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A survey study of the plants of Al Hur District in the Holy City of Karbala

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***Abstract*---**This study examined the current survey of the gymnosperm plant and angiosperm plant of dicotyledon and monocotyledon wild during the study period (2021-2022) in the area of Kerbala disitricts, there are (287) species which relate to (192) genus and (58) families. The dicotyledone species 243) beloing to (50) families, the monocotyledon species (44) beloing to (8) families. All these have been scientifically classified with their local and common or Arabic names. Besides their duration and economic importance (medical, toxis, nutritional, forage, artificial, harmful, aromatic, ornamental, fuelplant or other uses). Moreover, their geographical distribution the districts of Iraq and the study results statistics have shown that the vast majority of the collected species are horbal plants totalling (183) wild species out of (287) wild species. As for the shrub species it amounts to (33) wild species where as the number of woody species of tree is (12) as the number of parasitic species is (4). As for the economic plants and their significance, lets mention the fact that the number of the medical plants are (213)species, the plants used as forage amount to (164), the plants used as fuel are (29) species, the toxic plants fall into (24),the ornamental plants are (21) species, the aromatic plants are of (11) species, the weed plants (6) species, it also study the floristic composition, there are clearly dominating to graminae and compositae families of (32) species, (46) species previosly. Then the chenopodianaceae families with (34) species, thent the papilionaceae family with (22) species so the dominating genus was *Astragalus*, *Euphorbia*, *Tamarix* with (8) species, then, launaea plantago each genus with (7) species, then the euphorbia with (6) species, the plant communities was studied, there are dominating to wild species as haloxylon salicornicum, zygophyllum, coccenium, cornulaca, leucoantha and tamarix species sp.

***Keywords*---**vegetation cover, food pyramid, solar energy, carbon dioxide.

Introduction

The vegetation cover is of great importance to the Earth, as it is the basic rule in the food pyramid. Plants use solar energy and carbon dioxide to produce the food needed for humans and all creatures, and produce the oxygen gas necessary for breathing, rid the air of toxic gases, and maintain temperatures suitable for life. many researchers in Iraq were interested in studying the plants of its regions, including a study [1] of the plant biodiversity of the area of Wadi al-Tayeb in Al-Amarah, and [2] a survey study of wild plants of dicotyledons in the area of Diyala chests, and referred to [3] of the plant diversity of the southern desert. In Basra, the previous studies of the western plateau province within which the study area is located were a study [4] of the vegetation cover along the highway (Ramadi - Rutba) and a study [5] of the plant biodiversity of the Rutba Dam area in western Iraq. As for the study area, there are only two studies, the first study [6] of biodiversity in Al-Razzaza Lake, where the types of amphibians, fish, reptiles, birds and plants found in the lake and the adjacent lands were studied, as they mentioned 64 plant species, and the second study of [7], which carried out a taxonomic study of selected species A study of some morphological and anatomical characteristics of some samples of dicotyledons collected from environmentally different locations in Karbala. So, the objectives of the study are:

1. Studying some aspects of the biodiversity of the Al Hur district in terms of vascular plant wealth.
2. Identifying the wild natural plants in Al Hur district and classifying them scientifically during the specified study period.
3. Identify the longevity and life forms of the studied species.
4. Determining the dominant plant communities in the study areas.
5. Environmental awareness of the benefits and harms of the studied plants by defining their economic importance.
6. Indicating the importance of field surveys of natural ecosystems in general and plant flora in particular, working to protect them, rationalizing their investment, and constantly monitoring their conditions.
7. Survey and collection of plants from the study area and preserved in the herbarium of the College of Education - University of Karbala in order to preserve their genetic resources.

The natural conditions of the study area

1-Location

Al Hur district is located to the north of the city of Karbala, with a distance of (2 km) and an area of (2,345) km². It is bordered to the north by Anbar Governorate, to the east by Al-Hussainiya district and the Markaz district, to the west by Ain Al-Tamr district, and to the south by Al-Najaf governorate. The district has been administratively merged and separated several times with the Karbala district

center. The district was separated from the center in 2004, and the district consists of (8) agricultural districts (8).

2- Geological properties

The geological origins of Al Hur district go back to the formations of the Third Age and include:

1- Formation of the Euphrates (Lower Miocene)

It consists of dolomite rocks of sedimentary marine origin. It is divided into two parts. The lower part consists of limestone sediments in the form of compacted pebbles of different sizes, thicknesses (5 mm), and the upper part consists of stratified limestone containing silicic iron flint, chalk, chalk and shale limestone with total thickness. (20-60) meters (9)

2. Formation of the orifice (Middle Miocene)

This formation is revealed in several parts, so that it appears south of Lake Al-Razzaza in the form of a narrow strip between the Euphrates and Anjana formations, and it consists of calcareous gray-brown rocks partially embedded in some of its layers. This formation extends at the base of Tar-Najaf to the south and south-west of the Karbala plateau and along the eastern bank of Lake Al-Razzaza. It is mostly chalk and partly sandy, where limestone lies above this succession in the form of layers covering most of the hills, and the thickness of the formation ranges (25-30) m. The environment of deposition is a marine environment and the lower part of it forms clay rocks [10].

3- (Dammam Formation - Early Middle Eocene)

This formation is considered one of the oldest exposed formations in the region, as it appears in one location in the western part of the desert flat, and it generally consists of limestone Nummulites) and it is in the form of a grayish-yellow petrified, the thickness of which is exposed to less than (20) m, and the thickness of the formation is about (95) m in the western part of the desert surface within the Al-Ukhaidir region. The environment of deposition is a marine environment. (11).

Topographic Properties

Al Hur district is located within the lower valleys area, and the area is part of the western plateau. The general slope of the plateau's surface is from south to north at a rate of (1 meter for every 875 meters) and also appears a slope from west to east at a rate of (1 meter for every 613 meters) (9). The area is characterized by the presence of a rocky cliff that extends from the south of Lake Al-Razzaza to the southwestern parts of the governorate, represented by Batar Al-Sayed, which is characterized by its strong terrain, its length is 60 km and its height is between (80-180) meters above sea level. (11).

