

## Vegetation, Life Form and Economic Uses for Wild Plant in Wadi Elip South Western Area in Saudi Arabia

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**Abstract:** Wadi Elip considers one of the most important wadis in south-western Saudi Arabia. Thus the current work provides an analysis of the floristic composition, life form and economic uses of wild plants in Wadi Elip. Results cleared that 40 species belongs to 33 genus and 22 families were found in study area. Twenty six species representing perennial and fourteen species were annual with ratios 65 % and 35 % respectively. Fabaceae (leguminosae) had the highest contributions, 17.5% followed by Boraginaceae and Zygophyllaceae with ratio (12.50 %) and Poaceae (graminae) with (10%) and Asteraceae with ratio (5%) Aizoaceae, Amaranthaceae, Apocynaceae, Asclepiadaceae, Chenopodiaceae, Cucurbitaceae, Cypracea, Malvaceae, Mavaceae, Plumbaginaceae, Polygalaceae, Rhamnaceae, Salvadoraceae, Scrophulariaceae, Solanaceae, Tamaricaceae, Typhaceae, Zygophyllaceae with (2.5%) for each . Chamaephytes are the dominating life form of the vegetation spectra, indicating typical desert spectrum vegetation (32.5%). Followed by Hemicryptophytes, represented by (27.5%), therophytes represented (20 %) and phanerophytes (20 %) of the total species in the study area. The tree represented by (20%), shrubs (30%) and weeds (50%) respectively. The economic use showed that uses highest one (92%), grazing, medical, fuel and edible with 72, 67, 32, 22 % for each respectively.

**Key words:** Vegetation • Life Forms • Floristic Composition • Wadi Elip

### INTRODUCTION

Saudi Arabia is a part of the Arabian Peninsula covers and comprises several distinct physiographical regions, such as mountains, valleys (wadis), sandy and rocky deserts, salt (Sabkhahs), lava a reas (Harrats) and ect [1]. It is a large dry desert with total area of about 2.25 million km<sup>2</sup> covering the major part of the Arabian Peninsula [2]. It is located in the dry part of the world and expected to experience faster warming due to climate change than countries located in the tropical or temperate regions. However, significant variation can be anticipated due to the large size of the country, its diverse landscapes and also due to the Red Sea Coast on the Western side and the Arabian Gulf on the eastern side [3]. A hot weather generally characterizes the Climate of Saudi Arabia in most year months due to northerly winds moving from the eastern Mediterranean towards the Arabian Gulf. Relative humidity is low except along the coastal zones where it reaches over 90%. The average annual temperature is 33.4°C in summer and 14°C in

winter, a wide variations. For example, inland temperatures range from below zero at night to a maximum of 50°C during summer. In the northern part of Saudi Arabia, temperatures are very high in summer, the hottest month being July, while in south-east regions the hottest month is June and the coldest is January [4]. The vegetation of Saudi Arabia 2250 specie belong to 132 families and 837 genera, about 105 species inhabit dunes, 90 are halophyte, 75 are trees and 12 are aquatic plants. It is also reported that no families or genera in flowering plants are endemic but that are some 246 species that are considered regionally endemic [5]. About 450 species of flowering plants in Saudi Arabia have direct benefits to man, 45 species are poisonous, 334 species are known to have medicinal value, 38 species are important palatable fodder plants, 6 are important as fuel wood, 25 species are human food plants and 47 species are used as ornamentals or for other purposes [6]. Although the Kingdom of Saudi Arabia lies within a typical arid to semi-arid region, it is characterized by its unique biological diversity and species that could acclimatize to

