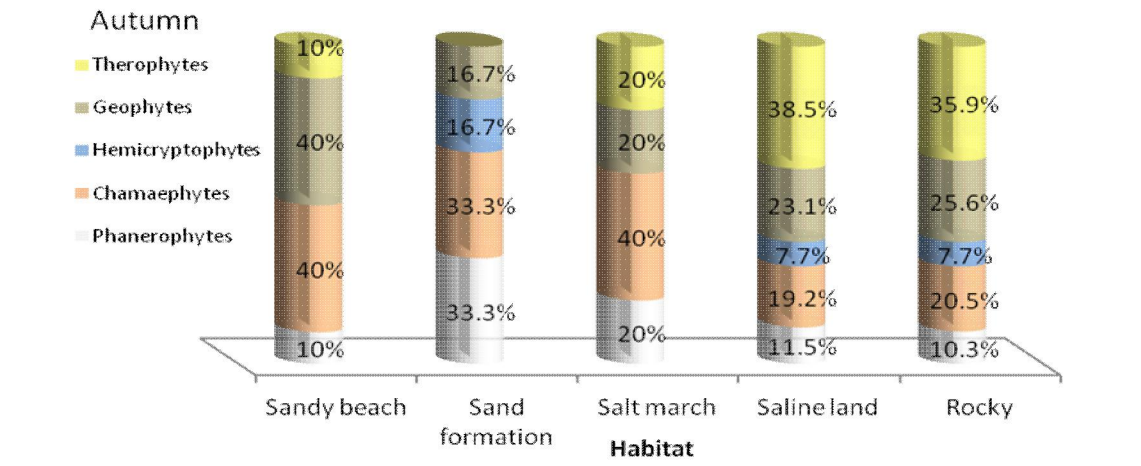
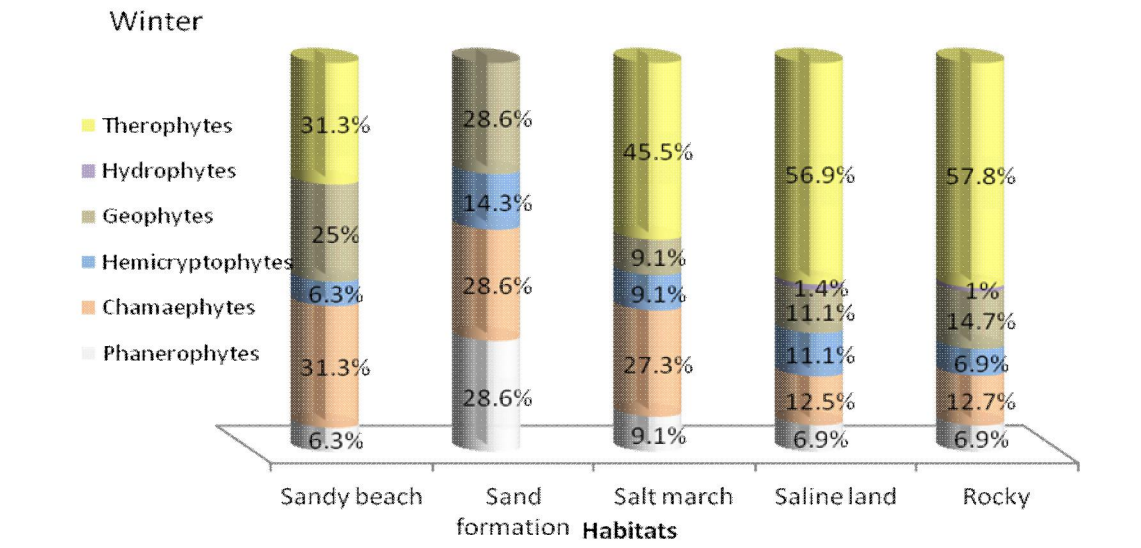
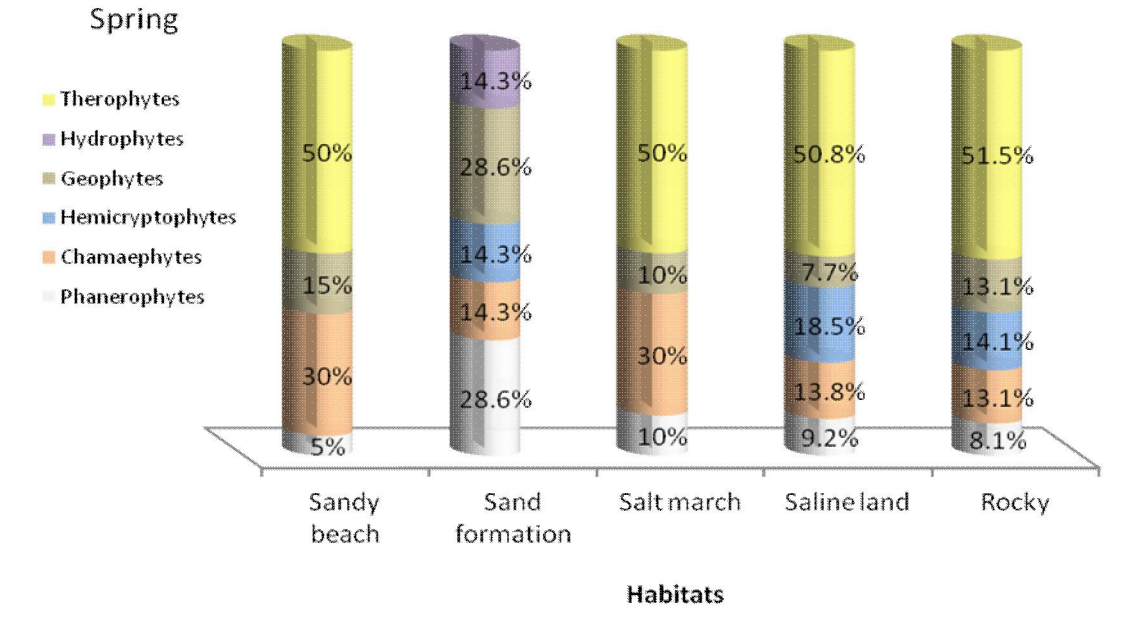


