THIRTY.THREE NEW RECORD DICOT SPECIES FOR BAGHDAD CITY AND FOUR NEW RECORDS TO IRAQI FLORA AT IRAQ

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ABSTRACT

This study deals with the species were recorded for the first time in Baghdad City discovered about thirty.three species distributed throughout many regions belong to fourteen families, which were Aizoaceae, Amaranthaceae, Asteraceae, Boraginaceae, Brassicaceae, Caryophyllaceae, Euphorbiaceae, Fabaceae, Papaveraceae, Plantaginaceae, Polygonaceae, Rosaceae, Zygophyllaceae. According to the results of the current study showed that about 34 species were recorded for the first time grown throughout Baghdad and its surrounding areas including Al.Zafaraniya region, Al.Rashidiya region, Aqraquf region, Abu.Nuass gardens and parks, Zyaona and Al.Jadiriyah gardens, Al.Radwanea orchards, Basmaia campus, Abu.Ghraib region, and Al.Zoraa gardens. recoding four of them as new record for Iraq, which were *Amsinckia menziesii* (Lehn.) A. Nelson & J.F. Macbr. (Boraginaceae), *Carduus tenuiflours* Curtis (Asteraceae), *Medicago polymorpha var. spotii* Al.Azerj &Al.Musawi, and *Trifolium repens var. spotii* Al.Azerj &Al.Musawi (Fabaceae).

Key words: Baghdad city, new record, *Amsinckia menziesii, Carduus tenuiflours*

تسجيل 33 نوع جديد من ذوات الفلقتين في مدينة بغداد مع 4 انواع للفلورا العراقية في العراق

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المستخلص

تناولت الدراسة الانواع التي تم تسجيلها للمرة الاولى في مدينة بغداد والتي بلغت حوالي ثلاثة وثلاثين نوعا متوزعة على مختلف المناطق والتي تعود الى اربعة عشر عائلة والتي هي Aizoaceae, Amaranthaceae, Asteraceae, Boraginaceae, Brassicaceae, Caryophyllaceae, Euphorbiaceae, Fabaceae, Papaveraceae, Plantaginaceae, Polygonaceae, Rosaceae, Zygophyllaceae وقد اظهرت نتائج الدراسة كشف هذه الانواع للمرة الاولى في مدينة بغداد وبعض ضواحيها والتي تضمنا مناطق الزعفرانية؛ الراشدية؛ منطقة عكركوف؛ حدائق ابو نؤاس؛ زيونة والجادرية؛ بساتين الرضوانية؛ مجمع بسماية؛ منطقة ابو غريب وحدائق الزوراء ؛ حيث تم تسجيل اربعة انواع منها لاول مرة في العراق وهي: *Amsinckia menziesii* (Lehn.) A. Nelson & J.F. Macbr. (Boraginaceae), *Carduus tenuiflours* Curtis (Asteraceae), *Medicago polymorpha var. spotii* Al.Azerj &Al.Musawi, and *Trifolium repens var. spotii* Al.Azerj &Al.Musawi (Fabaceae).

الكلمات المفتاحية: مدينة بغداد, تسجيل جديد, عنق الكمان, لسان الزهرة الرفيع.