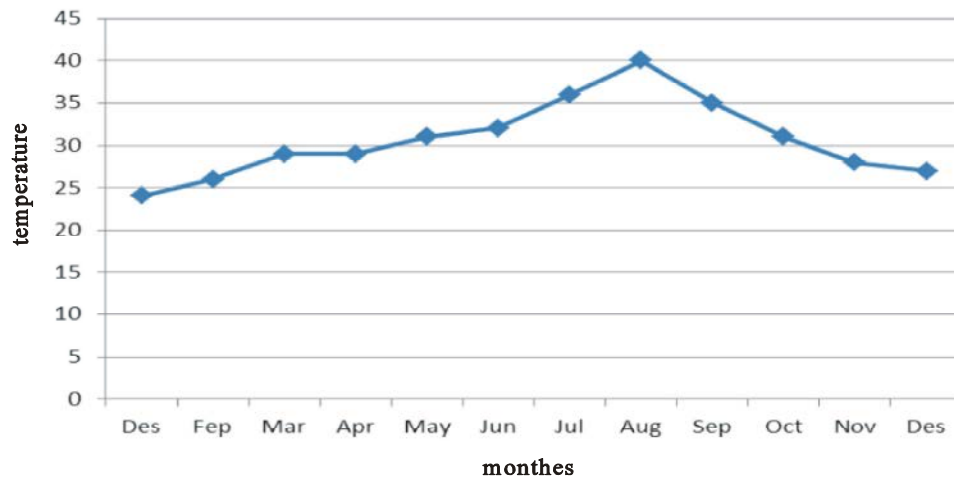


Fig. 1: Monthly average temperature in the study area

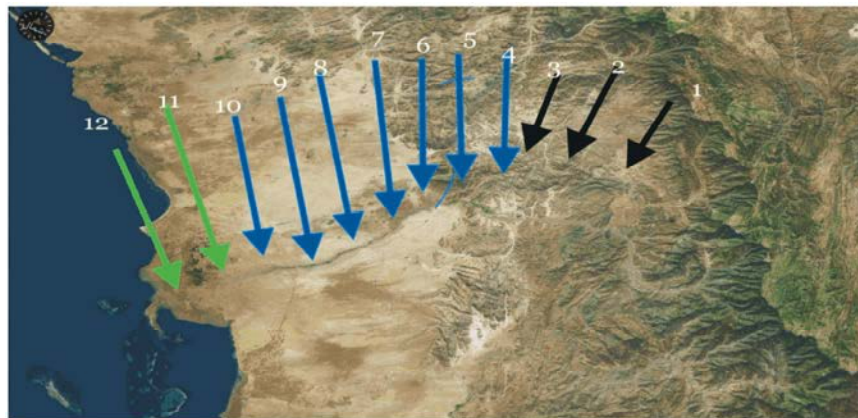


Fig. 2: Distribution of 12 stands along study area by using their coordinates (GPS)

live under adverse ecological circumstances including weather and dry conditions [7]. Study area is located with rise from 10 to 250 m above sea level in the southwestern of the Kingdom of Saudi Arabia at between longitudes 15°, 39' and 40° to the east and latitudes 22° and 30°22' north [8]. The average annual temperature is 30.7°C; January and February are the coldest months with the lowest average temperature (24°C), while the hottest month is August with the highest average temperature (40°C), Fig. (1). The aim of the present study was to investigate floristic composition, life form spectra, abundance and economic uses in the study area.

#### MATERIALS AND METHODS

Twelve stands were selected to represent the environmental variations in Wadi Elip (Fig. 2). The stand size (20 × 20) m. In each stand, list of species, common species were recorded to Braun-Blanquet scale [9]. The abundance and life form were calculated according to

Braun-Blanquet cover abundance scale as follows: Scale 5, 4, 3, 2, 1, + and r (rerlay) cover abundance, 75%, 50-70%, 25-50%, 5-25%, 1-5%, few and solitary respectively, where life forms of the species were identified following the Raunkiar scheme as follows [10]. Code, Ch, He, Ge, Th and Ph means life form Chamaephytes, Hemicryptophytes, Geophytes, Phanerophytes, Therophytes and Parasites respectively. The potential and actual economic uses of wild plants were assessed on three bases; field observations, information collected from local inhabitants and literature review [11-26]. The economic uses were classified into 5 major categories: grazing, fuel, medicinal uses, human food and other uses (e.g. ornamental uses, sand binder, soap manufacture and oil and dye extraction...etc.). As almost all the plants are ecologically important (e.g. keeping stability and biodiversity of the ecosystems, sharing in soil stabilization and symbiosis, etc.), this criterion was not taken into consideration in the evaluation of the economic importance of the plant.