Fig. 7. Plant life forms of the recorded species into five habitats of Jarjar oma in Al- Jabal Al- Akhdar.


Autumn
Therophytes
Geophytes
Hemicryptophytes
Chamaephytes
Phanerophytes
10%
40%
40%
10%
16.7%
16.7%
33.3%
33.3%
20%
20%
40%
20%
38.5%
23.1%
7.7%
19.2%
11.5%
35.9%
25.6%
7.7%
20.5%
10.3%
Sandy beach
Sand formation
Salt march
Saline land
Rocky
Habitat


Winter
Therophytes
Hydrophytes
Geophytes
Hemicryptophytes
Chamaephytes
Phanerophytes
31.3%
25%
6.3%
31.3%
6.3%
28.6%
14.3%
28.6%
28.6%
45.5%
9.1%
9.1%
27.3%
9.1%
56.9%
1.4%
11.1%
11.1%
12.5%
6.9%
57.8%
1%
14.7%
6.9%
12.7%
6.9%
Sandy beach
Sand formation
Salt march
Saline land
Rocky
Habitats


Spring
Therophytes
Hydrophytes
Geophytes
Hemicryptophytes
Chamaephytes
Phanerophytes
50%
15%
30%
5%
14.3%
28.6%
14.3%
14.3%
28.6%
50%
10%
30%
10%
50.8%
7.7%
18.5%
13.8%
9.2%
51.5%
13.1%
14.1%
13.1%
8.1%
Sandy beach
Sand formation
Salt march
Saline land
Rocky
Habitats

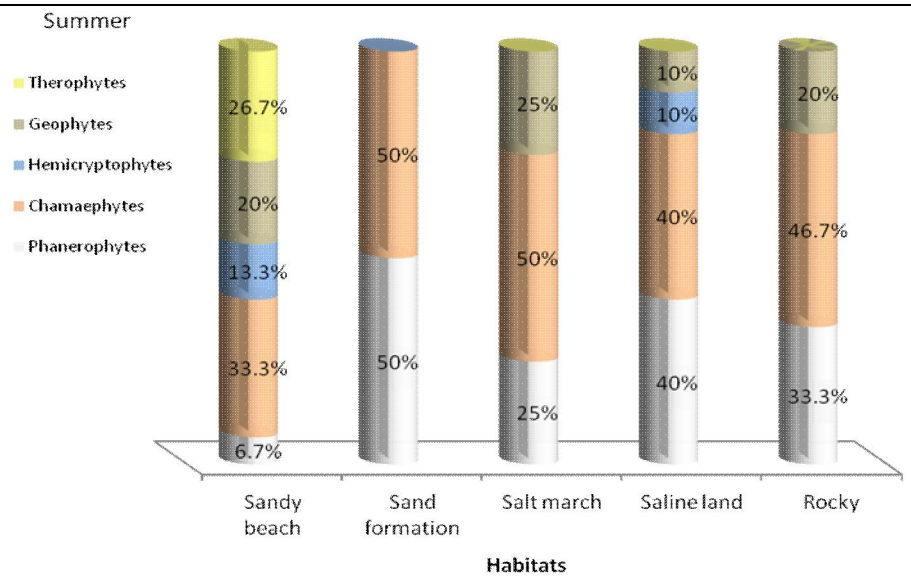


Fig. 8. Plant life forms of the recorded species of four seasons in five habitats of Jarjar oma in Al- Jabal Al-Akhdar.