4- Soil

The district consists of several types of soil, including sandy and clay soils and mixture soils according to the analysis of the tissue triangle (Report of the Karbala Agriculture Division, Soil Section 2022,). The district belongs to the soil of the western plateau and includes:
A - Mixed gypsum desert soils, where the percentage of gypsum rises to more than 25%, and also the percentage of lime reaches 24%, and the percentage of organic matter in it ranges between (0.1-0.2%), but its salinity does not exceed (4 mmose / cm) and its content average Of the sand is about (74%) and its average content of clay is about (18%), while the proportion of silt is (8%), so it is a sandy mixture in which the proportion of sand is high, which leads to the rapid infiltration of water inside it.
B- Soil at the bottom of the valley and depressions: This soil is found in the valleys' stomachs, and it is considered one of the transported soils. The portable fragments are deposited at the bottoms of the valleys due to the low water velocity and the lack of its slope, forming sedimentary layers of varying thickness and consisting of a sandy and gravel mixture mixed with silt and clay, forming the texture of the layer The surface of this soil is alluvial mixture, and its softness increases with increasing depth. The color of the wet layer is brown or yellow, and some plants grow in the stomachs of valleys and in the depression, and the thickness of some of these soils reaches (60 cm-3 m) and the permeability rate is (2.8-4.2) cm / hour and contains (20-30%) of the lime material, (12).

5- Water Resources

The method of irrigation in orchards and farms irrigates tourists in temperate lands, while pumps are used in higher lands to raise water to the required level. Al Hur district feeds several streams sourced from the Hussainiya Stream, including:

1- Modern Kamaliyya Stream: This stream branches off at 13 km from the right bank of the Al-Hussainiya River, a distance of (500 meters) south of the center of Al-Hussainiya district, and a length of (27 km). meters) contribute to the irrigation of a large number of agricultural lands.
2- Abu Zara'a Stream: This stream branches off from the right bank of the Al-Hussainiya River at a kilometer (21) and a length of (13 km).
3- Al-Rashdiya Stream: This stream runs from the right side of the Hussainiya River at a kilometer (27 km), with a length of up to (15 km), and a number of small irrigation streams branch from it, whose lengths range between (1-3 km) and width (351 meters).

There are other sources of water, including rain water, groundwater or underground water, and this water plays a prominent role in areas where desert characteristics prevail, as it is the main and important source in these areas. The need for it increases when there is little rainfall with the scarcity of the surface water resource. Depending on this water, some agricultural areas are built. Study area districts:

1- Point No. (3) Al Tar Caves:
It is a point belonging to Al Hur district that includes the caves and surrounding areas, such as Lake Al-Razzaza. This area was represented by many common plants, such as Haloxylon salicornisum L. (moq.) bunge Ex roiss, Arad ram.
2- Point No. 4 (Al-Kamaleiyah):
It is a point with a variety of environments, most of which are farmed, from which many plants were collected
3- Al Hur Desert (5):
This area is associated with the Tar Caves area in the spread of the raft community Haloxylon salicornisum L. (moq.) bunge Ex roiss Ard raft.
Materials and working methods:

Materials

1- Protective gloves with a shovel with which plants were cut with their roots, scissors used to cut branches of trees and large shrubs, a camera, as well as a Samsung J8 mobile camera with which the selected samples were photographed in the field, an iron ruler measuring 30 cm, an iron tape to measure the length (fitty) by which the height of the plants was measured, and a notebook in which notes were taken and important information.
2- The GPS devices (Global Positioning System) and the (GPS) program for the mobile phone (Samsung J8) was used for the purpose of fixing the coordinates of the specific areas of the study area.
3- Special sealed bags and 30 kg nylon bags in which samples were collected and marked with significant marks.
4- Ordinary cardboard sheets with newspaper and wooden presses in which the samples were pressed and packed for drying.

Samples were collected at the end of August from 2021 until August 2022. During this period, field trips were conducted at close times and at a rate of five to six trips per month, except for some rainy and dusty weeks. Through these trips, samples were photographed and collected, as they were selected with high accuracy, taking into account the stages the growth of different plants, beginning as young, then flowering, fruitful and mature. The plant samples were also classified based on the important encyclopedias, which are the flora of the lowlands in Iraq [8], as well as the Book of Plant Wealth in Iraq in its parts for [13] and the flora of Iraqi [14].

Results and Discussion

The Qualitative Composition of Vegetation:

The Asteraceae family was the largest of the families studied in terms of the number of species in the study area, as 46 wild species were recorded, followed by the Chenopodiaceae family, whose species reached 34 wild species, then the Papilionaceous butterfly family with 22 species, followed by the Cruciferae family with 20 species. Large and cosmopolitan families in terms of prevalence and number of species. By comparing these results with other sites, we note that the compound family is one of the largest plant families in Iraq and in the world [14],

the compound family includes 25,000 species and 1600 genera [1]. Wide range environmental tolerance.

And that the Asteraceae family is the richest plant family in the world and its members can be easily distinguished through its floral groups with vertical inflorescences and fruits with a fluffy cup, and that its species can appear in all forms of life such as herbs, shrubs, and rarely trees [13]. As for the butterfly and cruciferous families, studies indicate that these families, in addition to the compound family, constitute the largest part of the plant species in Egypt, Saudi Arabia and Kuwait [14]. The supremacy of the mentioned families is also consistent with what was mentioned in [16], [15], [17] and [18]. In terms of genera, the genus Astragalus ranked first in the study area in terms of species, as it included 8 species, and is considered the largest genera in Iraq [19], including 116 species, in addition to being the largest genera in flowering plants in the world [20]. As for Lacunae of the compound family, it included 7 species, and the genus Sauuda was 6 species.