**RESULTS**

**Floristic Composition:** The recorded species in the study area, their families, life forms, habits, abundance and their uses are listed in Tables 1, 2 and 3. Table (2) cleared that total number of recorded species in the study area were 40 species belong to 33 genus and 21 families. Table (3) and Fig. (3) showed that more than 65 % of the recorded species are perennials (26 species) and 35 % are annuals (14 species). Fabaceae (leguminosae) have the highest contributions, 17.5% followed by Boraginaceae and Zygophyllaceae with ratio (12.50 %) and Poaceae (graminae) with (10%) and Asteraceae with ratio(5%) Aizoaceae, Amaranthaceae, Apocynaceae, Asclepiadaceae, Chenopodiaceae, Cucurbitaceae, Cypracea, Malvaceae, Mavaceae, Plumbaginaceae, Polygalaceae, Rhamnaceae, Salvadoraceae,

Scrophulariaceae, Solanaceae, Tamaricaceae, Typhaceae, Zygophyllaceae with (2.5%) for each. The tree represented by (20 %), shrubs (30 %) and weeds (50%) respectively. One species was recorded 100% (Acacia haulms), two species were recorded 90 % (Aerva javanica & Solanum incanum), 80% (Sennaalexandria & Citrullus colocyanthis) 70%(Cassiaetalica & Zizphus spina chiristi). The rest of species (22 species) were recorded in less than 60 % of the total stand.

**Economic Uses:** Result in Table (5) and Fig. (5) showed that medical plants represented by families *Aizoaceae*, *Asclepadeaceae*, *Astreaceae*, *Boraginaceae*, *Polygalaceae*, *Fabceae*, *Malvaceae*, *Rhamnaceae*, *Salvadoraceae*, The economic use showed that medical (67%), grazing 72 %, edible (22), fuel (32%) and other uses (92 %).

Table 1: Total number of families, genera and species, vegetation types and life forms of the collected plants

Total number			Vegetation Type			Life form		
Families	Genus	Species	Type	No. of species	%	Form	No. of species	%
22	33	40	Annual	14	65	Chamaephytes	12	32
			Perennial	26	35	Phanerophytes	8	20
						Therophytes	8	20
						Hemicryptophytes	11	27
			Total No.	40	100			

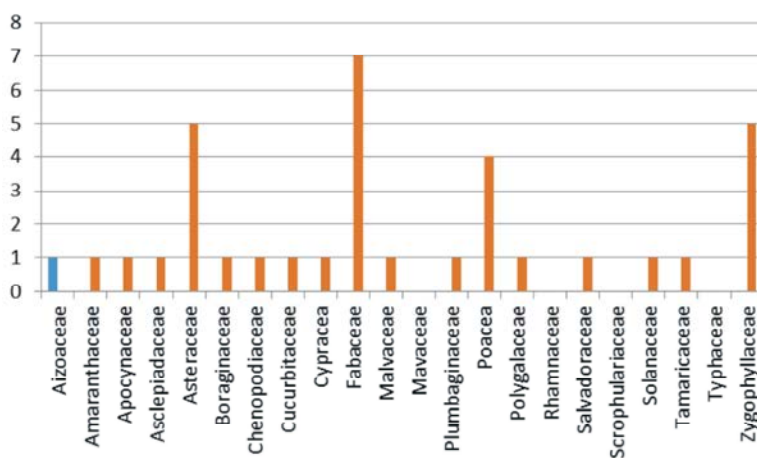


Fig. 3: Floristic composition of the different families in Wadi Elip

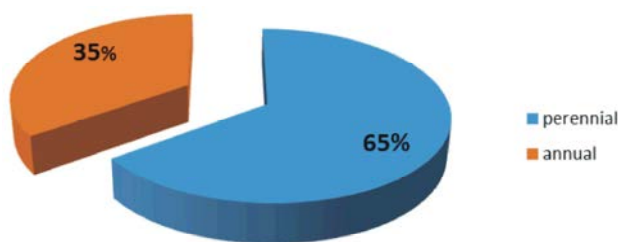


Fig. 4: Percentage of habits of the recorded species in study area (Wadi Elip)

Table 2: Species and families recorded in study areas (Wadi Elip)