Kinds of the recorded species of Forbs gave 109 species (61%) followed shrubs by 38 species (21%), Grass 26 species, Trees 6 species. Of the most dominant species was broad-leaved (Forbs) plant species found in Jarjar oma in Al- Jabal Al- Akhdar.

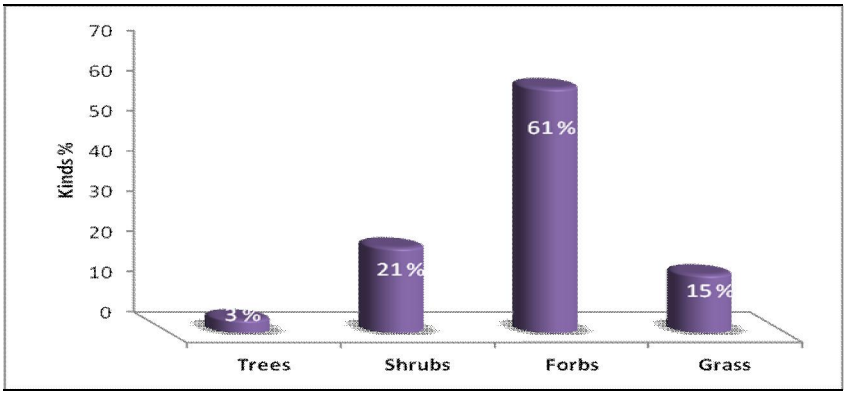


Fig. 9. Plant kinds of the recorded species of four seasons in five habitats of Jarjar oma in Al- Jabal Al-Akhdar.

Palatability

According to palatability 107 species were palatable (60%) and 72 species were unpalatable (40 %). For annuals, 61 species were palatable and 40 species were unpalatable, while perennial, 44 species were palatable and 31 species were unpalatable, whereas, Biennial, 2 species palatable and one unpalatable species**.**

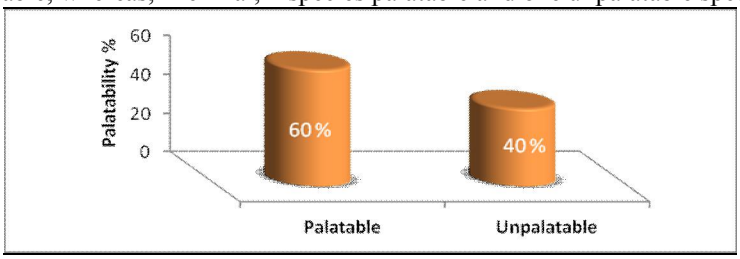


Fig. 10. Palatability of plant species recorded in four seasons in five habitats of Jarjar oma in Al- Jabal Al-Akhdar.

Table 1. Botanical composition of plant species recorded in Jarjar oma site (five habitats) during four seasons of autumn 2010 to summer 2011.