Table (1) Plant families and their species in Al-Hurr district

Name of Family	Scientific name of the Plant	duration	Economic Importance	Density	Location
Ferns					
1- SALVINIACEAE	Azolla filiculoides Lam	A	M,F,I	+++	4
Gymnospermis					
2- EPHEDRACEAE	2-*Ephedra alata* L.	P	M	+	3
	3-*Ephedra transitoria* L.	P	M	+	3
Angiospermis (Dicotyledon)					
3- AIZOACEAE	4-*Aizonanthemum hispanicum*(L.)	A	M	++	2
	5-*Mesembryanthemum nodiflorumL.*	A	M,F,OR	++	2
4- AMARANTHACEAE (AMARANTH)	5-*Amaranthus albus L.*	A	M,F	+	,3,5
	6-*Amaranthus hypridus* L.	A	M,F	++	4,
	7-*Amaranthus viridis* L.	A	M,F	+	4,
5- APIACEAE (UMBELIFERAE)	*8-Ammi majus* L.	A	M,T,F	+	Widespread
	9-*Torilis stocksiana(Boiss.) Drude*	A	M,F	++	4,
	10-*Trachomitum venetum* L.	PSH	M,T	+	4
6 - ASCLEPIADACEAE	11-*Calotropis procera (Ait.)R.Bn.*	PSH	M,T	+	4,

7-ASTERACEAE (COMPOSITAE) ↓	12-*Aaronsohnia fastorouskyieteig* L.	A	M,F	++	3,5
	13-*Anthemis desertii* L. (Matricaia desertii)	A	M	++	5
7- ASTERACEAE (COMPASITAE) ↕	14-*Artemisia campestris* L.	A,B	F,W,AR	+	,3,5
	15-*Artimesia herba-alba* L. Asso	A,B	F,W,AR	+++	,3,5
	16-*Aster subulatus* L. Michx.	A	F	++	4
	17-*Asteriscus pygmaeus* L. (DC.) Coss. et Dur.	A	M,F	+	,3,5
	18-*Atractylis cardus* L. forssk christ	A,P	M,F	++	3
	19-*Calendula arvensis* L.	A	M,OR, AR	++	3,5
	20-*Calendula officinalis* L.	A	M,OR, AR	+	,3,5
	21-*Calendula tripterocarpa* L. Rupr.	A	M,OR, AR	+	3,5
	22-*Carduus getulus* L. Pomel	A	M,F	++	3,5
	23-*Carduus pycnocephalus* L.s.I.	A	F	++	5
	24-*Carthamus oxyacanthus* L. M.Bieb.	A	M,F	+	5
	25-*Centauriea iberica* L. Trev.ex Spreng.	A,B	F	+	Widespread
	26-*Centaurea sinaica* L. DC. (*centaurea pseudosinaica*)	P	M,F	++	,3,5
	27-*Cichorium intybus L.*	A	M,F	+++	Widespread
	28-*Erigeron bonariensis* L.	A	M,F	++	Widespread
	29-*Eclipta alba (L.) Hausskn .*	P	F	+++	Widespread
	30-*Filago germanica* (L.)Huds.	A	F	+++	Widespread
7- ASTERACEAE (COMPASITAE) ↕	31-*Filago spathulata* L. Presl.	A	F	++	,3,5
	32-*Gundelia tournefortii L.*	A	M	+	,3,5
	33-*Gymnarrhena micrantha* L. Desf.	A	M	++	3,5
	34-*Hedypnois critical*	A	M,F	++	,3,5,

	L.				
	35-*Kolpinia linearis* L. Pall	A	F	+	,3,5
	36-*Lactuca serriola* L.	A,B	M,T	+	5,
	37-*Launaea mucronata* L. Forssk.	P	F	++	,3,4,5
	38-*Launaea angustifolia* L. desf. O.	A,P	F	++	Widespread
	39-*Launaea capitata* L. spring dandy	B	F	++	Widespread
	40-*Launaea intybacea* L. Jacq.	A	F	++	Widespread
	41-*Launaea procumbens* L. Roxb. (*Launaea fallax* jaub. Et spach)	A	F	+++	Widespread
	42-*Launaea mucronata* L. Forssk. Muschi.	P	F	++	,3,5
	43-*Launaea nudiculis* L.	B,A	F	+++	,3,5
	44-Leontodon *laciniatus S*	A	M,F	+	3,5
	45-*Picris babylonica* L. Hand- Mzt	A	F	+++	3,5
	46-*Reichardia picroides (L.)Roth*	A	F	+	3,5,
	47-*Reichardia tingitana* (L.) Roth	A	M,F	+	3,5
	48-*Rhanterium epapposum* L. in hook	PSH	M,F,FU	+++	3,5
	49-*Senecio glaucus* L. *Subsp.Coronopifolius* (maire) Alex *Senesio desfontainei* druce	A	M,F	+	,3,5
7- ASTERACEAE (COMPASITAE↑	50-*Silybum marianum* (L.) Gaertn.	A,B	M,F	+	Widespread
	51-*Sonchus asper* (L.)Vill.	A	F,W	++	Widespread
	52-*Sonchus oleraceus* L.	A	M,F,W	++	Widespread
	53-*Senecio sylvaticus* L.	A	M,F,OR	++	4
	54-*Taraxacum monochlamydeum* L.	P	M,F	++	Widespread
	55-*Urospermum picroides (L.)* scop.	A	M,F	+	4

	56-*Urospermum picroides (L.) Schmidt*	A	M,F	+	4
	57-*Xanthium strumarium* L.	P	M,T,W	+	Widespread
8-BALANOPHORACEAE	58-*Cynomorium coccineum* L.	Parasitic	M	-	5
9-BORAGINACEAE (BORAGE) ↓	59-*Arnebia decumbens* L. Vent. Coss. et Kral.	A	M,I,OR	++	3,5
	60-*Arnebia hispidissima* L. Lehm. DC.	A	M,T	++	5
	61-*Gastrocotyle hispida* L. Forssk. Bge. (Anchusa hispida)	A	M,T	+++	5
	62-*Heliotropium bacciferum* L. Frossk.	A	M,T	+++	,3,4,5,
	63-*Heliotropum digynum* L. Frossk.	A	M,T	+++	5
	64-*Lappula spinocarpos* L. Forssk. Asch. Ogastemma pusillum (coss.& dur. Ex Bonnet & Barratte) Brummitt	A	M,T	+	,3,5
	65-*Moltkiopsis ciliate* L. Forsk. Johnst. Lithospermum angustifolium	A	T	+	3
10-CAPPARIDACEAE (CAPER)	66-*Capparis spinosa L.S.I.*	P	M,F,I	++	Widespread
11-CARYOPHYLLACEAE (PINK) 11-CARYOPHYLLACEAE	67-*Gypsophila heteropoda* L.	A	M	+	3,5
	68-*Herniaria hemistemon* J. GAY	P	M	++	3,5
	69-*Herniaria hisutal.* L.	A	M	+	3
	70-*Paronychia arabica* (L.)del.	A	M	++	3,5
	71-*Paronychia argentea* L. LAM.	P	M	++	,3,5
	72-*Pteranthus dichotomous* L. Forssk. Camphorosma pteranthus	A	M	+	3
	73-*Silene succulent Forssk*	A	M	+	5