N	Species	Family
1	<i>Glinus lotoides</i>	Aizoaceae
2	<i>Aerva javanica</i>	Amaranthaceae
3	<i>Calotropis procera</i>	Apocynaceae
4	<i>Leptadenia pyrotechnica</i>	Asclepiadaceae
5	<i>Rhanterium epapposum</i>	
6	<i>Palicania vulgaris</i>	Asteraceae
7	<i>Heliotropium europaeum</i>	Boraginaceae
8	<i>Heliotropium crispum</i>	
9	<i>Trichodesma ehrenbergii</i>	
10	<i>Heliotropium curassavicum</i>	
11	<i>Heliotropium longiflorum</i>	
12	<i>Suaeda fruticosa</i>	Chenopodiaceae
13	<i>Citrullus colocynthis</i>	Cucurbitaceae
14	<i>Cyperus conglomeratus</i>	Cyperaceae
15	<i>Acacia ehrenbergiana</i>	Fabaceae
16	<i>Senna alexandrina</i>	
17	<i>Acacia italic</i>	
18	<i>Tephrosia nubica</i>	
19	<i>Sesbania sesban</i>	
20	<i>Prosopis juliflora</i>	
21	<i>Juncus punctorius</i>	
22	<i>Datura innoxia</i>	Malvaceae
23	<i>Abutilon muticum</i>	Mavaceae
24	<i>Limonium cylindrifolium</i>	Plumbaginaceae
25	<i>Cenchrus ciliaris</i>	Poacea
26	<i>Panicum turgidum</i>	
27	<i>Chlans gayana</i>	
28	<i>Aristida adscensionis</i>	
29	<i>Polygala erioptera</i>	Polygalaceae
30	<i>Ziziphus spina-christi</i>	Rhamnaceae
31	<i>Salvadora persica</i>	Salvadoraceae
32	<i>Scoparia dulcis</i>	Scrophulariaceae
33	<i>Solanum nigrum</i>	Solanaceae
34	<i>Tamarix nilotica</i>	Tamaricaceae
35	<i>Typha domingensis</i>	Typhaceae
36	<i>Zygophyllum simplex</i>	Zygophyllaceae
37	<i>Zygophyllum coccineum</i>	
38	<i>Indigofera doll longifolia</i>	
39	<i>Fagania indica</i>	
40	<i>Peganum harmala</i>	

Table 3: Life form for species recorded in study areas (Wadi Elip)

N	Species	LF.	P%
1	<i>Glinus lotoides</i>	Ann Weed	0.5
2	<i>Aerva javanica</i>	Per Shrub	2.6
3	<i>Calotropis procera</i>	Per Tree	3.4
4	<i>Leptadenia pyrotechnica</i>	Per Shrub	3.4
5	<i>Rhanterium epapposum</i>	Per Shrub	3.4
6	<i>palicania vulgaris</i>	Ann Weed	4.9
7	<i>Heliotropium europaeum</i>	Ann Weed	0.5
8	<i>Heliotropium crispum</i>	Ann W'eed	1.6
9	<i>Trichodesma ehrenbergii</i>	Per Shrub	1.4
10	<i>Heliotropium curassavicum</i>	Ann Shrub	1.3
11	<i>Heliotropium longiflorum</i>	Ann Weed	2.8
12	<i>Suaeda fruticosa</i>	Per Weed	3.5
13	<i>citrullus colocynthis</i>	Per Weed	117
14	<i>Cyperus conglomeratus</i>	Per Shrub	188
15	<i>Acacia ehrenbergiana</i>	Per Tree	2
16	<i>Senna alexandrina</i>	Per Tree	2.4
17	<i>Acacia italic</i>	Per Tree	3
18	<i>Tephrosia nubica</i>	Per Shrub	1.8
19	<i>Sesbania sesban</i>	Per Shrub	1.5
20	<i>Prosopis juliflora</i>	Per Tree	3.2
21	<i>Juncus punctorius</i>	Ann Weed	2.2
22	<i>Datura innoxia</i>	Ann Weed	192
23	<i>Abutilon muticum</i>	Per Shrub	2.3
24	<i>Limonium cylindrifolium</i>	Ann Shrub	1.9
25	<i>Cenchrus ciliaris</i>	Ann Weed	4.1
26	<i>Panicum turgidum</i>	Per Weed	083
27	<i>Chlans gayana</i>	Per Weed	2.7
28	<i>Aristida adscensionis</i>	Per Weed	3
29	<i>Polygala erioptera</i>	Ann Weed	2
30	<i>Ziziphus spina-christi</i>	Per Tree	083
31	<i>Salvadora persica</i>	Per Tree	2.3
32	<i>Scoparia dulcis</i>	Ann Weed	3.4
33	<i>Solanum nigrum</i>	Ann Weed	1.2
34	<i>Tamarix nilotica</i>	Per Tree	2.3
35	<i>Typha domingensis</i>	Per Shrub	3.2
36	<i>Zygophyllum simplex</i>	Ann Weed	7
37	<i>Zygophyllum coccineum</i>	Per Weed	2.2
38	<i>Indigofera doll longifolia</i>	Per Weed	1.4
39	<i>Fagania indica</i>	Per Shrub	2.1
40	<i>Peganum harmala</i>	Per Weed	0.7