No.	Family	Scientific name	L.D.	L.F	Kinds	P.	Order
1	Aizoaceae	*Mesembryanthemum nodiflorum* L.	Ann.	Th	Shrub	Up	Caryophyllales
2	Amarnthaceae	*Beta vulgaris* L.	Bien	Th	Forbs	P	Caryophyllales
3		*Chenopodium murale* L.	Ann.	Th	Shrub	P	Caryophyllales
4		*Salsola kali* L.	Ann.	Th	Forbs	P	Caryophyllales
5		*Suaeda vera* Forak. Ex Gmel.	Per.	Ch	Shrub	Up	Caryophyllales
6	Amaryllidaceae	*Allium roseum* L.	Per.	G	Grass	P	Asparagales
7		*Allium rumherianum* Asch.	Per.	G	Grass	P	Asparagales
8		*Pancratium maritimum* L.	Per.	G	Grass	P	Asparagales
9	Anacardiaceae	*Pistacia lentiscus* L.	Per.	Ph	Tree	Up	Sapindales
10		*Rhus tripartite* (Ucria) Grande	Per.	Ph	Shrub	P	Sapindales
11	Apiaceae	*Ammi visnaga* (L.) Lam	Ann.	H	Forbs	P	Apiales
12		*Bupleurum lancifolium* Hornem.	Ann.	Th	Forbs	P	Apiales
13		*Scandix australis* L.	Ann.	Th	Forbs	P	Apiales
14		*Torilis leptophylla* (L.) Reichb.	Ann.	Th	Forbs	P	Apiales
15		*Torilis nodosa* (L.) Gaertn.	Ann.	Th	Forbs	P	Apiales
16	Apocynaceae	*Caralluma europaea* (Guss.) N.E.Br.	Per.	H	Forbs	P	Gentianales
17		*Periploca angustifolia* Labill.	Per.	Ph	Shrub	P	Gentianales
18	Araceae	*Arisarum vulgare* Targ. Tozz	Per.	G	Forbs	Up	Alismatales
19	Asparagaceae	*Asparagus aphyllus* L.	Per.	G	Shrub	P	Asparagales
20		*Asparagus stipularis* Forsk.	Per.	G	Shrub	Up	Asparagales
21		*Bellevalia sessiliflora* (Viv.) Kunth	Per.	G	Forbs	Up	Asparagales
22		*Drimia maritima* (L.) Stearn	Per.	G	Forbs	Up	Asparagales
23		*Dipcadi serotinum* (L.) Medic.	Per.	G	Grass	P	Asparagales
24		*Ornithogalum tenuifolium* Guss.	Per.	G	Forbs	P	Asparagales
25		*Scilla peruviana* L.	Per.	G	Forbs	Up	Asparagales
26	Asteraceae	*Anthemis secundiramea* Biv.	Ann.	Th	Forbs	Up	Asterales
27		*Calendula arvensis* L.	Ann.	Th	Shrub	Up	Asterales
28		*Carduus getulus* Pomel	Ann.	Th	Shrub	Up	Asterales
29		*Carlina lanata* L.	Ann.	Th	Forbs	Up	Asterales
30		*Carthamus lanatus* L.	Ann.	Th	Forbs	Up	Asterales
31		*Centaurea aegialophila* Boiss & Heldr.	Per.	H	Forbs	Up	Asterales
32		*Centaurea alexandrina* Delile	Bien	Th	Shrub	Up	Asterales
33		*Matricaria aurea* (Loefl.) Sch. Bip.	Ann.	Th	Forbs	P	Asterales
34		*Chlamydophora tridentata* Ehrenb. Ex Less.	Ann.	Th	Forbs	Up	Asterales
35		*Cichorium endivia* L.	Ann.	Th	Shrub	P	Asterales
36		*Cichorium spinosum* L.	Per.	Th	Shrub	P	Asterales
37		*Crepis senecioides ssp.senecioides* Delile	Ann.	Th	Forbs	Up	Asterales
38		*Crepis vesicaria ssp. vesicaria* L.	Per.	H	Forbs	Up	Asterales
39		*Cynara cornigera* Lindley	Per.	H	Shrub	P	Asterales
40		*Hedypnois cretica* (L.) Dum. – Courset	Ann.	Th	Forbs	Up	Asterales
41		*Hyoseries scabra* L.	Ann.	Th	Forbs	Up	Asterales
42		*Hypochaeris achyrophorus* L.	Ann.	Th	Forbs	P	Asterales
43		*Lactuca saligna*	Ann.	Th	Forbs	Up	Asterales
44		*Launaea foxii* (Post) Eig.	Ann.	Th	Forbs	Up	Asterales
45		*Leontedon hispidulus* (Delile) Boiss.	Ann.	H	Forbs	Up	Asterales
46		*Leontedon tuberosus* L.	Per.	H	Forbs	Up	Asterales
47		*Onopordum cyrenaicum* Maire & Weiller	Per.	Th	Shrub	P	Asterales
48		*Pallenis spinosa* (L.) Cass.	Per.	H	Shrub	Up	Asterales
49		*Phagnlon ropestre* (L.) Dc.	Per.	Ch	Forbs	Up	Asterales
50		*Picris asplenoides* L.	Ann.	Th	Forbs	Up	Asterales
51		*Senecio gallicus* Chiax	Ann.	Th	Forbs	Up	Asterales
52		*Silybum marianum* (L.) Gaertner	Ann.	Th	Shrub	Up	Asterales
53		*Urospermum dalechampii* (L.) Scop. ex F.W. Schmidt	Per.	H	Forbs	P	Asterales
54	Brassicaceae	*Biscutella didyma* L.	Ann.	Th	Forbs	P	Brassicales
55		*Cakile aegyptica* (L.) Willd.	Ann.	Th	Forbs	P	Brassicales
56		*Coronopus squamatus* (Forsk.) Ascherson	Ann.	Th	Forbs	P	Brassicales
57		*Enarthrocarpus pterocarpus*	Ann.	Th	Forbs	P	Brassicales
58		*Rapistrum rugosum* (L.) All.	Ann.	Th	Forbs	Up	Brassicales