	74-*Spergularia diandra* L. (Guss.)heldr. Et sart	A	M	+	Widespread
	75--*Spergularia marina(L.) Besser*	A	M,F	++	Widespread
	76-*Stellaria neglecta Weihe*	A	M	+	3,4
12- CERATOPHYLLACEAE	77-*Ceratophyllum demersum L.*	A	M,F	+++	Widespread
13- CHENOPODIACEAE (GOOSEFOOT) ↓	78-*Agathogeto iraqensis* L. Botsch. *Halogeton alopecuroid* Del.	P	M	++	4
	79-*Anabasis setifera* L.	PSH	M	++	3,5
	80-*Atriplex hastate* L.	A	M	++	Widespread
	81-*Atriplex leucockada* L. Boiss	PSH	M	++	Widespread
	82-*Beta maritima* var. cicla L.	A	M	+++	Widespread
13- CHENOPODIACEAE (GOOSEFOOT)	83-*Bassia eriophora* L. Schrad. Aschers	A	M	+++	5
	84-*Baccia hyssopifolia* L. pall. o. kuntze	A	M,F	+++	Widespread
	85--*Baccia muricata* (L.) ascher and sch.	A	M,F	+++	Widespread
	86-*Bassia prostrate (L.)*	A	F	+++	Widespread
	87-*Bienertia singuspersici* L. Akhani *Bienertia cycloptera* auct.Non Bunge ex Doiss.	A	M,F	++	4
	88-*Caroxylon imbricatum* L. Forssk	PSH	M,F,Fu	+++	Widespread
	89-*Cornulaca aucheri* L. Moq.	A	M,F,Fu	+	Widespread
	90-*Cornulaca monacantha* L. Delile	PSH	M,F,Fu	++	3
	91-*Chenopodium album* L.	A	M,F,Fu	++	4
	92-*Chenopodium murale* L.	A	M,F,Fu	++	Widespread
	93-*Chenopodium ambrosioides* L	A	M,F	+	3,5
	94-*Halocnemum pygmaea* L.	PSH	M,F	++	3
	95-*Halocnemum*	A	M,F	+++	Widespread

	strobilaceum L. (Pallas). *Salicornia perennans* Wild. *Salicornia europaea* non L.				
13-CHENOPODIACEAE	96-*Halothamnus iraqensis* L. Botsch	P	M,F,Fu	+++	,3,5
	97-*Haloxylon persicum* L. Bunge	PT,PSH	M,F,FU	+++	5
	98-*Haloxylon salicornisum* L. (moq.) bunge Ex roiss	p	M,F,Fu	+++	3,5
	99-*Salicornia herbacea* L.	A	M,F	+	Widespread
	100-*Salsola baryosma* L.	PSH	M,F,FU	++	Widespread
	101-*Salsola incanescens* L. Mey	A	M	++	3,5
	102-*Salsola jordanicola* L.	A	M,F	+	Widespread
	103-*Salsola soda L.*	A	M	++	Widespread
	104-*Seidlitzia rosmarinus* L. ehrenb. Ex boss.	PSH	M,F,Fu	+++	2,3,5
	105-*Suaeda aegypticaca* L. hasselq. zohary.	A	M,F,Fu	+++	Widespread
	106-*Suaeda fruticosa* L. Forssk. Ex J.F.	PSH	M,F,Fu	+++	Widespread
	107-*Suaeda maritime* L.	A	M,F	++	Widespread
	108-*Suaeda mesopotamica* L. Eig.	Pt,PSH	M,F,Fu	+++	Widespread
	109-*Suaeda nigra J.FMacbr*	A	M,F	++	Widespread
	110-*Suaeda vermiculata* L. Forssk.	Pt,PSH	M,F,Fu	++	2,3
	111*Traganum nudaltum* L.	PSH	M,F,FU	++	3,5
14- CISTACEAE	112-*Helianthemum lipii* (L.) Dum. Cours.	PSH	M	++	3,5
	113-*Helianthemum Ledifoium* (L.) Mill.Va. L	A	M	+	3
	114-*Helianthemum Salicifolium* (L.) Mill	A	M	+	3,5
15- CLEOMECEAE	115-*Cleome amblyocarpa* L. Barr. Et Murb.	A	M	-	3

16-CONVOLVULACEAE (CONVOLVULUS)	116-*Convolvulus arvensis* L.	P	M	+++	Widespread
	117-*Convolvulus oxyphyllus* L. Boiss	PSH	M,FU	++	3
	118-*Convolvulus pilosellaefolius* L. Desr	P	M,F	++	Widespread
	119-*Cressa cretica* L.	P	M	++	Widespread
17- CRUCIFERAE (Brassicaceae) (MUSTARD) ↓	120-*Alyssum linifolium* L. steph. Ex. Willd	A	F	+++	4
	121-*Brassica deflexa* L. Boiss.	A	M	++	3,5
	122-*Brassica nigra* L.	A	M	+++	3,5
17-CRUCIFERAE -)Brassicaceae (↓ (MUSTARD)	123-*Brassica tournefortii* L. Gouan.	A	M,F	++	Widespread
	124-*Cardaria_draba* (L.) Desv.	P	M,T,	+++	Widespread
	125-*Carrichtera annua* (L.) DC.	A	M	++	3
	126-*Diplotaxis acris* L. forssk boiss.	A	M,F	+++	5
	127-*Diplotaxis hara* L. Forssk. Boiss.	A,P	M,F	++	3
	128-*Farsetia aegyptiaca* L. turra	PSH	M	+	3,5
	129-*Lepidium aucheri* L. Boiss.	A	M,F	++	3
	130-*Leptalium filifolium* L.Willd. DC.	A	M	++	,3,5
	131-*Matthiola longipetala* L.Vent. DC.	A	M,F,OR	++	3
	132-*Raphanus raphanistrum* L.	A	M,F	++	,3,5
	133-*Savignya parviflora* L. Del. Webb.	A	M,F	+	3
	134-*Schimpera arabica* L. Hochst. Et Steud.	A	M,F	+++	3
	135-*Sinapis arvensis L.*	A	M	++	Widespread
	136-*Sisymbrium irio* L.	A	M,F	++	Widespread
	137-*Sisymbrium septulatum* L. DC.	A	M	++	,3
17-CRUCIFERAE)Brassicaceae (↓ (MUSTARD)	138-*Strigosella grandiflora* L. Bunge Malcolmia grandiflora	A	F	++	5