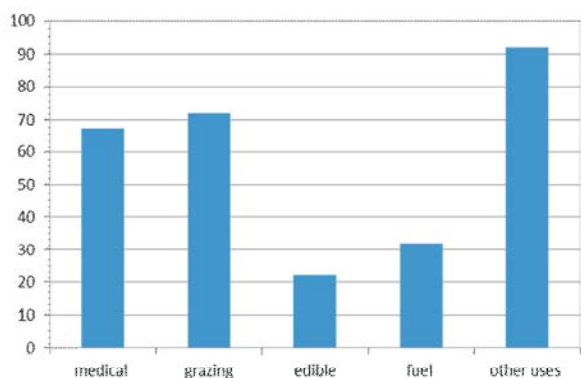


Fig. 5: Descending arrangement of the economic uses of the recorded species in Wadi Elip

**Species Diversity:** Species belonging to twenty two families of angiospermae were recorded in the concerned area (wadi Elip region). These families comprise 40 species *Fabaceae* (leguminosae), *Boraginaceae*, *Zygophyllaceae* and poacea contributed 40% of the total recorded species.

**Life Form Spectra:** The life form spectra of the vegetation in Wadi Elip (Fig. 6). indicated that, perennials had the highest contribution in the study area 65% of the total recorded species), divided by Chamaephytes (33%) followed by Helophytes (27%), phanerophytes (20%) and therophytes (20%) of the total recorded species).

Table 4: The economic uses of the recorded species in Wadi Elip

N	Species	LF.				
		M Medical	G Grazing	E Edible	F Fuel	O Other uses
1	<i>Glinus lotoides</i>	+	+	-	-	-
2	<i>Aerva javanica</i>	+	+	-	+	+
3	<i>Calotropis procera</i>	+	-	-	+	+
4	<i>Leptadenia pyrotechnica</i>	+	+	-	+	+
5	<i>Rhanterium epapposum</i>	+	+	-	+	+
6	<i>palicania vulgaris</i>	-	-	+	-	+
7	<i>Heliotropium europaeum</i>	+	+	-	+	+
8	<i>Heliotropium crispum</i>	+	+	-	+	+
9	<i>Trichodesma ehrenbergii</i>	-	+	-	-	+
10	<i>Heliotropium curassavicum</i>	+	+	-	-	+
11	<i>Heliotropium longiflorum</i>	+	-	-	-	+
12	<i>Suaeda fruticosa</i>	+	-	-	-	+
13	<i>citrullus colocynthis</i>	+	-	-	-	+
14	<i>Cyperus conglomeratus</i>	-	+	-	+	+
15	<i>Acacia ehrenbergiana</i>	-	+	-	+	+
16	<i>Senna alexandrina</i>	-	+	-	+	+
17	<i>Acacia italic</i>	+	+	-	+	+
18	<i>Tephrosia nubica</i>	-	+	-	-	+
19	<i>Sesbania sesban</i>	+	+	-	+	+
20	<i>Prosopis juliflora</i>	-	-	-	-	+
21	<i>Juncus punctorius</i>	+	+	-	-	-
22	<i>Datura innoxia</i>	+	+	-	-	+
23	<i>Abutilon muticum</i>	+	-	-	-	+
24	<i>Limonium cylindrifolium</i>	+	-	-	-	+
25	<i>Cenchrus ciliaris</i>	-	+	-	-	+
26	<i>Panicum turgidum</i>	-	+	-	-	+
27	<i>Chlans gayana</i>	-	+	-	-	+
28	<i>Aristida adscensionis</i>	+	+	-	-	+
29	<i>Polygala erioptera</i>	+	+	-	-	+
30	<i>Ziziphus spina-christi</i>	+	+	+	+	+
31	<i>Salvadora persica</i>	+	+	+	+	+
32	<i>Scoparia dulcis</i>	-	+	-	-	+
33	<i>Solanum nigrum</i>	+	-	+	-	+
34	<i>Tamarix nilotica</i>	-	+	-	-	+
35	<i>Typha domingensis</i>	-	+	-	-	+
36	<i>Zygophyllum simplex</i>	+	+	-	-	-
37	<i>Zygophyllum coccineum</i>	+	-	-	-	+
38	<i>Indigofera doll longifolia</i>	+	+	-	-	+
39	<i>Fagania indica</i>	+	+	-	-	+
40	<i>Peganum harmala</i>	+	-	-	-	+