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INTRODUCTION

Iraq has 17 districts One of them is the LCA district which represents the central alluvial plain district. The main central Mesopotamian plain between the Tigris and the outer (Hindiya) channel of the Euphrates; bounded to the east and south.east by the southern marshes, (21). Iraq includes about 2500 species belonging to 860 genera among 150 families (9) spreading as different Iraqi districts. Baghdad is located in the center parts of Iraq on the side of the Tigris River. Diala River forms the eastern boundary of the city. Within the city, there are manned canals and pounds. Baghdad, in a plain area of an elevation between 31.39 m above sea level. So, no natural boundaries exist that limit the aerial extension of the city, with semi.arid and tropical, cold in winter and hot in summer, (29). This study deals with the families: Aizoaceae, Amaranthaceae, Asteraceae, Boraginaceae, Brassicaceae, Caryophyllaceae, Euphorbiaceae, Fabaceae, Papaveraceae, Plantaginaceae, Polygonaceae, Rosaceae, Zygophyllaceae. The Aizoiaceae family involved about 1880 species and it is one of the more diverse families within Caryophyllales particularly in arid areas. Most species are dwarf succulent.leaf shrubs, (31). In Iraq, there are three monotypic genera. One of them was *Aizoanthemum hispanicum* L. which has been studied Anatomically and chemically by Al.Rajb (15), While Amaranthaceae a Large and predominantly tropical family of about 65 genera and more than 1000 species, which include some cosmopolitan weeds and a large number of xerophytic plants (22). Many studies deal with Amaranthaceae family such as the study of Ahmed, and Aliwy (1) which was taxonomical study for the species *Chenopodium album* L. and *Chenopodiastrum murale* L. belong to Amaranthaceae (Chenopodiaceae) at Baghdad. In addition to Boraginaceae, the family is represented in Iraq by 93 wild species belong to 26 genera of *Heliotropium* Tourn. Ex L. is the biggest one of the, its distributed in various Iraqi environments (9). The recent studies such as (24) which was A Comparative Taxonomical study of *Heliotropium* L. species in the middle and north of Iraq, and the study of (17), which included a comparative taxonomical study of *Symphytum* L. species from Boraginaceae family with a new record for Iraq. In the time that the Asteraceae family belong to order Asterales which consist of 1.720 genera and 26.300 species most of which belong to Asteraceae family (26). It comprises, consequently four major subfamilies, three of which are represented in Iraq, about 1.600.1.700 genera approximately 123 of which exist in Iraq, and some 25.000 species, of which 433 species occur in Iraq (29)., most members of Asteraceae are shrubs, herbaceous, subshrubs, vines or rarely trees (27). Many recent studies in Iraq deal with Asteraceae family such as (14), which was Comparative and systematic study of the genus *Echinops* L. (Compositae) in Iraq, and the study of (27) that was trichomes morphological diversity in Some Species from related tribes of Asteraceae family in Iraq. The family Brassicaceae included Over 200 genera and some 2000 species throughout the world, some 80 genera or more are represented in Iraq (33). Many studies deals with Cruciferae family, the most recent is the study of (8), which was morphological study of pollen for eight species from Brassicaceae in Iraq, also the study of Salman (30) that included A comparative anatomical and chemical study for fourteen species of Brassicaceae in Diyala, also the study of (7) that was A Taxonomic study of species *Peitariaangustifolia* DC. From Brassicaceae family in Iraq. the Caryophyllaceae family represented by 135 species belong to 24 genera, Dianthus is the most known species, many studies deal with some species and genera of Caryophyllaceae the most recent, the study of Al.Taie, and Hussein (19), that including Anatomical study for some genera from Caryophyllaceae in Iraq, also the study of (18) that was pollen morphological of some species of family Caryophyllaceae in Iraq. Euphorbiaceae is the largest families of flowering plants, with some 300 genera and about 6,000 species. It is widespread throughout the globe, it's of considerable economic importance, and is source of some very useful products. Although most of Euphorbiaceae are poisonous (33). The family represented in Iraq by 46 wild species belongs to five genera, the most

common and numerous of which is the genus *Euphorbia* which possesses about 40 wild species, the most famous species are *E. helioscopia, E. peplus,* and *E. prostate* which are considered as dangerous and harmful weeds (9).Some new studies deal with the family such as the study of (34) that involved biosystematics of four species from Euphorbia L. genus that grown in Al. Jadiriyah campus – Baghdad, also the study of (2) which include the study of morphological, anatomical, ecological and geographical distribution features of *Chrozophora tinctoria* L. in Iraq, and (25) a Study deals with indumentum for some species of *Euphorbia* L. (Euphorbiaceae) in Iraq. Fabaceae family one of the largest families of flowering plants with 450.500 genera and about 12,000 species, some 40 native genera in Iraq. The family is perhaps of greater economic importance than any other except the Gramineae, (32), while Al.Mousawi (9), mentioned that the family represented by 300 species belong to fifty genera, (6) is one of the Iraqi nowadays studies for family plants, which was an Anatomical study of leaves, stems, and corolla epidermis of three genera from leguminosa in Iraq, the study of (10), that was a comparative morphological and anatomical study of fruits and seeds of some genera of papilionaceae grown in Seffen mountain. Iraq, and the study of (3) which was Palynological study of some Asteraceae and Papilionaceae grown in Erbil province.Iraq. the family Papaveraceae have twenty.six genera in the temperate and subtropical parts of the northern hemisphere, while in Iraq there were twenty.five wild species belonging to five genera, (33), before the addition of Fumaraceae to this family. One of the studies on the family was the study of Al.Mousawi (13), that involved A Morphological, Chemical and molecular study for Papaveraceae family in Iraq, and the molecular study of (11), for some species of papaveraceae and fumaraceae family in Iraq and Iran, while The Plantaginaceae family is represented by one species in Iraq which was *Plantago* L. which consists of about eighteen wild species distributed in different regions of the country. Polygonaceae is a large family comprised of about 1200 species belonging to 46 genera, in Iraq the family is represented by eleven genera with 6 species (22). The most recent studies on the family were the study of Al. Rubei, and Al.Mayah (16), in which chromosomal taxonomy was studied for some terrestrial and aquatic species of Polygonaceae in Iraq. In addition to Rosaceae family which represented by nineteen genera with fifty.four species (21). Some studies deal with family such as (4), that involved An Anatomical study of stems and leaves some genera of Rosaceae family in Al. Diwaniya, and the study of (20), which was a comparative taxonomical study of seeds for some Rosaceae plants in Iraq, and Zygophyllaceae family of about twenty.five genera and two hundred fifty species of xerophytes or halophytes widely distributed in the tropics and subtropics zones, and it is represented by six genera in Iraq with thirteen species (34). Al.Taie et al; (18) made a palynological study of genera taxa family Zygophyllaceae in Iraq.