	139 -*Torularia torulosa* L. Desf. Hedge & Leonard	A	M,F	+	,5
18 - CUSCUTACEAE (CUSCUTA)	140-*Cuscuta planiflora* L. Ten.	A	M,W	++	Widespread
19- EUPHORBIACEAE SPURGE	141-*Euphorbia hypericifolia L.*	A	M,F	++	3
	142-*Euphorbia helioscopia* L.	A	M,T	+	4
	143-*Euphorbia chamaesyce* L.	A	M	+	Widespread
	144-*Euphorbia granulate* L. Forssk	A	M	+	3
	145-*Euphorbia peplus* L.	A	T	+	Widespread
	146-*Ricinus communis* L.	PSH	M,T,OR	+	Widespread
20- FRANKENIACEAE	147-*Frankenia Pulverulenta* L.	A	M	+++	Widespread
21-GENTIANACEAE	148-*Centaurium tenuiflorum (Hoffmanns.&Li*	A	M	+++	Widespread
22- GERANIACEAE (CRAN S BILL)	149-*Erodium cicutarium* L.	A	M	++	3
	150-*Erodium glaucophyllum* L. Lher	P	M	++	3
	151-*Erodium laciniatum* L. Cav. Willd	A,B	M,F	+	3,5
23- LAMIACEAE (MINT)	152-*Mentha aqutica* L.	P	M,F,I,AR	+	1,4,6,7,9,12
	153-*Mentha longifolia* (L.) Huds	P	M,F,I,AR	+++	Widespread
	154-*Salvia spinosa* L.	P	M	+	3
	155-*Teucrium oliverianum* L. Ging	P	M,AR,OR	++	3
24- MALVACEAE	156-*Alcea kurdica* Schl. L. Alef	P	M,OR	+	3
	157-*Corchorus olitorius L.*	A	M,F	+++	Widespread
	158-*Hibiscus trionum L.*	A	M,F	++	Widespread
	159-*Malva nicaeensis* L. all.	A	M,F	++	Widespread
	160-*Malva parviflora* L.	A	M,F	+++	Widespread
25-NAJADACEAE	161-*Najas minor All.*	A	F	+++	Widespread
26- NEURADACEAE	162-*Neurada*	A	M	++	5

	procumbens L. Figaraea aegyptiaca				
27- NITRARIACEAE (ZYGOPHYLLACEAE) ↓	163-*Fagonia bruguieri* L. DC.	P	M	++	3,4,
	164-*Fagonia glutinosa* L.	P	M	++	3
	165-*Nitraria retusa* L. Forssk Asch	PSH	M,T,F,AR,	++	3,5
	166-*Peganum harmala* L.	A,P	M,T,F,Ar,OR	+	Widespread
	167-*Tribulus macropterus* L. Boiss. (*Tribulus alatus dinsm*)	A	M	++	3
27- NITRARIACEAE (ZYGOPHYLLACEAE) ↓	168-*Tetradiclis tenella* L. Ehrend Litw	A	F	+	5
	169-*Zygophyllum fabago* L.	P	M,T	++	3
	170-*Zygophyllum coccineum* L.	PSH	T	+++	Widespread
28- OROBANCHACEAE	171-*Cistanche tubulosa* L. schenk whght	Parasitic	M	-	5
	172-*Cistanche violacea* L.	Parasitic	M	-	3,5
	173-*Cistanche phelypaea* L.	Parasitic	M	-	3,5
29- OXALIDACEAE (OXALIS)	174-*Oxalis corniculata* L	P	M,T	+	Widespread
30- Papavaraceae	175--*Hypecoum pendulum* L.	A	M,OR	++	3,5
	176--*Papaver glaucum* L. Boiss. et Huet.	A	M,OR	-	5
	177-*Roemeria hybrida* (L.) DC.	A	M,OR	-	3
31-PAPILIONACEAE Leguminosae (PEA) FABACEAE↓	178-Alhagi graecorum L.Boiss .	PSH	M,F,I,OR	+++	Widespread
	179-*Astragalus bombycinus* L. Boiss.	A	M,F	++	3,5
	180-*Astragalus tribuloides* L. Del.	A	M,F	++	,3,5
	181-*Astragalus hamosus* L.	A	M	+	3
	182-*Astragalus kahiricus* L. D.C	P	M,F	++	5
	183-*Astragalus schimperi* L. Boiss.	A	M	++	,3,5
	184-*Astragalus*	PSH	M,F	+++	3,5

	spinosus L.				
	185-*Astragalus zubairensis* L. Aig.	P	M,F	-	3
31- PAPILIONACEAE (PEA) Leguminosae FABACEAE ↕	186-*Hippocrepis bicontorta* L. lois	A	M	+	5
	187-*Lathrus odoratus* L.	A	OR	+	3
	188-*Lotus corniculatus* L.	P	F	+	Widespread
	189-*Lotus halophilus* L. boiss.& Sprun.	A	F	+	5
	190-*Medicago rigidula (L.) All.*	A	F	+++	4
	191-*Medicago laciniata* (L.) Mill	A	F	++	3
	192-*Medicago polymorpha* L.	A	F	++	4
	193-*Melilotus indicus* (L.) All	A	M,T	++	Widespread
	194-*Onobrychis ptolemaica* L. (Dl.DC.)	A	M,T	+	3
	195-*Psoralea corylifolia L.*	A	M,F	+	3,4
	196-*Prosopis farcta* L. (Banks et Solan.) Eig	PSH	M,F,I,ex	++	Widespread
	197-*Sesbania sesban* (L.) Merrill	PT	M,OR		4
	198-*Trigonella hamosa* L. *Trigonella glabra thumb*	A	M,F	++	4
	199-*Trifolium resupinatum* L.	A	F	++	Widespread
	200-Tribulus terrestris	A	F	+	3
	201-*Plantago amplexicaulis* L. Cav.	A	F	++	3
32- PLANTAGINACEAE (PLANTAIN) ↑	202-*Plantago ciliata* L. Desf.	A	F	++	3
	203-*Plantago lagopus* L.	A	F	++	Widespread
	204-*Plantago lanceolata* L.	P	M,F	++	Widespread
	205-*Plantago major* L.	P	M,F	++	Widespread
	206-*Plantago ovata* L. Forssk.	A	M,F	++	3
33- PLUMBAGINACEAE	207-*Limonium carnosum* L. Boiss.	A	M	++	3
34- POLYGONACEAE	208-*Emex spinosus*	A	M	++	3