**Abundance:** Data in Table (5) showed founding wild plants in all stands. Result cleared that *Apocynaceae*, *Asteraceae* were found at all stands (12) which represented 2.5-11.5 % and few in most stand followed by *Aerva javanica*. *Senna alexandrina* and *Zygophyllum simplex* were found in most location (11 stands) as comman species where it was found in stand (5) with 4.8- 6.9 %, followed by *Heliotropium longiflorum*, *Heliotropium longiflorum*, *Scoparia dulcis* found in most location (10) as comman species where it was found in stand (1 and 6) with 2.5- 3.9 % , followed by *Heliotropium curassavicum*, *Suaeda fruticosa*, *Abutilon muticum*,

*Chlans gayana*, *Aristida adscensionis*, *Salvadora persica*, Found in 9 stand, the abundance was from 3.7-4.3 %, followed *Citrullus colocynthis*, *Tamarix nilotica* found 8 stand with 1.2-6 %, followed by *Heliotropium europaeum*, *Acacia italic*, *Tephrosia nubica* found in 7 stand, the abundance was from 1.1- 4.6 %, followed by *Trichodesma ehrenbergii*, *Cenchrus ciliaris*, *Polygala erioptera*, *Solanum nigrum* found in 6 stand 2.6 -5.7 %, followed by *Sesbania sesban*, *Limonium cylindrifolium*, *Ziziphus spina-christi*, *Typha domingensis* presence in 5 stand and the abundance was from 1.8- 4.3 % in stinds 8, 9.

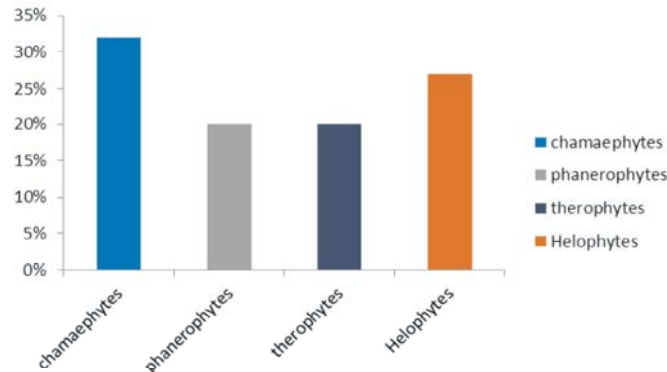


Fig. 6: Live form spectra of the recorded species in the study area (Wadi Elip)

Table 5: Determination the abundance of species according to Braun-Blanquet cover-abundance scale

