

Distribution of the genus *Papaver* L. in Iraq

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Abstract:

This study is aimed to update the distribution of the genus papaver in Iraq. Field survey and plant collection were achieved during the years 2013 and 2014 to different areas in Iraq. Our result showed that 15 species of papaver are occurred in Iraq, most of them are concentrated in Kurdistan of Iraq, particularly in Rawanduz District (MRO) where 80% of the species occur there. Five species are collected and recorded for the first time in new districts. These species are: *P. bornmuelleri* Fedde. in Sulaimaniya District (MSU), *P. curviscapum* Nab. in Rawanduz District (MRO), *P. glaucum* Boiss. in Basra Estuarine District (LBA), *P. hybridum* L. in Jabal Singar District (MJS), Lower Jazira

District (DLJ) and Western Desert District (DWD) and *P. macrostomum* Boiss. in Basra Estuarine District (LBA) and Southern Marsh District (LSM). Most of the species previously mentioned by literature were confirmed in this study. The most common species were *P. rhoeas* L. and *P. glaucum* (82.35%), and *P. hybridum* (58.82 %) respectively, while the rarest was *P. curviscapum*. Two species, *P. decaisnei* Hochst. and *P. persicum* Lindl. were not confirmed in our study. The number of species in each districts, and the number of districts occupied by each species were determined. Maps of distribution for each species in Iraq were illustrated.

Key words: distribution, papaver, Iraq, phytogeography.

Introduction:

Papaver L. consist of approximately 80 annual, biennial and perennial species divided into 11 sections and distributed throughout the world over, mainly in central and south – western Asia, central and southern parts of Europe, northern Africa and one species found in S. Africa and some of them in America^(1,2). According to Cullen in⁽³⁾, there are 5 sections represented in Iraq: *Miltanthea* Bernh. (6 species), *Papaver* Bernh. (3 species), *Carinatae* Fedde. (2 species), *Orthorrhoeades* Fedde. (2 species) *Argemonorrhoeades* Fedde. (2 species). Several studies were done in the world about the distribution of the family in general and the genus *Papaver* in particular. One of these studies, the study that carried out by Kadereit⁽⁴⁾, in which he studied the distribution of the section *Argemonidium* (*Argemonorrhoeades*) he mentioned the presence of *P.hybridum* which is occur in Europe and can be found frequently in North Africa while *P.argemone* L. is absent from there and found all over Europe. Although there is some overlap of distribution between *P.*

argemone and *P.hybridum* in South West Asia and also found in Turkey, Iraq and Iran.

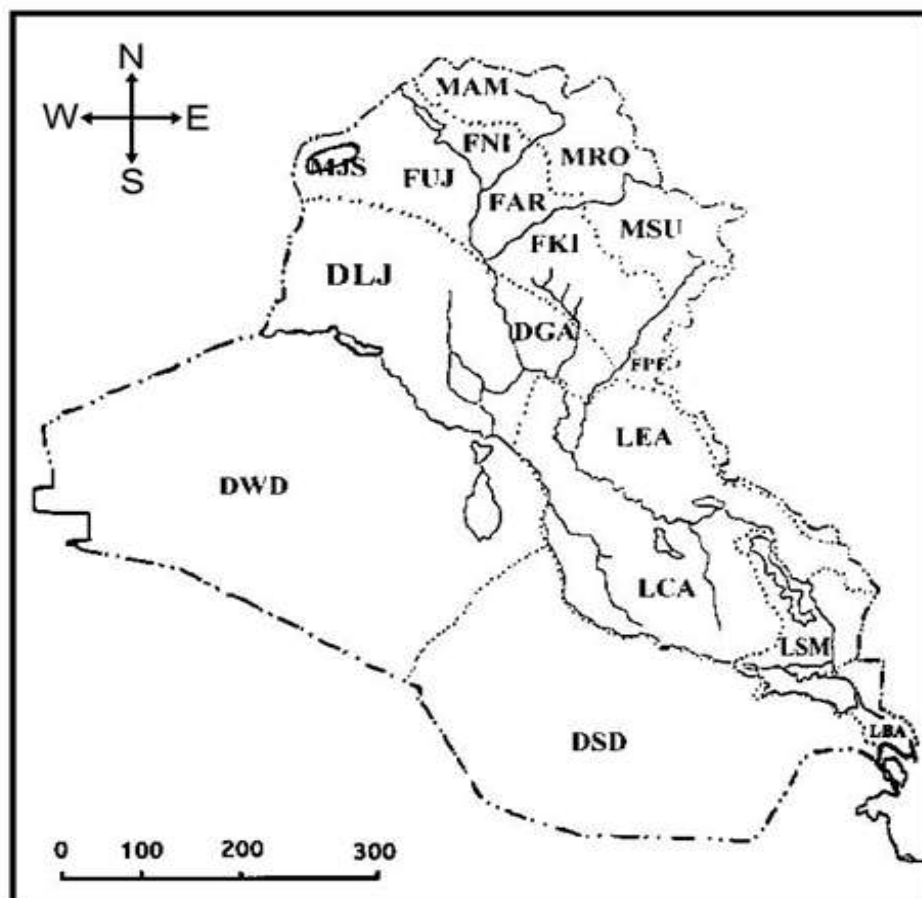
In⁽⁵⁾, he did another revision for the section *Papaver*, which is well diversified, *P.somniferum* is a West-Mediterranean element and *P.glaucum* can be found in the west part of the Irano-Anatolian subregion and the eastern part of the Mesopotamian subregion of the Irano-Turanian region, while *P.decaisnei* occurs along the border of Irano-Turanian region and the Nubo-Sindian province of the Sudanian region in Iran, Afghanistan and Pakistan and, around mountain Sinai. In⁽⁶⁾, his revision about the section *Carinatae*, mentioned that *P.macrostomum* common in North East of Iran, Afghanistan, West Pakistan and Iraq. In⁽⁷⁾, in his revision he describing the distribution of all the section in genus *Papaver* in the world, and he clarified that *Papaver* has an obvious center of diversity in South West Asia and East Mediterranean⁽⁸⁾.