	(L.) Campd.				
	209--*Persicaria maculo Gray*	A	M,F	++	Widespread
	210-*Persicaria lapathifolia (L.) Delarbre*	A	M	+++	Widespread
	211-*Polygonum argyrocoleon Steud.ex*	A	M,F	++	Widespread
	212-*Rumex conglameratus* L. Murr.	P	F	++	Widespread
	213-*Rumex dentatus L.*	A	M	++	Widespread
	214-*Rumex vesicarius* L.	A	M,F	++	3,5
35- PORTULACACEAE(PURSLANE)	215-*Portulace oleracea* L.	A	M,F	+	Widespread
36- PRIMULACEAE (PRIMROSE)	216-*Anagallis arvensis* L.	A,P	M,T	++	Widespread
37- POTAMOGETONACEAE	217-*Potamogeton pectinatus* L.	P	F	+	4
38- RANUNCULACEAE	218-*Adonis dentat* L.	A	M	+	3
39-RESEDACEAE (MIGNONETTE)	219-*Oligomeris linifolia* L. Vahl. Macbride	A,P	M	+	3
	220-*Reseda alba* L. *P.decursiva* Forssk. Mai.In Cat	A	M	+	3
	221- Reseda Arabica Boiss	A	M	+	3,5
	222-*Reseda muricata* L.	P	F	+	3,5
40- RHAMNACEAE	223-*Ziziphus nummularia* L. burm F. wight et Arn.	PSH	M,F,FU	+	4
41-ROSACEAE ↓	224-*Rubus sanctus* L. Schreb.	PSH	M,OR,FU,I	+	Widespread
42- RUBIACEAE	225-*Crucianella membranacea Boiss.*	A	M	+	3
43- RUTACEAE	226-*Haplophyllum tuberculatum* L. Forssk.	P	M	+	3
44- RUPPIACEAE	227-*Ruppia maritime* L.	P	F	+	4
45- SALICACEAE (WILLOW)	228-*Populus alba L.*	Pt	M,F,I	+++	Widespread
	229-*Populus euphratica* L. Oliv.	Pt	I,Fu.	++	Widespread
	230-*Salix acmophylla*	Pt	M,I,Fu,AR	++	Widespread

	L. Boiss				
46- SCROPHULARIACEAE	231-*Scrophularia deserti* L. Del.	P	M	+	3
	232-*Lycium barbarum* L.	PSH	M,I,FU		3
47- SOLANACEAE	233-*Physalis angulate L.*	A	M,T	+++	Widespread
48- TAMARICACEAE (TAMARISK) ↓	234-*Tamarix arceuthoides* L. Bge *Tamarix florida* Beg.	PT	M,FU	++	Widespread
	235-*Tamarix aralensis* L. bge	PSH	M,FU	++	Widespread
	236-*Tamarix aphylla* (L.) karst.	PT	M,FU,OR	++	3,4
	237-*Tamarix aucheriana* L. (Decne. Ex Walp.) baum	PSH	M,FU	++	Widespread
	238-*Tamarix Brachystachys* L. bge. (*Tamarix tetragyna*)	PT,PSH	M,FU	++	Widespread
	239-*Tamarix macrocerpa* L. Ehrenb. Bge. *Tamarix passerinoides* Delileex	PT,PSH	M,FU	++	Widespread
48-TAMARICACEAE (TAMARISK) ↑	240-*Tamarix ramosissima* L. ledeb.	PT	OR	++	Widespread
	241-*Tamarix smyrnensis* L.	PSH	M,FU		Widespread
49- THYMELEACEAE	242-*Dendrostellera lessertii* L.	PSH	M	+	3
50- URTICACEAE (NETTLE)	243-*Urtica urens* L.	A	M,T	+	4
Angiospermis (Monocotyledon)					
51- CYPERACEAE↓	244-*Cyperus difformis L.*	p	M	++	4
	245-*Cyparus corymbosus* L. rottb	P	M	++	Widespread
	246-*Cyparus laevigatus* L.	P	M	++	4
	247-*Cyparus rotundus* L.	P	M	+++	Widespread
	248-*Schoenoplectus litoralis* L. Schrad.	P	M	+	Widespread
52- COLCHICACEAE	249-*Colchicum szovitsii Tivi*	A	M,F	+	5
53-HYDROCHARITAC	250-*Elodea nuttallii(Planch.)H,St.John*	A	M,F	+++	Widespread

54- IRIDACEAE	251-*Gynandriris sisyrinchium* (L.) Parl.	A	M	++	5
55- JUNCACEAE	252-*Juncus maritimus* L.	P	M,I		Widespread
	253-*Juncus rigidus* L. Desf	P	M,I	++	Widespread
56- POACEAE (Gramineae) ↓	254-*Aegilops kotschyi* L. Boiss.	A	F	++	3
	255-*Aleuropus lagopoides* (L.)	P	M,F	+++	Widespread
	256-*Aleuropus littoralis* L.	P	M,F	++	Widespread
	257-*Alopecurus myosuroides* L. Huds	A	F	++	4
	258-*Avena fatua* L.	A	F	+	Widespread
	259-*Bromus danthoniae* L. trin.	A	F	++	4
	260-*Bromus tectorum* L.	A	F	+	4
	261-*Bromus scoparius* L.	A	F	+	4
	262-*Crithopsis delileana* L.	A	F	++	4
56- POACEAE (Gramineae) ↑	263-*Cynodon dactylon*(L.) Pers.	P	OR	+++	Widespread
	264-*Docty loctenium aegyptium* (L.) p. beauv.	A	F	+++	Widespread
	265-*Dichanthium annulatum* L. frossk. stapf.	P	F	+++	Widespread
	266-*Digitaria sanguinalis* (L.) scop.	A	F	++	Widespread
	267-*Dinebra retroflexa* L. (Vahl) Panz.	A	F	++	Widespread
	268-*Diplachne fusca* (L.) P.Beauv.	P	F	++	4
	270-*Enneapogon persicus* L. Boiss	P	F	++	Widespread
	271-*Imperata cylindrical* (L.) P. Beauv.	P	F	+++	Widespread
	272-*Lolium temulentum* L.	A	F	+	Widespread
	273-*Lolium rigidum* L. Gaud.	A	F	+	Widespread
	274-*Lophochloa pumila* L. Desf. Bor.	A	F	++	3