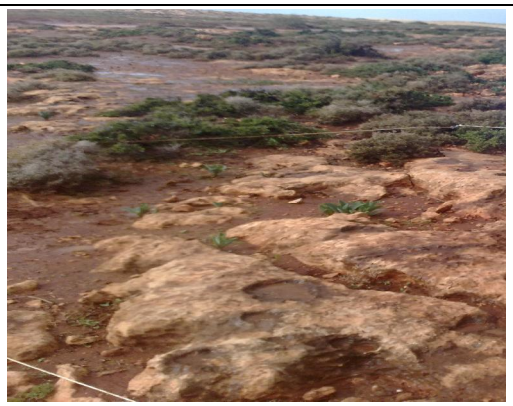
59		*Sinapis alba* L.	Ann.	Th	Forbs	P	Brassicales
60	Caryophyllaceae	*Herniaria cinerea* Dc.	Ann.	Th	Forbs	UP	Caryophyllales
61		*Herniaria glabra* Linn.	Per.	Th	Forbs	P	Caryophyllales
62		*Paronychia arabica* (Linn.) Dc.	Ann.	H	Forbs	P	Caryophyllales
63		*Polycarpon tetraphyllum* (L.) L.	Ann.	Th	Forbs	P	Caryophyllales
64		*Silene colorata* Poiret	Ann.	Th	Forbs	P	Caryophyllales
65		*Spergularia diandra* (Guss.) Heldr & Sart.	Ann.	Th	Forbs	Up	Caryophyllales
66	Cistaceae	*Fumana thymifolia* (L.) Spach	Per.	Ch	Shrub	Up	Malvales
67	Colchicaceae	*Colchium palaestinum*	Per.	G	Forbs	Up	Liliales
68	Convovulaceae	*Convolvulus althaeoides* L.	Per.	G	Shrub	P	Solanales
69		*Convolvulus supinus* Coss. Et Kral.	Ann.	H	Shrub	Up	Solanales
70		*Cressa cretica* L.	Per.	H	Shrub	Up	Solanales
71	Crassulaceae	*Sedum sediforme* (Jacq.) Pau	Ann.	Ch	Forbs	Up	Saxifragales
72		*Umbilicus horizontalis*	Per.	G	Forbs	Up	Saxifragales
73	Cucurbitaceae	*Bryonia cretica* L.	Per.	H	Forbs	Up	Cucurbitales
74	Cupressaceae	*Juniperus phoenicea* L.	Per.	Ph	Tree	P	Pinales
75	Cyperaceae	*Carex divisa* Huds.	Per.	G	Grass	P	Poales
76	Dioscoreaceae	*Dioscorea communis* (L.) Caddick & Wilkin	Per.	G	Forbs	Up	Dioscorales
77	Dipsacaceae	*Scabiosa arenaria* Forskal	Ann.	Th	Forbs	Up	Dipsacales
78	Euphorbiaceae	*Chrozophora tinctoria* (L.) Juss.	Ann.	Th	Shrub	Up	Malpighiales
79		*Euphorbia falcata* L.	Ann.	Th	Forbs	Up	Malpighiales
80		*Euphorbia paralias* L.	Per.	Ch	Shrub	Up	Malpighiales
81		*Euphorbia peplis* L.	Ann.	Th	Forbs	Up	Malpighiales
82		*Euphorbia peplus* L.	Ann.	Th	Forbs	Up	Malpighiales
83		*Mercurialis annua* L.	Ann.	Th	Forbs	Up	Malpighiales
84	Fabaceae	*Anthyllis tetraphylla* L.	Ann.	Th	Forbs	P	Fabales
85		*Ceratonia siliqua* L.	Per.	Ph	Trees	P	Fabales
86		*Lathyrus aphaca* L.	Ann.	Th	Forbs	P	Fabales
87		*Lotus edulis* L.	Ann.	Th	Forbs	P	Fabales
88		*Lotus halophilus* Boiss. Et Sprun	Ann.	Th	Forbs	P	Fabales