Distribution and phytogeographical studies on the genus *Papaver* are scanty and old.⁽⁹⁾ Mentioned 21 species in Syria, Palestine and Sinai, 6 of

which occur in Iraq.⁽¹⁰⁾ Described some species of the genus in lowland of Iraq with brief referring to the distribution of 4 species only.⁽¹¹⁾ In Flora of Turkey mentioned 35 species, 5 of which occur in Iraq;⁽¹²⁾ mentioned 7 species, 2 species in our area.⁽¹³⁾ Mentioned 3 species in Saudi Arabia, 2 of which occur in

Iraq; Twonsend and Guest (1980) is the only study deals with distribution of the genus in Iraq, while no *Papaver* species mentioned to be occur in Kuwait by⁽¹⁴⁾. There for the aim of this study is to give an update distribution to the species of *Papaver* in whole Iraq.

Iraq is divided into 17 districts as shown in map no.1.



M-Mountain Region	F-Foothills Region	D-Desert Region	L-Mesopotamian Region
MAM-Amadiya District	FUJ - Upper Jazira District	DLJ - Lower Jazira District	LEA - Eastern Alluvial District
MRO - Rawanduz District	FNI - Nineveh District	DGA - Ghurfa-Adhaim District	LCA - Central Alluvial District
MSU - Sulaimaniya District	FAR - Arbil District	DWD - Western Desert District	LSM - Southern Marsh District
MJS - Jabal Singar District	FKI - Kirkuk District	DSD - Southern Desert District	LBA - Basra Estuarine District
	FPF - Persian Foothills District		

Material and methods:

A field survey was conducted during the years 2013 and 2014 by doing 16 field trips to different areas especially to the mountains areas in northern and eastern Iraq where the species are concentrated. Samples were collected, then pressed and dried, after that, glued onto a clean sheet of paper and labeled. Specimens stored in the Herbarium of Basra University at Science Collage (BSRA).

For species distribution and identification several herbaria like, National Herbarium of Iraq (BAG), Herbarium of Basra University at Science Collage (BSRA), Herbarium of Bagdad University (BUH), National Herbarium of Iran (TARI) and Herbarium of Azad University/Tehran, were visited. The identification of species based on

Flora of Iraq⁽³⁾ Vol. 4 part 2 and other floras like, Flora of Turkey⁽¹¹⁾, Flora Palaestina⁽¹²⁾, Flora of Lowland Iraq⁽¹⁰⁾ and Flora Iranica⁽¹⁶⁾.

The percentage of species present in each district in Iraq was calculated by equation:

Diversity percentage = numbers of species in a district / numbers of all species X 100. And the

Fig 1 and table 1 show that the richest district in species number is the MRO where twelve

percentage of the districts occupied by species (which represented the species distribution) is calculated by equation:

And the percentage of the districts occupied by species (which represented the species distribution) is calculated by equation:

Distribution percentage = numbers of districts occupied by the species/ number of all districts in Iraq.

Results:

From this study it became clear, that 15 species of *Papaver* occur in Iraq, this include: *P. acrochaetum* Bornm., *P. argemone* L., *P. armeniacum* L., *P. bornmuelleri* Fedde., *P. curviscapum* Nab., *P. cylindricum* Cullen., *P. decaisnei* Hochst., *P. dubium* L., *P. fugax* Poir., *P. glaucum* Boiss., *P. hybridum* L., *P. rhoeas* L., *P. persicum* Lindl., *P. macrostomum* Boiss. and *P. somniferum* L.