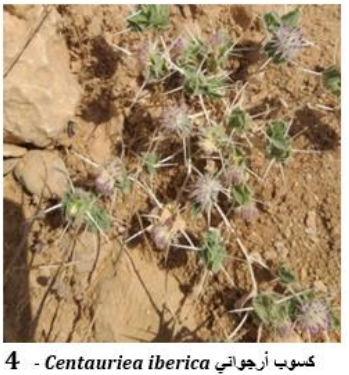
56- POACEAE (Gramineae) ↑	275-*Lophochloa phleoides* L. vill Rchb.	A	F	++	Widespread
	276-*Panicum repens* L.	P	F	++	Widespread
	277-*Paspalum paspaloides* L. Michx.	P	F	++	Widespread
	278-*Phalaris minor* L. Retz.	A	F	+++	Widespread
	279-*Phragmites aystralis* L. cav. trin. Ex staud	P	F,I	+++	Widespread
	280-*Poa annua* L.	A	F	++	Widespread
	281-*Polypogon monspeliensis* (L.) Desf.	A	F	+++	Widespread
	282-*Sorghum halepense* (L.) Prs.	P	F	++	Widespread
	283-*Stipa capensis* L.	A	F	++	3
	284-*Stipagrostis plumose* L.	P	F	+	3
	285-*Trachynia distachya* (L.)	A	F	++	4
57-POTAMOGETONA	286-*Potamogeton crispus L.*	A	M,F	+++	Widespread
58- TYPHACEAE	287-*Typha domingensis* L. pers.	P	I,M	++	Widespread

*A: (Annual) - P: (Perennial) – PA : (Parasitic) – B: (Biennial) PT: (Perennial trees) – PSH : (Perennial shrub
M: (Medical) - F: (Food) – FU: (Fuel) – T: (Toxic) – W (Weed) - OR: (Ornamental) AR: (Aromatic) -
I: (Industrial
Plate (1-33) pictures of some studied species

1- Artimesia herba-alba Asso

2- Calendula officinalis L.

3- Carduus getulus Pomel



4 - Centauriea iberica كسوب أرجواني

5- Centaurea sinaica DC كسوب

6- Conyza bonariensis L. ذويل القيب

7-Erigeron candensis L.

8- Filago spathulata Presl

9- Gymnarrhena micrantha/

10- Kolelpinia linearis Pall

11- Launaea mucronata

12- Launaea angustifolia

13- Launaea capitata

14- Launaea procumbens

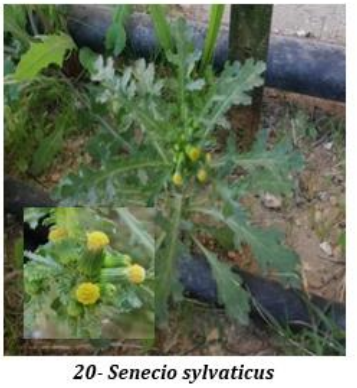
15- Launaea mucronata

16- Launaea nudiculis L.

17- Rhanterium epapposum

18- Silybum marianum (L.)

19- Sonchus oleraceus L.



20- Senecio sylvaticus

21- Taraxacum monochlamydeum L.

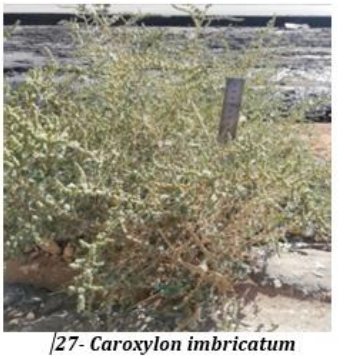
22- Xanthium strumarium L.

23 - Atriplex leucockada Boiss

24- Bassia eriophora

25- Baccia muricata (L.)

26- Baccia hyssopifolia



27- Caroxylon imbricatum

28- Chenopodium ambrosioides L

29- Halocnemum strobilaceum

30- Haloxylon persicum

31- Seidlitzia rosmarinus

32- Suaeda aegypticaca

33- Suaeda fruticosa

38 - Carrichtera annua (L.)DC.

39- Diplotaxis hara (Forssk)

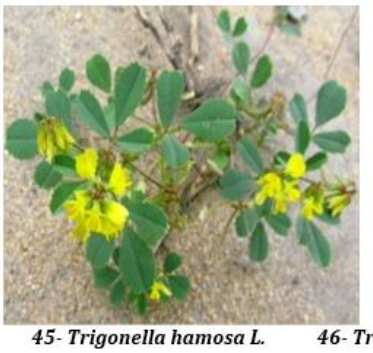
40- Matthiola longipetala

41- Strigosella grandiflora

42- Zillaspinosa

43- Melilotus indicus (L.) All

44- Trigonella foenum – graecum L.



45- Trigonella hamosa L.

46- Trifolium alexandrium L

Duration

The current study included six sections representing the longevity of the plant, which are annuals, perennials, perennial trees, perennial shrubs, and bi-annual plants. These six sections gave a clear picture of the nature of the cover for the families studied, as the percentage of annual plants was the highest, reaching 63.76%, with a number of 183 species. Followed by perennial shrubs, amounting to 49.11%, with a number of 33 species, and perennial plants, with a rate of 22.29%, with a number of 64 species, while perennial trees accounted for 4.18%, while bi-annual plants accounted for 2.78%. This is attributed to the reason that most annual plants have the ability to Resisting unsuitable environmental conditions through several mechanisms, including the ability of its seeds to adapt, and they can shorten their growth within a short period with any

availability of water, due to their response to harsh climate and human pressure, as well as providing moisture [15] and that the high percentage of annuals shown by the current study is consistent with the findings The mechanism of a study [6] of biodiversity in Al-Razzaza Lake and its adjacent areas, and a study [5] of the plant biodiversity of the Al-Rutba Dam area in western Iraq, and a study [1] of the biodiversity of The plant biology of the Wadi Al-Tayeb region, northeast of Al-Amarah, a study [2] of the taxonomic ranks of wild dicotyledons in the Diyala chest region, and a study of the plant biodiversity of the southern desert in Basra.