Family	Species	Stand												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
Aizoaceae	<i>Glinus lotoides</i>	-	-	-	-	-	1	3	-	8	-	-	-	12
Amaranthaceae	<i>Aerva javanica</i>	-	9	3	9	17	2	8	3	2	3	6	2	64
Apocynaceae	<i>Calotropis procera</i>	3	8	10	12	9	12	3	4	5	7	9	1	83
Asclepiadaceae	<i>Leptadenia pyrotechnica</i>	-	5	4	-	4	10	-	6	-	-	5	-	43
Asteraceae	<i>Rhanterium epapposum</i>	16	14	2	13	9	6	13	8	10	11	7	8	117
	<i>palicania vulgaris</i>	-	2	-	-	-	-	5	3	3	-	-	-	13
Boraginaceae	<i>Heliotropium europaeum</i>	5	9	7	-	3	-	-	5	-	4	7	-	40
	<i>Heliotropium crispum</i>	--	-	-	-	-	-	-	-	-	-	12	22	34
	<i>Trichodesma ehrenbergii</i>	-	-	3	8	6	2	5	8	-	-	-	-	32
	<i>Heliotropium curassavicum</i>	2	6	5	11	12	11	10	5	6	-	-	-	68
	<i>Heliotropium longiflorum</i>	14	9	6	9	-	-	12	4	8	11	7	4	84
Chenopodiaceae	<i>Suaeda fruticosa</i>	8	-	2	-	4	5	3	6	-	5	8	4	45
Cucurbitaceae	<i>citrullus colocynthis</i>	2	3	-	-	7	9	4	-	12	4	7	-	48
Cypracea	<i>Heliotropium longiflorum</i>	4	-	4	5	2	7	-	11	6	3	7	9	58
Fabaceae	<i>Acacia ehrenbergiana</i>	10	9	12	3	-	-	12	3	9	5	12	-	73
	<i>Senna alexandrina</i>	14	7	20	9	12	17	8	11	12	4	9	-	123
	<i>Acacia italic</i>	3	1	2	2	-	2	3	7	-	-	-	-	19
	<i>Tephrosia nubica</i>	-	-	9	-	4	6	-	-	8	7	5	4	44
	<i>Sesbania sesban</i>	-	-	-	-	-	-	-	3	8	6	10	9	36
	<i>Prosopis juliflora</i>	3	8	11	9	7	11	8	6	8	4	5	-	80
	<i>Juncus punctorius</i>	6	-	4	5	9	-	7	8	-	7	5	2	53
Malvaceae	<i>Datura innoxia</i>	-	-	7	3	8	12	9	7	-	-	-	-	46
Mavaceae	<i>Abutilon muticum</i>	4	3	-	-	6	13	5	10	3	4	8	-	56
Plumbaginaceae	<i>Limonium cylindrifolium</i>	-	-	-	-	7	-	-	-	8	2	4	5	26
Poacea	<i>Cenchrus ciliaris</i>	-	-	-	11	15	10	12	20	27	-	-	3	98
	<i>Panicum turgidum</i>	7	3	-	-	-	-	-	6	2	2	-	-	20
	<i>Chlans gayana</i>	1	3	12	6	-	-	10	7	12	9	-	6	66
	<i>Aristida adscensionis</i>	9	17	-	7	3	12	8	3	-	9	5	-	73
Polygalaceae	<i>Polygala erioptera</i>	-	-	-	10	6	12	6	12	2	-	-	-	48
Rhamnaceae	<i>Ziziphus spina-christi</i>	-	-	2	-	-	4	6	-	5	3	-	-	20
Salvadoraceae	<i>Salvadora persica</i>	-	10	9	8	13	8	9	13	10	11	10	-	71
Scrophulariaceae	<i>Scoparia dulcis</i>	2	4	4	-	14	19	5	12	8	-	9	4	81
Solanaceae	<i>Solanum nigrum</i>	-	-	-	3	4	7	5	2	8	-	-	-	29
Tamaricaceae	<i>Tamarix nilotica</i>	-	-	8	7	6	11	3	4	9	7	-	-	55
Typhaceae	<i>Typha domingensis</i>	-	-	-	17	13	9	16	22	-	-	-	--	77
Zygophyllaceae	<i>Zygophyllum simplex</i>	18	19	20	9	16	15	12	11	18	13	-	-	151
	<i>Zygophyllum coccineum</i>	2	-	-	-	4	9	3	12	-	9	4	10	53
	<i>Indigofera doll longifolia</i>	-	-	-	3	7	-	9	8	7	-	-	-	34
	<i>Fagania indica</i>	-	-	-	-	17	22	12	19	-	-	-	-	51
	<i>Peganum harmala</i>	6	-	-	-	3	4	-	-	3	-	-	-	16

