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Original Research Article

Geographical Distribution and Ecological Study of Species of the Cyperaceae Family in Iraq

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Abstract: The study aimed to identify (22)species belonging to the (Cyperaceae)family in Iraq ,the study included determining the environment and distribution of the species, and showed a noticeable variation in their distribution within the Iraqi provinces, *Cyperus fiscus* appeared widely spread throughout the Iraqi provinces , which appeared in 6 provinces :((MAM ,FKI,LCA,LEA,MCU,DGA), while *C.conglomeratus ratt, C.ucheri, Cyperu leavigatus* and *Acorellulaeviglu* were commen species ,with each species spreading to only one province, the other included *B.tuberosus dest ,Cyperus rotundus, C.longus, C.difformis L* was spread across different Iraqi provinces, the data were entered in a table that included the species under consideration , Iraqi provinces and soil type environment.

Keywords: Geographic Distribution, Provinces, Cyperaceae.

INTRODUCTION

Cyperaceae or sedge family is one of the large monocotyledonous families ,ranking third after the Poaceae and Orchidaceae families, it also includes a large number of genera and species, mentioned Lawrence (lawrence, 1951) that the family has more than (100)genera and (200)species, as for the (Aminirad & Sonboli, 2008) & (Goetghebur, 1998)they indicated that the family has (5000) species distributed among (104) genera ,members of this family are found as jungles in all regions of the world ,especially in humid temperate regions and sub-polar environments (Almusawy, 1987), some of them have economic importance as they are a source of food and fuel, and some of them are used in various industries such as textiles ,perfumes , and building materials (Simpson & Inglis, 2001), traditionally , there are species in the family that are used as a treatment for various diseases such as : skin infection , urinary disorders and digestive disorders (Chauhan, Singh, & Sharma, 2024), some of them are an indicator of the deterioration of wetland environments (Muasya, *et al*., 2009) , the genus *Cyperus* comes second after the genus *L.carex* in terms of the number of species (Mohammad & Zdenka, 2013),its plant are annual or perennial, as they are found in humidor running environments that may reach a depth of half a meter , its individuals vary in size, for example ,their lengths range between (5 cm-5 m), there stems are circular or triangular, and the leaves are generaly few, some at the base of stem and others at the top of the stem or below the flowering branches (King, 1994) ,the flowers can be green ,yellow , or brown ,they vary in shape and size and born in spikelets, bisexual, each spikles has a bract beneath it ,which is often leaf-like (Vrijdaghs, Reynders, Muasya, Larridon, Goetghebeur, & Smets, 2011), *Cyperus* has economic importance , as all species are used as food for insect larvae, while the seeds and tubers are food for young birds and mammals (Mishra & Chauhan, 2013), the tubers of the *C.rotandrous* are used in folk medicine ,its currently one of the most widely cultivated herbs, it's a medicinal herb, traditionally used to treat various clinical conditions such as : diarrhea , fever ,diabetes , malaria, infections ,and intestinal and stomach disorders (Pasam, Pragada, Bakshi, & Boggula, 2023), the species *C.alternifolius* used for decorative purposes and is known locally as the policeman's umberella (BERCU, 2019), the *C.papyrus L* is used as a biofuel for heating and cooking by converting it into a form suitable for combustion (JONES, KANSIIME, & SAUNDERS, 2016), the ancient Egyptian also knew it as a source for making paper (VIJI, Sivadas, & Pandurangan, 2014), the Goetghebeur (1998) classification is one of the oldest classification of family due to the difficulty of its classification, its qualitative richness, its wide range, its global distribution

,and difficulty of its classification ,there are few studies of the family, the studies came after more than 20 years of Goetghebeur (Larridon, 2022), due to the importance of the *Cyperus* plant and the lack of taxonomic studies on it , the current research has studied the geographical distribution of some species of this genus with the aim of assisting in its classification.