MATERIALS AND METHODS

Samples were collected during the period October in 2020 to May in 2023, for several places the tours were daily while for the other it was once monthly, according to possibilities, the samples were collected and photographed in the field and were collected during its flowering time to facility its classification if it was possible. The drier samples were pressed after putting them in papers and carton sheets and counted packages between woody pressers considerate open and move them daily to avoid damage due to fungi and moister till it's well dried. The dried samples were fixed on standard white sheets by using adhesive tape with an identification label for each sample on the right side of the sheet bottom with the number, scientific name, local name, collection year, collection place, province name, collector or collectors' names and collect date, then they were put in well.sealed transparent nylon bags to preserve them from dust, breakage, and damage. Some questionable samples were checked with the herbarium spacemen in BAG and BUH. Samples were classified according to their taxonomic categories depending on Flora of Iraq (volume three, Vol. four (part1, part2), Vol. five (part1, part2), Vol. six) and flora of Iran, Turkey, Pakistan, and Australia, for the new genus and species, in addition to some

global sites of the internet.The scientific names have been updated for all collected samples and their categories (Families, Genus and species), according to Botanical Royal Gardens Kew sites. Alphabetic arrangement was used for all categories to families, genus and species to ensure ease of reference it, and numbered according to their sequence for ease of counting and inventory. The dried and classified samples were placed on BUH after numbering them.

RESULTS AND DISCUSION

Baghdad city as [28] referred in their study, generally had remarkable climate changes, particularly in current years there for many researchers have focused on its climate. they, analyzed the climatic change in Baghdad town for the period 1970.2013 by calculating the monthly averages of the data, The researchers concluded that there are anomalies in maximum temperatures. The researchers concluded that Iraq was affected by global climate changes, which affect nature of the crops, leading to drought. Baghdad witnessed irregular urban expansion at the expense of agricultural areas and the green belt and within residential neighborhoods. Additionally, to bypass some buildings, government departments, public facilities, and organizations, more than 70٪ of the buildings were built residences between 2010. 2020. A detailed survey for Baghdad city of Signiant important due to the long time when Richinger with some professional members made an extended survey for almost all regions of Iraq including Baghdad since 1964, and some researches such as (5) which was a survey with revised checklist of Compositae in the herbarium of Iraq Natural History Research Center and Museum, and (12) that include Comparative morphological study for porate pollen of a Dicots wild species grown in Baghdad university campus/ Jadiriyah. There.for, research attitudes to make a survey for some regions in Baghdad including its north, south, west, and east of the city to record as much as possible the changes in vegetation cover of Baghdad exclusively the region under study. In spite of worse conditions including poor rainfall seasons, dust storms, the rise of temperature reaching 55 to 56 •C, also low water levels according to the closing of the tributaries of the Tigris and Euphrates rivers, in the time that both the Tigris and Euphrates are transboundary rivers, originating in Turkey. Before their confluence, the Tigris flows for about 1300 km and the Euphrates for about 1000 km within the territory of Iraq, according to FAO AQUSTAT reports. In addition to dredging and overgrazing by humans and cattle respectively, which cause in disappearance of many plant species or dwarf them also change the period of flowering for the other species, but later due to the changes in weather including an abundance of rainfall and low temperature in 2023 which continue to the middle of the year until May refreshing for many species of plant, also the importation of many unexamined seeds from different countries led to record new species, even genera for the first time in Iraq, not in Baghdad town only, as mentions in Table (1), and figures (1). According to the result the current study showed that about 34 species were recorded for the first time grown throughout Baghdad and its surrounding areas including Al.Zafaraniya region, Al.Rashidiya region, Aqraquf region, Abu.Nuass gardens and parks, Zyaona and Al.Jadiriyah gardens, Al.Radwanea orchards, Basmaia campus, Abu.Ghraib region, and Al.Zoraa gardens. recoding 4 of them as new record for Iraq, which were *Amsinckia menziesii* (Boraginaceae), *Carduus tenuiflours* (Aateraceae), *Medicago polymorpha var. spotii* Al.Azerj &Al.Musawi, and *Trifolium repens var. spotii* Al.Azerj &Al.Musawi (Fabaceae).