Results indicate that *Papaver* species are distributed almost in all Iraqi districts. We confirmed the presence of most of the species that previously mentioned in our area, and we found that the distribution of many species were overlooked in many district. Table 1 and 2.

species occur there then MSU with eleven species. Fig 2 and table 1 show that the most

common species and widest in distribution is *P. rhoeas* which occur in 14 districts out of 17 then *P. glaucum*.

P. acrochaetum Bornm (1895). Map 2

Literature data:

- Above Sersaang, E. Chapman, 26373.
- 13 km W. of Amadiya, Rech. F, 11625! (W).
- Kuh-i Sefin above Shaqlawa, 9/5/1947, J.B. Gillett, 8125 (BAG).
- Rowanduz gorge, nr. Balikian, 1/5/1956, Emberger, Guest, Long, Schwan & Serkahiam, 15483A (BAG).
- Kurruk Dar, nr. Rowanduz, Nab, 817 (SAV).
- Jabal Avroman N. of Biyara, 7/6/1948, J.B. Gillett, 11792 (BAG).
- Above Tawila, Rech. f., 10265.

Confirmed data:

- Bekhal road, 15/5/2013, Ula Noor, Almayah & Al asadi, 100.
- 1 km after Sursang, 14/5/2014, Ula Noor, Almayah, Al asadi and Al taie, 160
- 2 km before Bekhal to the direction of Rowanduz, 15/5/2014, Ula Noor, Almayah, Al asadi and Al taie, 170.
- 15 km before Haji Umran, 15/5/2014, Ula Noor, Almayah, Al asadi and Al taie, 175.

P. argemone L (1753). Map 2

Literature data:

- Above Kursi, 24/5/1948, J.B. Gillett, 11026 (BAG).
- Shaqawa, Haines W. 396! .
- Sefine Dag, above Shaqawa, 9/5/1947, J.B. Gillett, 8099! (BAG).
- Haji Umran, E. Chapman, 11955!.

- Avroman nr. Tawila, Rech. f., 10303! (W).

Confirmed data:

- Towards Tawila, 13/5/2013, Ula Noor, Al-mayah & Al-asadi, 91.
- Baira-Tawila, 13/5/2013, Ula Noor, Al-mayah & Al-asadi, 98.
- Towards Sakri-Sakran, 15/5/2014, Ula Noor, Al-mayah, Al-asadi & Al-taie, 177.
- 3-4 km before Galala towards Haji Umran, 15/5/2014, Ula Noor, Al-mayah, Al-asadi & Al taie, 174.

P. armeniacum (L.) DC. (1821). Map 3

Literature data:

S.E. slopes of Algurd Dag, 5/8/1947, 9617 (BAG).

- Rayat, Guest, 13068!.
- Haji Umran, 24/8/1953, Guest, 13015 (BAG).
- Warshanka, Magar, 25/8/1957, Rawi & Serhang, 24340! (BAG).
- N.E. of Qanil, 20/8/1958, Rawi, Sofang & Nuri, 26765! (BAG).
- N.E. of Rania, 23/8/1958, Rawi, Sofang & Nuri, 26821! (BAG).
- Pira Magrun, above Zewiya, Rawi, 12056!.

Confirmed data:

- Sulaimaniya to the road of Mawat, 12/5/2013, Ula Noor, Al-mayah & Al-asadi, 78.
- Haji Umran, 15/5/2014, Ula Noor, Almayah, Al asadi & Al taie, 178.

P. bornmuelleri Fedde (1909). Map 3

Literature data:

- Salahad-Din, Regel 6! (W).
- Shaqlawa, Bornm, 843.
- Diyana plain, nr. Rowanduz, Emberger, Guest, Long, Schwan & Serkahiam, 15532!.
- Handiyan, Baradost, Thesiger 810! (BM).
- Jabal Baradost, between Shan-I Dar and the cave, Emberger & Goedemans in Rech. F. 15635! (W).
- Handren, above Rowanduz, Nab. 810 (SAV).

Confirmed data:

- 4 km before Shaqlawa, 15/5/2013, Ula Noor, Almayah & Al asadi, 101.
- 5 km after Shaqlawa toward Harer, 15/5/2013, Ula Noor, Al-mayah & Al-asadi, 102.
- After Bekhal near Rowanduz, 15/5/2013, Ula Noor, Al-mayah & Al-asadi, 104.
- 3 km before Haji Umran, 15/5/2013, Ula Noor, Al-mayah & Al-asadi, 105.
- Before Khalifan towards Gali Ali Beg near Whitman village, 15/5/2014, Ula Noor, Al-mayah, Al-asadi & Al-taie, 171.

New and unpublished data

- Sarah Mountain top, W. of Sulaimaniya, 12/5/2014, Ula Noor, Almayah, Al asadi and Al taie, 158.
- Pira Magrun, 12/5/2014, Ula Noor, Al-mayah, Al-asadi & Al-taie, 159.