METHODS

The current study relied on dry samples preserved in two main herbariums, the national herbarium and the university of Baghdad herbarium, to clarify the areas of spread of the family under study, previous publications were used, the geographical provinces were identified and maps were drawn for this purpose, the data were tabulated in table (2), were devoted to the provinces, soils, and environments in which the species are found, figures were drawn to show the number of geographic provinces occupied by each species and the number of species in each province.

RESULTS AND DICUSSIONS

The geographical distribution of (22) species of cyperaceae family was studied in the following provinces:
(LCA, DWD, FUJ, DSD, MAM, FPF, LEA, FKI, MJS, DGA, DLJ, MSU, M, MRO, F, FNI, D, LLSM and FAR).

The studied species were found in different regions according to their presence in the provinces, starting with the species *C.difformis* where it was present in the (FPF) district in the Jalula area, and it was also present in Nasiriyah Brigade near the Sheikh Mosque, and was also found in Al-Jadria Al-Karrada, Baghdad Brigade.

C.deamii species was located in the (LCA) district, (20) Km south of Hillah, the species *C.fuscus* is found along the Tigris River in the (DGA)District of the Adhamiyah region, as well as in the (FKI) District of Bagdad District ,and on the river in bank in Bar Ali near Sarsang in the (MAM) District, species *C.longlomnat* was found in Basra in two district (LEA & DLJ) ,(55)Km away near the Safwan area, *C.laxus* located in (DLJ) district near Baiji area, *C.conglomeratus* founded in the (DLJ) district, (15)Km away from the Safwan area, and in the (DSD) district, on the southern slopes of Mount Sanam, the species *C.iria* present in the (FPF) district ,(10)Km from Jalawla, and in the (LCA) district, (10)Km south of Hillah, on the Diwaniyah road, *C.iria L* was found in (LCA) district near Jalawla, *C.longus* in (MJS &LEA) district, six Km from Sulaymaniyah province, C.*yperus longus* present in (LBA) district in the island stronghold of the Basra Brigade, *Cyperus rotundus.Is* in (LCA) of Al-Adhamiyah, Baghdad District, *Cyperus rotundus* in the (LCA & LEA) district of Baghdad and North Baiji, *Chlorocyprus rotundus* in (FAR) district near the Great Zab River in the Erbil district of Iraq, the species *Blysmus* in the (LCA) district in the Hillah region and on the way to Zakho, *Bolboschoenus tuberosus* was found in the (LCA)district in the rice field (20)Km south of Hillah ,and in the (MAM)district near Sarsink, species *Bolboschoenus tuberosus desf* in (LEA) near Azizia, *Acorella laviglu* in (FUJ), (24)Km east of Ramadi, the species *cyperus ucheri* in (LCA)district of Umm al-Khanazir island in Baghdad, *Cyperus leavigatus* found in (FNI) in hot spring near the dam lake in mousl, *Carex stenophylla* located in the (LCA), in the Shahbaz Majeed area in Hillah, *cyprus rotundus* in the (LCA) district on Umm al-Khanazir island in Baghdad and along the Tigris River, the *Cyperus malaccensis* fonded in (LBA) Eastern plain district near Al-Aziziyah area, and the species *Scirpus triqueter* in (LBA) district on the banks of the rivers in Basra Governorate.

Iraqi Provinces:

- Mountain region (M)
- Amadiya District (MAM)
- Sulaimaniya District (MSU)
- Rawanduz District (MRO)
- Jabal Singar (MJS)
- Upper plains and foothills regions (F)
- Upper Jazira District (FUJ)
- Nin evah District (FNI)
- Arbil District (FAR)
- Kirkuk District (FKI)
- Hills District (FPF)
- Lower Jazira District (DLJ)
- Desert Plateau (D)
- Ghurfa adhaim District (DGA)
- Western Desert District (DWD)
- Southern Desert District (DSD)
- Lower Mesopotamian Reagion (L)
- Easter Alluvial plain District (LEA)

- Centeral allvial plain District (LCA)
- Southern Marsh District (LSM)