The result showed that about thirty.three species belong to fourteen family which are listed below:

1.*Mesembryanthemum nodiflorum* L., (Aizoaceae)

2. *Atriplex halimus* L., *Bassia prostrata* L., (Amaranthaceae)

3. *Carduus tenuiflours* Curtis, *Centaurea solstitialis L., Lactuca undulata Ledeb., Launaea mucronata* (Forssk.) Muschl., *Picris longirostris* Sch.Bip., *Pseudognaphyllum luteoalbum* (L.) Hilliard &B.L. Burtt., *Pulicaria dysenterica (L.) Bernh., Rechardia tingitana* (L.) Roth, *Senecio glaucus* L., *Sonchus tenerrimus* L., *Taraxacum stanjukoviczii Shishkin,* (Asteraceae)

4. *Amsinkia menziesii* (Lehn.) A. Nelson & J.F. Macbr., (Boraginaceae)
5. *Cardamine hirsute* L., *Lepidium didymium* L., (Brassicaceae)
6. *Pteranthus dichotomus* Frossk., *Spergularia media* (L.) C. Presl., (Caryophyllaceae)
7. *Euphorbia hypericifolia* L., *E. serpens* Kunth, *Acalypha australis* L., (Euphorbiaceae)
8. *Astragalus schimperi* Boiss., *Medicago lupulina* L., *M. polymorpha var. spotii* Al.Azerj &Al.Musawi, *Trifolium repens* L., *Trifolium repens var. spotii* Al.Azerj &Al.Musawi, *Trigoella stellata* Frossk, (Fabaceae)
9. *Fumaria vaillantii* Loisel., (Papaveraceae)
10 *Veronica polita* Fr., (Plantaginaceae)
11. *Rumex vesicarius* L., (Polygonaceae)
12. *Agremonia eupatoria* L., (Rosaceae)
13. *Zygophyllum coccineum* L. (Zygophyllaceae)

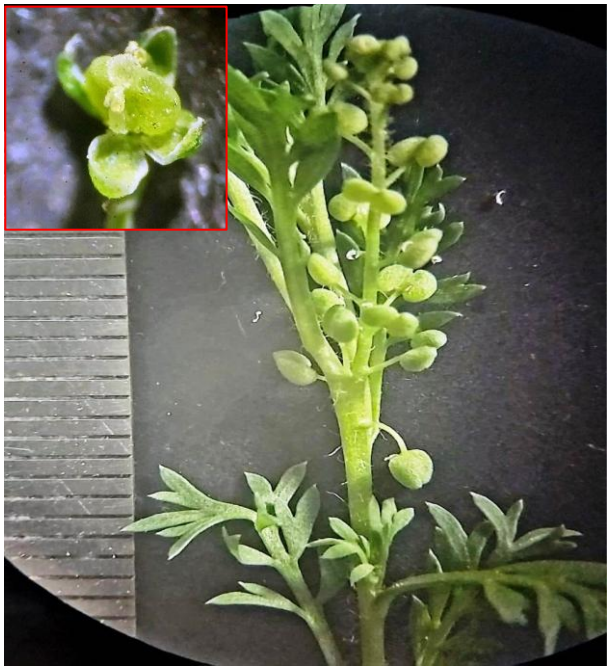
Table 1. the species which record for the first time in Baghdad