P. curviscapum Nab. (1923). Map 3

Literature data:

- Choarra-Sia above Ain Nuni, Nab. 811 (SAV).

- Matina, 15/5/1947, Rawi 8741!
- Sersang, Haines, s.n!

New and unpublished data

- Khan Sherin Valley, N.E. of Patine Mt, N. of Shirwan Mazin. Erbil Liwa, 22/6/1961, A. Agnew, E. Hadai, R. Haines & F. Kadir, 6200.

P. cylindricum Cullen (1963) Map 4

Literature data:

- Sakri Sakran, Bornm. 841!
- Pira Magrun, Haines s.n.!(E)
- Malakawa, Rech. f., 10416! (W)
- Penjwin, Rech. f., 10553! (W)
- Tawila, 24/6/1960, Rawi, Hosham & Nuri, 29555!

P. decaisnei Hochst. Et Steud (1839) Map 6

- Jarmo, Helbake, 602!
- Kani Domlan, nr. Kirkuk, Guest, 4330!
- 10-15 km. N. of Kirkuk, 13/6/1957, Rawi, 21568!
- Kirkuk, 16/4/1932, Guest, 1989!
- Chilat police post, nr. Persian frontier, 5/4/1958, Rawi & Haddad, 25672!
- Wadi al-Walai, 75 km. N. of Rutba, 7/6/1957, Rawi, 21193!
- 12 km. W. of Ukhaidhir, 17/4/1961, Rawi, 30846!

P. dubium L. (1753). Map 4

Literature data:

- Above Balad Sinjar, Gillett, 11119 (BAG)
- Shan-I Dar, Erdtman & Goedemans in Rech. f., 15684!

- On spur of Avroman, N. of Biyara, Gillett, 11787 (BAG).
- JabalHamrian in Anth., l.c.
- Garmashata, 77km. N.E. of Kut, nr. Persian frontier, Rawi, 18045!
- 16 km. S.E. of Badra, Rawi, 18197!
- JabalMuwailih, Guest, Rawi&Rech. f., 17558!

Confirmed data:

- Sulaimaniya, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 74.
- Sulaimaniya-Mawat, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 79.
- Sulaimaniya-Jarmo, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 85.
- Sulaimaniya-Baira, 13/5/2013, Ula Noor, Al-mayah& Al-asadi, 92.
- Tib near frontier police station, 27/3/2014, Ula Noor, Al-mayah& Al-asadi, 121.
- SulaimaniyaGondii- Jomac, 11/5/2014, Ula Noor, Al-mayah, Al-asadi&Al-taie, 140.

*P. fugax*Poir (1804). Map 4

Literature data:

- Choarra-Sia above AinNuni, Nab. 815 (SAV).
- Amadia between AinNuni and Amadiya, Nab. 814 (SAV).
- Balikian, Rowanduz gorge, Emberger, Guest, Long, Schwan &Serkahia, 15483B!
- Nr. ShirwanMazin, Agnew, Hadac& Haines, s.n.!
- Avroman range, nr. Zalam, Rawi, Hosham, Nuri 29383!
- Dara Tri, between Halabja and Tawila, Rawi, 22025!
- Tawila, 22/6/1960, Khatib& H. Tikriti, 29746!
- HawaraBirza, 24/6/1960, Rawi, Musham&Nuri, 29359!

Confirmed data:

- Between Zawaita and Swaratoka on the road of Sursang, 16/5/2013, Ula Noor, Al-mayah& Al-asadi, 111.
- Dohuk– 2 km before Ashawa waterfall, 16/5/2013, Ula Noor, Al-mayah& Al-asadi, 113.
- 1 km after Sursang, 16/5/2013, Ula Noor, Al-mayah& Al-asadi, 110.

*P. glaucum*Biss. (1967). Map 8

Literature data:

- Bachbett, above BaladSinjar, Hand-Mazz, 1407 (W).
- Jebel SingaraboveKursi, 23/5/1948Gillett, 10893!
- AinNuni, Nab. 714 (SAV).
- Sersang, Haines s.n.!(E).
- Baradost, nr. Shan-i Dar, Erdtman&Goedemans in Rech. f., 15647! (W).
- Handren, Thesiger, 1090! (BM).
- Jarmo, Helbaek, 602!
- 10 km. W. of Tawila, 15/6/1957, Rawi, 22146
- Silwan River, 7km. S. of Darband-I Khan, Elizabeth D. & Fred A. Barkley, 5160!
- 110 km. N. of Jalaula, Barkley, 4424!
- Raisha hill, nr. Shbaichan, Chakr., Rawi, Khatib&Alizzi, 32048!
- Hadhr, Chakr., Rawi, Khatib&Alizzi, 33035A!
- JabalKhanuqa and JabalMakhul, Hand-Mazz., 1058 (W).
- Arbil, Graham, 659.
- 7 km. N.E. of Kirkuk, Rawi, Nuri&Kass, 27908!
- 18 km. E. of Kirkuk, Rech. f., 12530!
- Tuz, Rogers, 0162A!
- 19 km. S. of Darband-I Khan, Barkley & Haddad, 7409!
- KaniMazi, nr. Khanaqin, Guest, 1863!