Table 1

Species	Environment & soil type
1. Scirpus triquter	Areas characterized by high humidity and moist, saline soil.
2. Cyperus difformis	Wet, soil rich in organic matter, and sandy or poor clay soil.
3. Cyperus deamii	Thrives in full sun, clay or loamy soil.
4. Cyperus fiscus	Wetland are bordering rivers and lakes, wet soil & swamps.
5. Cyperus longlomnat	Wet areas, clay soil
6. Cyperus longus	Prefers humid environments but tolerates drought,moist soil,can adapt to sandy and clay soil.
7. Cyperus laxus	Wet areas, medium moisture soil and partially sunny location.
8. Cyperus conglomeratus	Sandy and salty
9. Cyperus iria	Wet areas, clay soil
10. Cyperus rotundus	In warm areas and moist soil. a very hardy plant.
11. Cyperus rotundus Is	It is widespread in tropical, subtrobical and temperates regions. It tolerates moist soil.
12. Cyperus malaccensis	Humid and swampy environments. Prefers sandy or clay soil and can tolerate salinity.
13. Blysmus	Temperate environment, moist soil.
14. Bolboschoenus tuberosus	Low-salinity coastal beaches, marshes, wetland habitatus, salt marshes.
15. Bolboschoenus tuberosus desf	Salt marshes, moist soil.
16. Acorella laviglu	Hot areas, sandy soil
17. Carex stenophylla	Semi-arid and dry climate, clay soil.
18. Cyperus ucheri	In desert margins, sandy soil.
19. Cyperus leavigatus	Humid, salty or alkaline environments, moist soil.

Table showing the environment and soil type of the species.

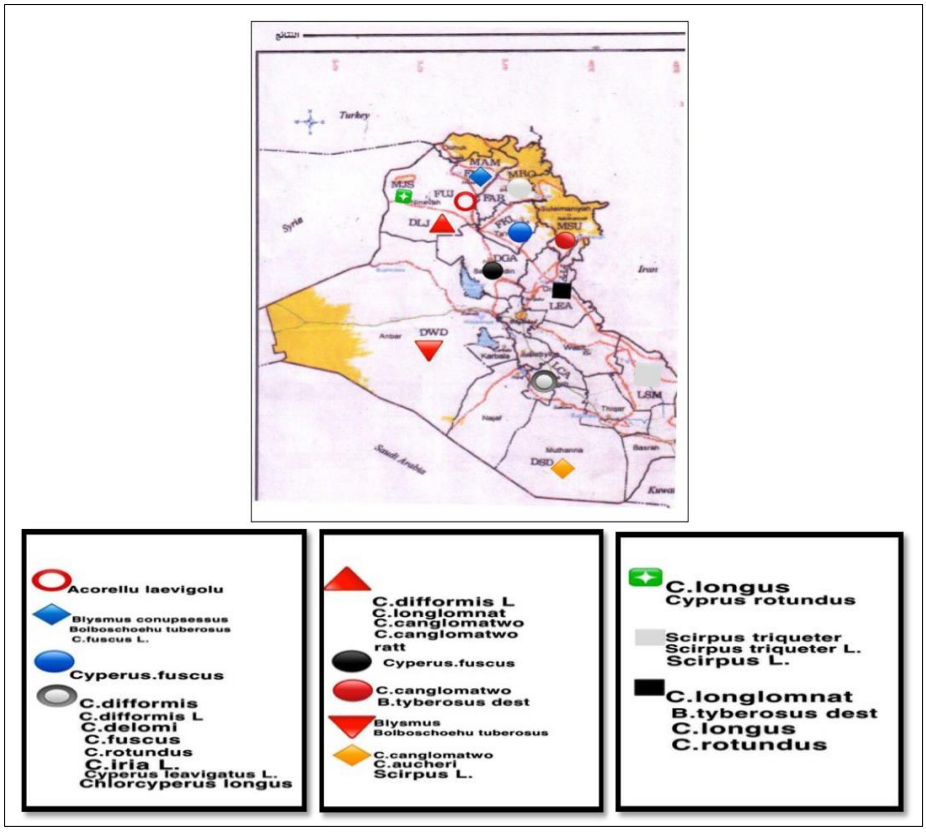

Plate No.1

Field photos of some species

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