## DISCUSSION

The recorded species in the present study (17 species) represent about 0.78% of the whole flora of Saudi Arabia and their families represent 8.72%. From the biodiversity viewpoint. The present study can conclude that this area seems to be the lowest area of the Kingdom. One of the main characteristics of the vegetation cover of Saudi Arabia is its low floristic diversity. The number of plant species that recorded in the country is 2172 species, many of which are in the wetter areas of its south–western part. Which include Sarrawat Mountains these species belong to 840 genera and 149 families [27]. The number of species increased to 2250 by adding subspecies, extinct and species that have not been identified yet [28]. Numbers of families, genera and species are very low compared to Saudi Arabia's vast land area, which is probably, the result of the harsh environmental conditions that prevail in the Sahara-Arabian region which covers vast area of the country. The greatest plant diversity, approximately 74% of the total plant species of Saudi Arabia, is found in the mountainous western area which includes the study area due mainly to a greater rainfall [29].

It is evident that the composites (family *Asteraceae*) have the highest contribution, followed by graminoides (family *Poaceae*). These results similar to the whole flora of Saudi Arabia where the highest families in the Whole flora are *Poaceae* (262 species =12.1%), *Asteraceae* (233 species = 10.7%) and *Fabaceae* (210 species = 9.7%) which represented by 705 species or 32.5% of the total plant species in the Kingdom [30]. Also, similar trend to the flora of other similar studied region in the Kingdom such as [1]. Whom found that the major plant families present in the area in question were *Poaceae* (42 species) followed by *papilionaceae* (20 species), *Euphorbiaceae* and *Asteraceae* (18 and 15 species, respectively), while 18 families were represented by only one species.

Many investigators [27, 29-34]. were studied the vegetation–environment relations, vegetation ecosystem and flora of some regions in K.S.A, they found that the most plant species of Saudi Arabia belong to a limited number of plant families, for example, 1586 species belong to 23 families or 15.4% of the total families and these plant species represent 73% of the total species in the Kingdom. Also 46 families or 30% of the families in the country such as *Aloaceae*, *Celastraceae*, *Commelinaceae* and *Burseraceae* are found only in Sarrawat Mountains. The life form spectrum indicated that therophytes were the most represented followed by chamaephytes and

phanerophytes. These results agree with the studies in the same region [28]. which indicated that therophytes had the highest contribution. This may be due to the sampling in the present study was during season in which many annuals are dead. Moreover, he indicated that the loss of chamaephytes was due to overgrazing in that area. On the other hand, the results of the present study disagree with that of Heneidy and Bidak [30]. On Bisha, Asir region in southwestern of Saudi Arabia and El-Demerdash *et al.* [35] Also, Chamaephyte life form is able to withstand water logging, high salinity levels and a wide range of temperature variability [36]. The present study indicated that *Commiphora gileadensis* did not grow at low altitudes, they only grow at altitude above 111 m above sea level. This may due to animal browsing, human interference, poor seed–setting, change in land use patterns and prevalence of unfavorable climatic conditions [37]. It is necessary to consider all possible causes of vegetation change at high altitudes. This is of particular significance in the case of endemic plants confined to high summits. At the species level, the changes observed must have not only affected *gileadensis*, but also modified the distribution of associated taxa that are less easily detectable in aerial images [38]. Wild plants in the study area has 5 economic uses: grazing, medicinal, fuel, other use and edible by man. Also we found that fifteen species associated (88.2% of total recorded species) are grazing, 12 species (70.5% of total recorded species) are medicinal, these results agreement with resource of the Ministry of Agriculture [39] which stated that overgrazing is a major impediment to the regeneration of wild plant.

## CONCLUSION

Wadi Elip located in the south-western of Saudi Arabia which floristically diverse in the biodiversity. The present survey recorded 40 species. The total number of identified genera was 33. This high diversity in the wadi was due to the abundance of sources water and soil fertility which considered as a biotic factor. The floristic composition of the wadi is rich in species, genera and botanical families due to rainfall water balance. Recorded the highest *Fabaceae* (*leguminosae*) 17.5%. The life forms are diverse but the (32.5%). Followed by *Hemicryptophytes*, represented by (27.5%), *therophytes* represented (20%) and *phanerophytes* (20 %) of the total species in the study area were perennial types were 26 species while the annual types were 14 species.

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