- JabalHamrin, between Baquba and Khanaqin, Nab. 804 (SAV).
- 70 km. N. of Rawa, Chakr., Rawi, Khatib&Alizzi, 31917!.
- 70 km. N.W. of Falluja, nr. WadiThirthar, Chakr. &Rawi, 30404! .
- 48 km. N.W. of Haditha- Baiji road, 1/4/1962, Chakr., Rawi, Khatib&Alizzi, 31853! .
- 20 km. S. of H.3, Rech. f., 12567 (W).
- Rutba, Rawi, 14671! .
- 75 km. S.W. of Rutba, Rech. f., 9929 (W).
- South bank of Euphrates, opposite Rawa, Gillett &Rawi, 7046! .
- 22 km. W. of Falluja, Chakr. &Rawi, 30247! .
- Nukhaib, Rawi, 14786! .
- 30 km. S. of Shinana, Rawi, 15611! .
- 140 km. W. of Karbala, 18/4/1961, Chakr. &Rawi, 30967! .
- 90 km. W. of Karbala, 17/4/1961, Chakr. &Rawi, 30891! .
- Between Karbala and Baghdad, Rawi&Bharucha, s.n.! .
- 95 km. W. of Shabicha, Khatib&Hazim, 30532! .

Confirmed data:

- Sulaimaniya - SharBazher, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 75.
- At the road between Sulaimaniya and Chamchamel, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 84.
- Sulaimaniya-Mawat, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 80.
- Biara to the direction of Tawila, 13/5/2013, Ula Noor, Al-mayah& Al-asadi, 94.
- To the road of Tawila, 13/5/2013, Ula Noor, Al-mayah&Al-asadi, 96 .
- 2 km before Sursang, 16/5/2013, Ula Noor, Al-mayah& Al-asadi, 112.

- Before SursangtoardsAmadiya, 16/5/2013, Ula Noor, Al-mayah& Al-asadi, 114.
- Qiwan to the road of SharBazher, 10/5/2014, Ula Noor, Al-mayah, Al-asadi& Al-taie, 130.
- Sarah Mountain top, W. of Sulaimaniya, 12/5/2014, Ula Noor, Al-mayah, Al-asadi& Al-taie, 157.
- 1 km after Sursang, 14/5/2014, Ula Noor, Almayah, Al-asadi& Al-taie, 161.
- Galala to the direction of Haji Umran, 15/5/2014, Ula Noor, Al-mayah, Al-asadi& Al-taie, 173.

New and unpublished data

- 5 km before Junction of Basra international airport on Basra highway road towards Tuba, Al asadi 15/3/2014.

P. hybridum L. (1753). Map 5

Literature data:

- Ain Ghazal, Guest, 4063!.
- Nineveh, Chakr., Rawi, Khatib&Alizzi, 33148!.
- Ankawa, nr. Arbil, Bornm, 839b.
- AltunKupri, Bornm, 840b.
- Kirkuk, Bornm, 841b.
- Tuz, 20/3/1948, Gillett &Rawi, 10286!.
- 19 km. S. of Darband-I Khan, Barkley & Haddad, 7407!.
- Table Mt., JabalHamrin, Graham, 627!.
- Baghdad, in Anth., l.c.
- Baquba, Schlafli, 65!.

New and unpublished data

- No. 44236, Loc. 17 km E. of Haditha, Al-Kaisi , 16/4/1976.
- No. 48961, Loc. 17 km SE. of Haditha, Al-Kaisi and K. Hamad, 16/4/1976.

- No. 49215, Loc. JabalSinjar, Al-Kaisi and K. Hamad, 7/4/1978.
- No. 51906, Loc. Abu Hayyat, Gharraf village SE. of Haditha, Al- Khayat and K. Hamad, 31/3/1980.
- No. 6909, Loc. Haditha, Gillett and Al-Rawi, 28/3/1947.
- Loc. Al-Baghdadi, Ramadi, Al-Edany, Al-Mousawi, Al-Zubaidy, 28/3/1995.