89		*Lotus ornithopodioides* L.	Ann.	Th	Forbs	P	Fabales
90		*Lotus tetragonolobus* L.	Ann.	Th	Forbs	P	Fabales
91		*Lupinus* L.	Ann.	Th	Forbs	Up	Fabales
92		*Medicago polymorpha* L.	Ann.	Th	Forbs	P	Fabales
93		*Medicago tornata* (L.) Mill.	Ann.	Th	Forbs	P	Fabales
94		*Melilotus sulcatus* Desf.	Ann.	Th	Forbs	P	Fabales
95		*Ononis hispida* Desf.	Per.	Ch	Forbs	P	Fabales
96		*Ononis vaginalis* Vahl.	Per.	Ch	Shrub	P	Fabales
97		*Retama raetem* (Forsk.) Webb	Per.	Ph	Shrub	P	Fabales
98		*Trifolium purpureum* Lois.	Ann.	Th	Forbs	P	Fabales
99		*Trifolium scabrum* L.	Ann.	Th	Forbs	P	Fabales
100		*Trifolium stellatum* L.	Ann.	Th	Forbs	P	Fabales
101		*Trifolium tomentosum* L.	Ann.	Th	Forbs	P	Fabales
102		*Trigonella maritime* Del. ex Poir.	Ann.	Th	Forbs	P	Fabales
103		*Trigonella stellata* Forsk.	Ann.	Th	Forbs	P	Fabales
104		*Vicia sativa* L.	Ann.	Th	Forbs	P	Fabales
105		*Vicia tetrasperma* (L.)Schreb.	Ann.	Th	Forbs	P	Fabales
106	Frankeniaceae	*Frankenia hirsuta* L.	Per.	Ch	Shrub	P	Caryophyllales
107	Gentianaceae	*Centaurium pulchellum* (Swartz) Druce	Ann.	Th	Forbs	P	Gentianales
108	Geraniaceae	*Erodium malacoides* (L.) L'Herit.	Ann.	Th	Forbs	P	Geraniales
109		*Erodium moschatum* (L.) L'Herit.	Ann.	Th	Forbs	P	Geraniales
110		*Erodium touchyanum* Delile	Ann.	Th	Forbs	P	Geraniales
111		*Geranium molle* L.	Ann.	Th	Forbs	P	Geraniales
112	Iridaceae	*Moraea sisyrinchium* (L.) Ker Gaweler (Europe)	Per.	G	Grass	P	Asparagales
113	Juncaceae	*Juncus acutus* L.	Per.	G	Grass	P	Poales
114		*Juncus subulatus* Forsk.	Per.	G	Grass	P	Poales
115	Lamiaceae	*Micromeria juliana* (L.) Benth. Ex Reichenb.	Per.	Ch	Shrub	P	Lamiales
116		*Micromeria nervosa* (Desf.) Benth.	Per.	Ch	Shrub	P	Lamiales
117		*Phlomis floccosa* D. Don	Per.	Ch	Shrub	Up	Lamiales
118		*Prasium majus* L.	Per.	Ch	Shrub	P	Lamiales
119		*Teucrium barbeyanum* Aschers	Per.	Ch	Shrub	P	Lamiales
120	Linaceae	*Linum bienne* Mill.	Ann.	Th	Forbs	Up	Malpighiales