Family name	Species scientific name	Collecting day	Collecting place	Specimen herbarium no.
1- Aizoaceae	*Mesembryanthemum nodiflorum* L.	13/3/2023	Al.jadiriyah campus / Aqraquf	50481
2- Amaranthaceae	*Atriplex halimus* L.	12/3/2022	AlRashidiya gardens/Abu.Ghraib	50485
3- Amaranthaceae	*Bassia prostrate* L.	10/5/2023	AlJadiriyah campus/Aqraquf	50489
4- Asteraeae	*Carduus tenuiflours* Curtis	21/2/2023	AlJadiriyah campus	50507
	Centaurea solstitialis L.	10/5/2023	Aqraquf	50511
	Lactuca undulata Ledeb	22/2/2021	AlJadiriyah campus	50516
	Launaea mucronate (Forssk.) Muschl.	9/3/2023	AlJadiriyah campus	50517
	Picris longirostris Sch.Bip.		AlJadiriyah campus	50520
	Pseudognaphyllum luteoalbum (L.) Hilliard & B.L.Burtt	26/1/2023	AlJadiriyah campus	50521
	Pulicaria dysenterica L.	8/12/2022	Aqraquf	50522
	Rechardia tingitana L.	15/3/2023	Aqraquf	50523
	Senecio glaucus L.	8/2/2023	AlJadiriyah campus	50524
	Sonchus tenerrimus L.	16/3/2021	AlZafaraniya	50529
	Taraxacum stanjukoviczii Shishkin	21/3/2022	AlRashidiya gardens	50532
5- Boraginaceae	*Amsinkia menziesii* (Lehn.) A. Nelson & J.F. Macbr.	15/3/2023	Aqraquf	50535
6- Brassicaceae	*Cardamine hirsute* L.	12/3/2022	AlRaduanya gardens/ AlRashidiya gardens	50544
	Lepidium didymium L.	24/12/2020	AlJadiriyah campus	50547
7- Caryophyllaceae	*Pteranthus dichotomus* Frossk.	4/3/2021	Basmaia campus	50556
	Spergularia media (L.) C. Presl.	25/2/2023	Basmaia campus	50589
8- Euphorbiaceae	*Euphorbia hypericifolia* L.	24/12/2020	AlJadiriyah campus/ Bassmaia campus	50568
	E. serpens Kunth	22/10/2022	AlJadiriyah campus/ Bassmaia campus	50571
	Acalypha australis L.	23/10/2022	AlJadiriyah campus/ Bassmaia campus	50572
9- Fabaiceae	*Astragalus schimperi* Boiss.	13/3/2023	AlJadiriyah campus	50575
	Medicago lupulina L.	11/1/2023	AlJadiriyah campus	50580
	M. polymorpha var. spotii	2/4/2022	AlRashidiya gardens/ AlJadiriyah campus/ Zyaona gardens	50581
	Trifolium repens L.	27/12/2022	AlJadiriyah campus	50587
	Trifolium repens var. spotii	2/4/2023	AlJadiriyah campus	50579
	Trigoella stellata Forssk.	9/3/2023	AlJadiriyah campus	50589
10- Papaveraceae	*Fumaria vaillantii* L.	8/3/2023	AlZafaraniya	50612
11- Plantaginaceae	*Veronica polita* Fr	28/11/2022	AlJadiriyah campus	50616
12- Polygonaceae	*Rumex vesicarius* L.	25/2/2021	AlJadiriyah campus	50620
13- Rosaceae	*Agremonia eupatoria* L.	14/2/2022	Al.Tajeat	50625
14- Zygophylllaceae	*Zygophyllum coccineum* L.	4/3/2021	AlJadiriyah campus	50641

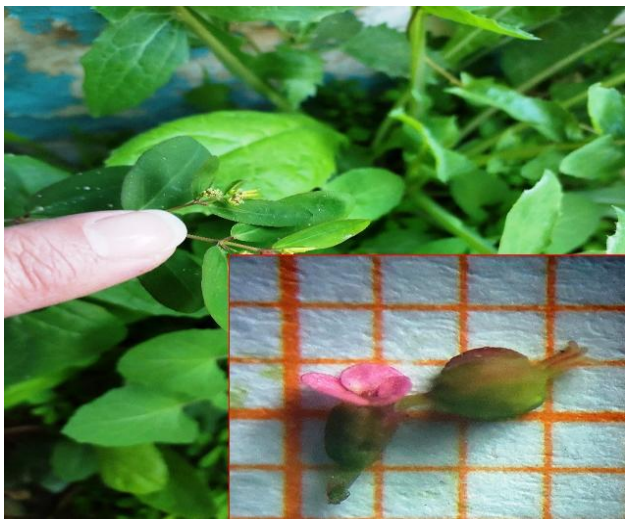
	
Mesembryanthemum nodiflorum L.	*Atriplex halimus* L.
	