Table (2) the duration of studied species

Parasitic PAR	**Biennial B**	**Perennial معمرة Trees PT**	**Perennial shrub PSH**	**Perennial** P	**Annual** A	**Type Longevity of plants**
4	8	12	33	64	183	Type of Plants 287
% 1.39	% 2.78	%4.18	%11.49	%22.29	%63.76	% Percentage

The Economic Importance of Plants

The importance of wild species recorded in the study area for the studied families was counted. It was found from the results of the study and depending on several sources, including [9] and the Encyclopedia of Iraqi Plants [10] and [19], it was found that the percentage of medicinal plants constitutes the highest percentage among other uses of plants, with a rate of 74.21 213 wild species out of the 287 registered wild species, followed by plants used as food for humans in one part of the plant or forage plants such as grazing animals, and a rate of 57.14% was recorded, with a number of 164, followed by plants used as fuel, at a rate of 10.10% and 29 wild plants, followed by the percentage of poisonous plants that It amounted to 8.36%, with a rate of 24 species, and 21 species of them were recorded as ornamental plants, with a rate of 7.31%, and aromatic plants were recorded by 3.83%, and by 11 plants, and finally, harmful plants by 2.09% and with a number of 6 plants. It is believed that the number of species of medical and therapeutic importance and used in Folk medicine in Iraq ranges between 360-370 species.

Table (3) the Economic Importance of studied species

weedW	**A R** aromatic	**O R** ornamental	**Ttoxic**	**FU** fuel	**F** food	**M** medicinal	**Economic Importance**
6	11	21	24	29	164	213	287 Plants Type of
%2.09	%3.83	% 7.31	% 8.36	%10.10	%57.14	% 74.21	% Percentage

References

[1] Al-Kanaani, Suhad Abdul-Salaah Taha. (2009). A study of plant biodiversity in the Wadi Al-Tayeb region, northeast of Al-Amarah, PhD thesis, College of Science, University of Basra.

[2] Al-Mahdawi, Nasreen Sabbar Hashem Hussein. (2014). Taxonomic ranks of dicotyledonous wild plants in the Sadr-Diyala region, Master's thesis, College of Education for Pure Sciences, University of Diyala

[3] Maleh, Haider Rady (2015). Vegetation and plant biodiversity in the southern desert region in Basra Governorate, southern Iraq. Ph.D. thesis College of Science Albasrah University.

[4] Al-Alwani, Abdul-Karim Ahmad Mukhtlaf, Muhammad, Othman Musa and Latif, Mahmoud Hadid Al-Fahdawi (2012). Analysis of the vegetation cover on the Extension of the Muroor Highway (Rutba Ramadi within the Western Desert of Iraq. Iraqi Journal of Science: 166-146

[5] Musa, Muhammad Othman (2018) The plant biodiversity of the Rutba Dam area in western Iraq Iraqi Journal of Desert Studies Volume 8, Issue 1

[6] Muhammad, Kazem Muhammad and Hassan Ali, Hussein Ali (2013). Study of biodiversity in the Al-Razzaza region and the neighboring regions. Al-Ustad Journal, Volume 2, No. 205.

[7] Al-Bahadli, Zeina Khalil (2015). A taxonomic study of selected species of plants. Dicotyledons in the Holy Karbala Governorate, Iraq, PhD thesis submitted to the Council of the College of Science / University of Baghdad We Cammer Wien

[8] Al-Quraishi, Abdul-Amir Aziz and others (2017). Karbala Civilization Encyclopedia - Geographical Axis - Part One. Iraqi Books and Documents House - First Edition, Baghdad, Iraq.

[9] Al-Azzawi, Batoul Muhammad Ali Muhammad Saeed (2012). A hydrological study of the area between Karbala-Najaf road. The Iraqi Journal of Science, College of Science, University of Baghdad, Vol.53, Issue 2. Pg: 355

[10] Al-Fatlawi, Dalia Abdel-Karim Nagy (2021). Groundwater and its impact on the development of agricultural production in the desert of Karbala district. Master's thesis - College of Education for Human Sciences - University of Karbala - Iraq

[11] Al-Bayati, Virgin Tariq Khorshid (2009). Karbala Governorate, An Applied Study in Regional Maps. Master's Thesis (unpublished) - College of Education for Girls - University of Baghdad - Iraq

[12] Al-Zamili, Ayed Jassim (2007). Landforms in the discontinuous edges of the western plateau between Al-Razzaza and Sawa lakes and their effects on human activity. PhD thesis - College. Arts - University of Baghdad - Iraq

[13] Chakravarty,H.L.(1976).plant wealth of Iraq ,(Dictionary of Economy plant).Vol 1 : Ministry of agriculture and agrarian Reform , Baghdad ,Iraq , 505pp

[14] Townsend, C.C. (1985). Flora of Iraq. vol. 3. Ministry of agriculture and agrarian reform. 1-662.

[15] Good, R. (1974). The geography of the flowering Plants. Fourth Adion. London: Longman Limited.

[16] Heywood, V.H. Brummitt, R.K. Culham, A. and Ceberg, O. (2007). Flowering Plant families of the world. Firefly Book: Ontairo Cinde.2122 PP.

[17] Funk V.A., Baye, R.J., Keeley, S., Chan, R., Watson, L., Gemeinholzer, B., Schilling, E., Panero, G.L., Paldwin, P.G., Garcia, gagas, N. and gansan, A. (2005). Everywhere but Antarctica: Using a super tree to understand the diversity and distribution of the Compositae, Biol. Skr., 55:343-374.

[18] Abd El-Gani, M.M., and El-Sawaf, N. (2004). Diversity and distribution of plant species in the agro-ecosystem of Egypt. Syst. Geogr. PL. 74:319-336.

[19] Townsend, C.C. and E. Guest. (1974). Flora of Iraq .Vol 3:leguminales, Ministry of agriculture and Agrarian Reform , Baghdad,Iraq , 662pp

[20] Cansaran, A. (2002). The flora of Euerli Mountain (Amasya- Turkey).Turk .J.Bot.,26:453-475.