121		*Linum nodiflorum* L.	Ann.	Th	Forbs	Up	Malpighiales
122		*Linum strictum var.spicatum* Pers.	Ann.	Th	Forbs	Up	Malpighiales
123	Malvaceae	*Malva aegyptia* L.	Ann.	Th	Forbs	P	Malvales
124		*Malva parviflora* L.	Ann.	Th	Forbs	P	Malvales
125	Myrsinaceae	*Anagallis arvensis* L.	Ann.	Th	Forbs	Up	Ericales
126		*Asterolinon linum-stellatum* (L.) Duby.	Ann.	Th	Forbs	P	Primulales
127		*Cyclamen rohlfsianum* Aschers.	Per.	G	Forbs	Up	Ericales
128	Nitrariaceae	*Nitraria retusa* (Forsk.) Aschers.	Per.	Ph	Tree	P	Sapindales
129	Orobanchaceae	*Orobanche coelistis* (Reut.) Boiss. & Reut.	Ann.	Th	Forbs	Up	Lamiales
130	Oxalidaceae	*Oxalis corniculata* L.	Per.	Th	Forbs	Up	Oxalidales
131	Papaveraceae	*Glaucium flavum* Crantz	Per.	H	Shrub	Up	Ranunculales
132		*Papaver hybridum* L.	Ann.	Th	Forbs	Up	Ranunculales
133	Plantaginaceae	*Plantago coronopus* L.	Per.	Th	Forbs	P	Lamiales
134		*Plantago cyrenaica* Durand & Barratte	Ann.	Th	Forbs	P	Lamiales
135		*Plantago lagopus* L.	Ann.	Th	Forbs	P	Lamiales
136		*Plantago ovata* Forskal	Per.	Th	Forbs	P	Lamiales
137	Plumbaginaceae	*Limoniastrum monopetalum* (L.) Boiss.	Per.	Ch	Shrub	Up	Caryophyllales
138		*Limonium sibthorpianum* (Guss.) O. Ktze.	Per.	Ch	Forbs	Up	Caryophyllales
139	Poaceae	*Avena barbata* Pott ex Link	Ann.	Th	Grass	P	Poales
140		*Brachypodium retusum* (Pers.) p. Beauv.	Per.	H	Grass	P	Poales
141		*Bromus madritensis* L.	Ann.	Th	Grass	P	Poales
142		*Bromus rigidus* Roth	Ann.	Th	Grass	P	Poales
143		*Cynodon dactylon* (L.) Pers.	Per.	G	Grass	P	Poales
144		*Dactylis glomerata* L.	Per.	H	Grass	P	Poales
145		*Elymus farctus* (Viv.) Runem. Ex Melderis	Per.	H	Grass	P	Poales
146		*Hordeum marinum* Huds.	Ann.	Th	Grass	P	Poales
147		*Hordeum murinum ssp leporinum* (Link) Arcang.	Ann.	Th	Grass	P	Poales
148		*Lamarckia aurea* (L.) Moench	Ann.	Th	Grass	Up	Poales
149		*Phalaris minor* Retz.	Ann.	Th	Grass	P	Poales
150		*Phragmites australis* (Cav.) Trin. ex Steud.	Per.	G	Grass	P	Poales
151		*Polypogon monspeliensis* (L.) Desf.	Ann.	Th	Grass	Up	Poales
152		*Sporobolus pungens* (Schreb.) Kunth	Per.	G	Grass	Up	Poales
153		*Stipa capensis* Thunb.	Ann.	Th	Grass	P	Poales
154		*Trachynia distachya* (L.) Link.	Ann.	Th	Grass	Up	Poales
155		*Triplachne nitens* (Guss.)Link	Ann.	Th	Grass	P	Poales
156		*Trisetaria macrochaeta* (Boiss.) Maire	Ann.	Th	Grass	P	Poales
157	Polygonaceae	*Emex spinosus* (L.) Camped	Ann.	Th	Forbs	P	Caryophyllales
158		*Polygonum equisetiforme* sm.	Per.	H	Forbs	P	Caryophyllales
159		*Polygonum maritimum* L.	Per.	H	Forbs	P	Caryophyllales
160		*Rumex bucephalophorus* L.	Ann.	Th	Forbs	P	Caryophyllales
161		*Rumex crispus* L.	Bien	H	Forbs	P	Caryophyllales
162	Posidoniaceae	*Posidonia oceanica* (L.) Delile	Per.	Hy	Forbs	P	Alismatales
163	Ranunculaceae	*Adonis microcarpa* DC.	Ann.	Th	Forbs	P	Ranunculales
164		*Nigella arvensis* L.	Ann.	Th	Forbs	P	Ranunculales
165		*Ranunculus asiaticus* L.	Per.	G	Forbs	Up	Ranunculales
166	Rhamnaceae	*Ziziphus lotus* (L.) Lam.	Per.	Ph	Tree	P	Rosales
167	Rosaceae	*Sarcopoterium spinosum* (L.) Spach	Per.	Ch	Shrub	Up	Rosales
168	Rubiaceae	*Crucianella maritima* L.	Per.	Ch	Shrub	Up	Gentianales
169		*Galium verrucosum* Huds.	Ann.	Th	Forbs	Up	Gentianales
170		*Sherardia arvensis* L.	Ann.	Th	Forbs	Up	Gentianales
171		*Theligonum cynocrambe* L.	Ann.	Th	Forbs	P	Gentianales
172	Smilacaceae	*Smilax aspera* L.	Per.	Ph	Shrub	P	Liliales
173	Solanaceae	*Lycium europaeum* L.	Per.	Ph	Shrub	P	Solanales
174	Tamaricaceae	*Tamarix tetragyna* Ehrenb.	Per.	Ph	Tree	P	Caryophyllales
175	Urticaceae	*Urtica urens* L.	Ann.	Th	Forbs	Up	Rosales
176	Valerianaceae	*Fedia cornucopiae* (L.) Gaetner	Ann.	Th	Forbs	P	Dipsacales
177		*Valerianella petrovichii* Ascherson	Ann.	G	Forbs	P	Dipsacales
178	Xanthorrhoaeceae	*Asphodelus microcarpus* Salzm.& Viv.	Per.	G	Shrub	Up	Asparagales
179	Zygophyllaceae	*Zygophyllum album* L.	Per.	Ch	Shrub	Up	Zygophyllales