Bassia prostrata L.	*Carduus tenuiflours* Curtis

Bassia prostrata L.	*Carduus tenuiflours* Curtis
	
Centaurea solstitialis L.	*Lactuca undulata* Ledeb

	
Launaea mucronata (Forssk.) Muschl	. *Picris longirostris* Sch.Bip.
	
Pseudognaphylum luteoalbum (L.) Hilliard & B.L.Burtt	*Pulicaria dysenterica* (L.) Bernh.
	
Reichardia tingitana (L.)	*Senecio glaucus* L.

	
S. tenerrimus L.	*Taraxacum stanjukoviczii* Shishkin
	
Amsinkia menziesii (Lehn.) A. Nelson & J.F. Macbr	*Cardamine hirsute* L.
	
Lepidium didymium L.	*Pteranthus dichotomus* Frossk.

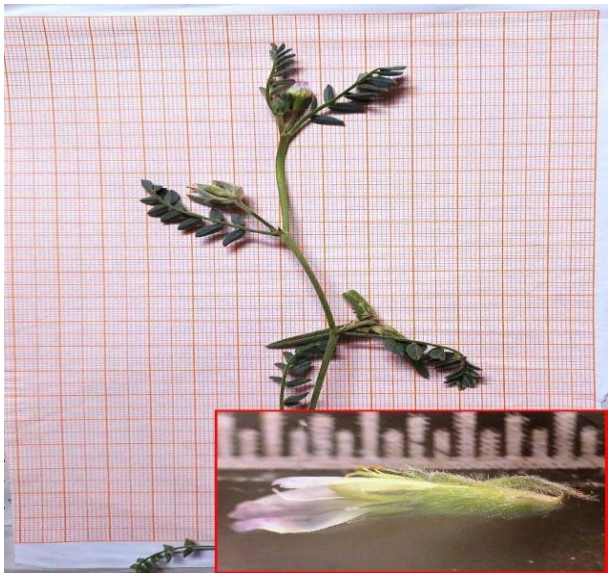
Spergularia media (L.) C. Presl.



Euphorbia hypericifolia L.

E. serpens Kunth

Acalypha australis L.

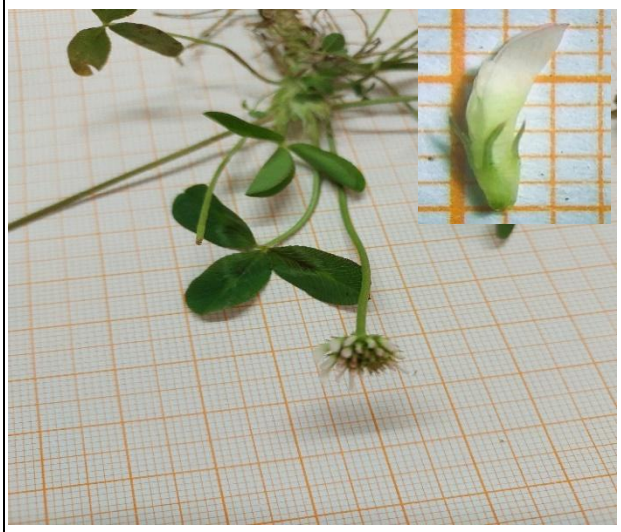


Astragalus schimperi Boiss.

Medicago lupulina L.

M. polymorpha var. *spotii*

Trifolium repens L.



T. repens var. spotii

Trigonella stellata Forssk.

F. vaillantii Loisel.

Veronica polita Fr.

Rumex vesicarius L.

Agremonia eupatoria L.

Zygophyllum coccineum L.

Figure 1. Plant species recorded for the first time in Baghdad

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

DECLARATION OF FUND

The authors declare that they have not received a fund.

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