P. rhoeasL. (1753). Map 10

Literature data:

- JabalSinjar, Tesiger, 513 (BM).
- Mar Yaqub, above Simel, Nab. 805 (SAV).
- Nr. Zakho, Rech. f., 10656! (W).
- Khantur, nr. Sharanish, Rech. f., 10794! (W).
- Salah ad-Din, Helbaek, 732!
- Between Surdash and Dokan, Rech. f., 10121! (W).
- Sulaimaniya, Haines, s.n. (E).
- Between BaladSinjar and Tal Afar, Guest, 4147!.
- Nr. Baaj, Guest, 13419!.
- Mosul, Rawi, 5626!.
- JabalKhanuqa and JabalMakhul, nr. Asshur, Hand-Mazz., 1059 (WU).
- Hadhr, Chakr., Rawi, Khatib&Alizzi, 33035!.
- Nimrud, Helbaek, 875!.
- Between Arbil and Kirkuk, Thesiger, 465! (W).
- JabalHamrin in Anth., l.c.
- Badra, Gillett, 6622!.
- 20-25 km. W.N.W of Rutba, Rawi, 21133!.
- 50-30 km. N. of Rutba, Chakr., Rawi, Khatib&Alizzi, 32895!.

- 60 km. S. of Rutba, 10/5/1967, Alizzi, 35222!.
- Jadida, nr. Saudi frontier, W. of Khatib, Rawi, 31062!.
- WadiHauran, 12 km. S. of H.2, Chakr., Rawi, Khatib&Alizzi, 31700!.
- Haditha, Gillett, 6906!.
- 44 km. W. of Ramadi, Kamil Bashir, Sami Naji& Barkley, 444!.
- 25 km. N. of Baiji, on road to Mosul, Ani, 9698!.
- Tikrit, Hand.-Mazz., in obs.
- 4 km. E. of Samarra, Rech. f., 9542! (W).
- Baghdad, Hausskn. s.n. !
- Babylon, Reuter in Nab. 108 (SAV).
- Baquba, Schlafli, 66!.
- Musaida, Rawi, 14930!.

Confirmed data:

- Sulaimaniya, 13/5/2013, Ula Noor, Al-mayah&Al-asadi, 97.
- Sulaimaniya- Khrbani to the direction of Biara, 13/5/2013, Ula Noor, Al-mayah& Al-asadi, 92.
- Amadiya, 16/5/2013, Ula Noor, Al-mayah&Al-asadi, 115.
- 2 km N. of Amadiya, 16/5/2013, Ula Noor, Al-mayah& Al-asadi, 116.
- Dohuk road to the direction of Zawaita, 16/5/2013, Ula Noor, Al-mayah& Al-asadi, 117.
- Sulaimaniya- Delaeza cemetery, 12/5/2014, Ula Noor, Al-mayah, Al-asadi&Al-taie, 150.
- SulaimaniyaMahmudiya SE. towards Kerkuik to the direction of Delaeza cemetery, 12/5/2014, Ula Noor, Al-mayah, Al-asadi&Al-taie, 156.
- Delaeza cemetery, 12/5/2014, Ula Noor, Al-mayah, Al-asadi& Al-taie, 152.

P. persicumLindl. (1833) Map 2

Literature data:

- Khantur, N.E. of Zakho, 11/5/1947, Rawi, 8639!
- Khantur, N.E. of Zakho, 6/7/1957, Rawi, 23294!
- Basingera, nr. Sharanish, Rech. f. 11523! (W).
- SavaraGaurik, 9/7/1957, Rawi 23673!
- GaliZawaita, 8/7/1957, Rawi, 23631!
- Aqra, Rawi, 11411!
- Baradost, Thesiger, 866! (BM).
- Mountain N.E. of Seri Hasan Beg, Hasan Bag, Guest, 2902!
- AlgurdDagh, above Nawanda, Rech. f. 11375! (W).
- Southern slope of Karoukh, Kass&Nuri, 27487!
- Serin, nr. Rania, Rawi&Serhang, 18240!

P. macrostomum Boiss. et Huet (1867). Map 5

Literature data:

- Above BaladSinjar, Hand.-Mazz. 1486 (WU).
- Dohuk, 23/4/1932, Guest, 2312!
- 19 km. S.W. of Salah ad-Din, Fred A. & Elizabeth Barkley, 5649!
- Shaqlawa, Haines W. 394!
- Rowanduz Gorge, Thesiger, 841! (BM).
- Rayat, Thesiger, 1038! (BM).
- Gali Warta, 30 km. N.W. by W. of Rania, Rawi, Nuri&Kass, 28850!
- Haibat Sultan Dagh, 7/5/1959, Rawi, Nuri&Kass, 28206!
- 5 km. W. of Chemchemal, Rawi, 21673!
- Jarmo, Helbaek, 1143!
- 51 km. N.W. of Sulaimaniya, 14/6/1957, Rawi, 21787!
- PiraMagrun, Hausskn. S.n.
- Qaradagh, 21/4/1947, Guest, 7854!
- Zalen, Rawi, Hosham&Nuri, 29389!