L.D.= Life Duration, L.F.= Life form, P= Palatability, *Per.=Perennial, Bien.=Biennial, Ann. = Annual, **G= Geophytes, Ph= Phanerophytes, Th= Therophytes, H= Hemicryptophytes, Ch= Chamaephytes, Hy= Hydrophytes.

a. Salt March habitat

b. Saline habitat



c. Rocky habitat

d. Sandy beach habitat

e. Sand formation habitat

Figs. 9 a-e. Landscape in five habitats of Jarjr-oma area.

4. Discussion

Method has been followed Raunkiar, 1937 in the classification of life forms

The subdivisions of the Raunkiær system are based on the place of the plant's growth-point (bud) during seasons with adverse conditions (cold seasons, dry seasons). The life forms of the recorded species according to Raunkiaer characterized by simplicity and clarity, This method is based on the position of buds for renewal of the soil surface and the extent of protection of the temperature conditions is appropriate. In study some Endemic plant species at Al- Jabal Al-

Akhdar region, Family Asteraceae attained the highest number of genera 7 and species 8, followed by family Lamiaceae 5 genera and species 6, data showed that therophytes are represented by 23 species (52.27 %), followed by chamaephytes by 10 species (22.73 %), cryptophytes by 8 species (18.18 %) and phanerophytes by 3 species (6.82 %) while hemicryptophytes are not represented (El-Darier and El-Mogaspi, 2009). The long dry period and cold winter in the region may explain why therophytes were dominant followed by chamaephytes (Whitaker, 1975).

May be due to grazing by animals (palatable species) and/or the variation of the amount of precipitation between seasons (Kulaib, 2008). Effect, grazing has historically played an essential role in the configuration of landscapes and in the dynamics of ecosystems. To maintain grassland and prevents it from bush encroachment the grazing of livestock it is of vital importance. Livestock grazing greatly affects the composition of pasture plant communities. With proper grazing management animals always cause a pasture to be a more complex mixture of plants than it otherwise would be. This is because animals graze selectively and in patches, and the effects vary in time and space. Heavily gazed habitat had higher proportions of Therophytes and diversity and species with mobile seeds than habitat with light grazing. Moderately grazed sites had increased proportions of versatile and erect rosettes and more species with adhesive seeds (mainly grasses).

The systematical analysis of the flora, by the families, is of great importance especially to the comparative analysis of the flora. Found that Asteraceae is the largest family in flora of Libya, followed by Poaceae, Fabaceae, Brassicaceae, Apiaceae, Caryophyllaceae, Lamiaceae, Chenopodiaceae, Boraginaceae and Liliaceae (Jafri and El-Gadi, 1977-1993). In study in wadi Jarjr-oma founded 241 species conclude 45 families, highest families were Asteraceae, Fabaceae, Lamiaceae, Apiaceae, Brassicaeaea and Liliaceae, Represented by Therophyta 146 species (60.58 %), Chamaephyta 56 species (23.24 %), Phanerophyta 20 species (8.3 %) and Cryptophyta 19 species (7.88 %) and disappear Hemicryptophyta in these area (El-Mogaspi *et al.,* 2004). Asteraceae was the most widespread family in the Marj zone South Al-Jabal Al-Akhdar area by 16.4, Fabaceae 12.7 %, Poaceae 9.5 %, Brassicaceae 6.3 %, then Chenopodiaceae by 4.8 % while the rest of the families formed 50.3 % (El-Barasi *et al.,* 2011). The native flora of The Kiev City Agglomeration (KUA), the role of the families Brassicaceae, Chenopodiaceae, and Polygonaceae is somewhat elevated, as is the role of Poaceae, Asteraceae, and Rosaceae. The families Asteraceae, Onagraceae, Rosaceae, and Polygonaceae play leading roles in forming the stable component of the alien flora (Mosyakin and Yavorska, 2003). In the Green Mountain area includes natural vegetation on a variety of plant associations, including plants annual and other perennial. The grassy herbs, *Sarcopoterium spinosum*, *Phlomis floccose*, *Calicotome villosa* and *Cistus parviflorus* an important part of the vegetation, in addition to several species of perennial trees that represent the primary vegetation which spreads over the hills and the coast and valleys Green Mountain, the soils are terra-rossa or heavy clay (Al-Jabal Al-Akhdar south project, 2005).

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