- Avroman, nr. Tawila, Rech.f., 10272!
- 9 km. from Kirkuk, on road to AltunKupri, Erdtman&Goedemans in Rech.f., 15518! (W).
- QizilRobat (Sa'diya), 15/4/1932, Guest, 1964!
- Khanaqin, Guest, 1835!
- 30 km. S.E. of Badra, Rech.f., 9209 (W).
- JabalMuwailih, 70 km. N. of Amara, Rech.f., 8889, (W).
- Baghdad, Colvill, s.n.

Confirmed data:

- Sulaimaniya - SharBazher, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 76.
- JabalAzmir N.E of Sulaimaniya, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 77.
- SulaimaniyaDeriya village (cetak), 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 83.
- Mawat- Pasni, 12/5/2013, Ula Noor, Al-mayah& Al-asadi, 85.
- Sulaimaniya Ahmed Awa, 13/5/2013, Ula Noor, Al-mayah&Al-asadi, 90.
- Sulaimaniya – Said Sadiq, 13/5/2013, Ula Noor, Al-mayah& Al-asadi, 99.
- Dohuk, 15/5/2013, Ula Noor, Al-mayah& Al-asadi, 103.
- 2 km before Ashawa waterfall, 15/5/2013, Ula Noor, Al-mayah&Al-asadi, 105.
- Tib on the right bank of the river Tib near police station on the junction to HamadShihab frontier police, 27/3/2014, Ula Noor, Al-mayah& Al-asadi, 120.
- Sulaimaniya- Khormana towards DolaBamo, 11/5/2014, Ula Noor, Al-mayah, Al-asadi& Al-taie, 141.
- PiraMagrun road up to Zioh, E.NE 2km before Zioh resort, 11/5/2014, Ula Noor, Al-mayah, Al-asadi& Al-taie, 145.

- SulaimaniyaMahmudiya SE. towards Kerkuik to the direction of Delaeza cemetery, 12/5/2014, Ula Noor, Al-mayah, Al-asadi& Al-taie, 155.
- Delaeza cemetery, 12/5/2014, Ula Noor, Al-mayah, Al-asadi&Al-taie, 150.
- Sulaimaniya- JabalPiraMagrun, 12/5/2014,Ula Noor, Al-mayah, Al-asadi&Al-taie, 153.
- GaliZawita, 14/5/2014, Ula Noor, Al-mayah, Al-asadi& Al-taie.
- Before Khalifan towards Gali Ali Beg near Whitman village, 15/5/2014, Ula Noor Al-mayah, Al-asadi& Al-taie, 172.

New and unpublished data

- 5 km before Junction of Basra international airport on Basra highway road towards Tuba, 18/3/2014, Ula Noor &Almayah, 122.

*P. somniferum*L. (1753) Map 5

- Abu Ghraib, cultivated in medicinal garden plots, Sahira&Janan, C. 272!
- Basra, Whitehead 140, in Blatter, l.c.

Discussion:

It is clear from the distribution maps, that there are some species spread specifically in the high mountainous areas, like *P.acrocheatum*, *p.armeniaceum*, *P.cylindricum* and *P.fugax*. Others spread in mountainous area and neighboring slope and their distribution extend to the western plateau, like *P.hybridum* and *P.dubium*. The reason may be due to the wide extent of endurance in these species for temperature and different soil quality. First group needs rainy season with low temperature and not tolerate high temperature. The second group was characterized by more genetic flexibility for high range of temperatures,

however there is a third group which widely distributed throughout and could grow in various types of habitat and soil, like *P. rhoeas*, *P.glaucum* and *P.macrostromum* even down to Alluvial plain.

In our study we recorded two species for the first time in Basra province. This may seem strange but not impossible, *P.macrostromum* spreads in the north-eastern highlands and the southern slopes of Tib, and this is not surprising to reach Basra, especially where the 2014 and 2015 were rainy years during the winter and spring. This agrees with Kadereit⁽⁶⁾, where mentioned that *P.macrostromum* is among the most common species in the genus. The same thing for *P.glaucum*, this species is widespread in western desert and the seeds of this species could reach far south of southern desert in Basra especially during a windy and rainy seasons where seeds can easily be dispersed and grow.

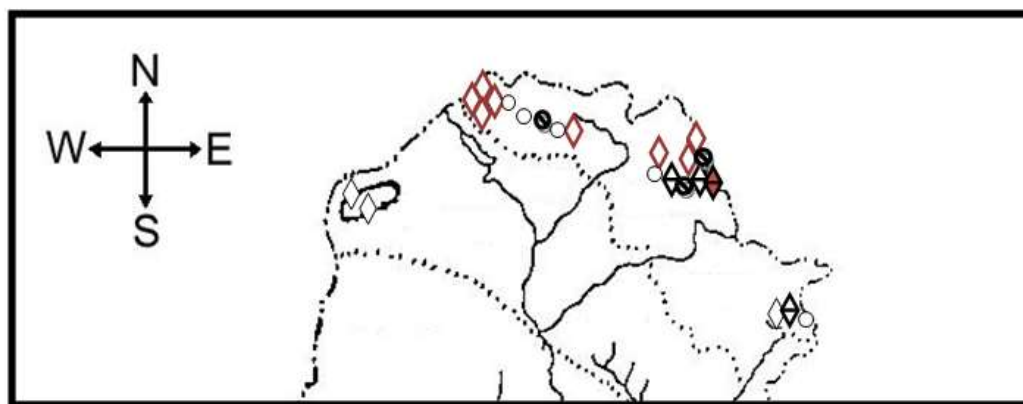
As for the two species *P.rhoeas* and *P.somniferum*, the first one is wild in Iraq and cultivated in Basra, while *P.somniferum* not seen in the wild but able to tolerate the environmental conditions in Basra and grow well when planted in good fertile soil and give a good crops. During this study an overlap in the distribution of some species such as, *P.rhoeas*, *P.glaucum* and *P.macrostromum* has been observed and the same to *P.macrostromum* and *P.bornmelleri*.

Rechinger⁽¹⁰⁾ mentioned 4 species presence in Iraq, and Alrawi⁽¹⁷⁾ mentioned 18 species, while Townsend and Guest⁽³⁾ mentioned 15 species, and when we checked the species mentioned in Al-Rawi and Rechinger we found that several names of which are synonymous, for example, *P.rogersii* that mentioned in Rechinger is synonymous for *P.glaucum*.

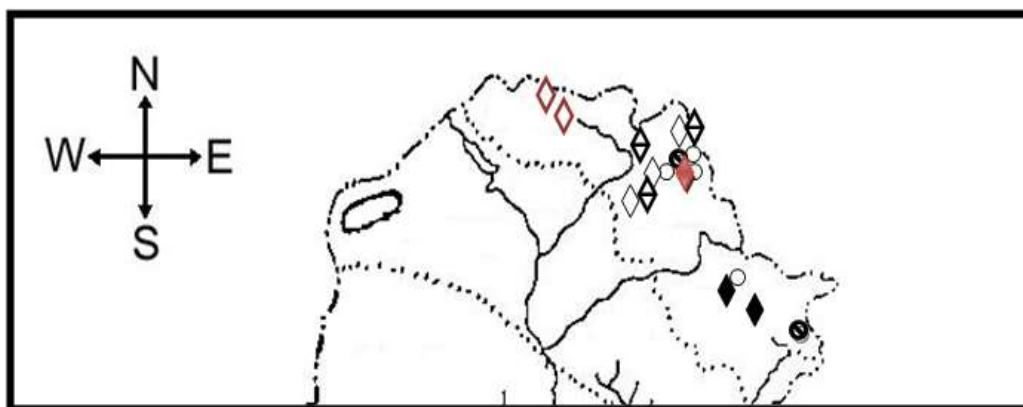
Although we agree with Townsend and Guest but, we cannot confirm the presence of some species like *P. decaisnei*, *P. curviscapum* and *P. persicum* which probably their distribution were damaged by human and become under threaten.

References:

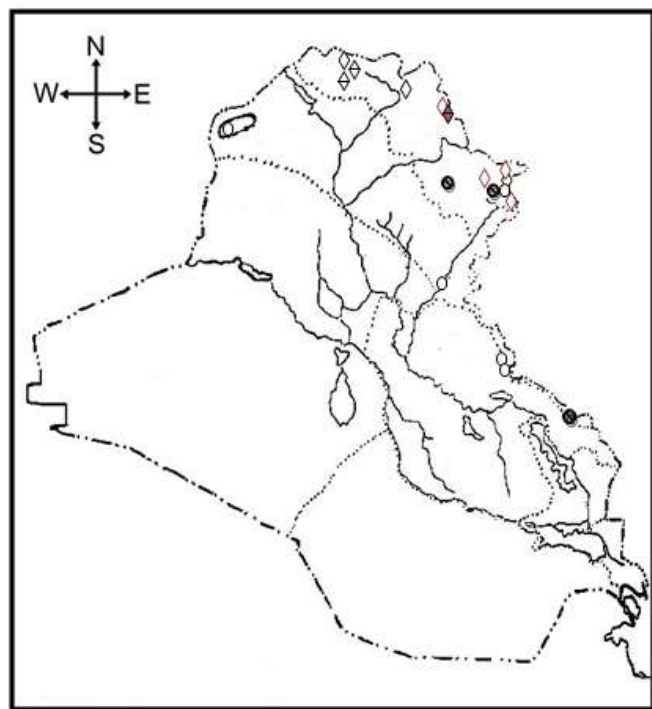
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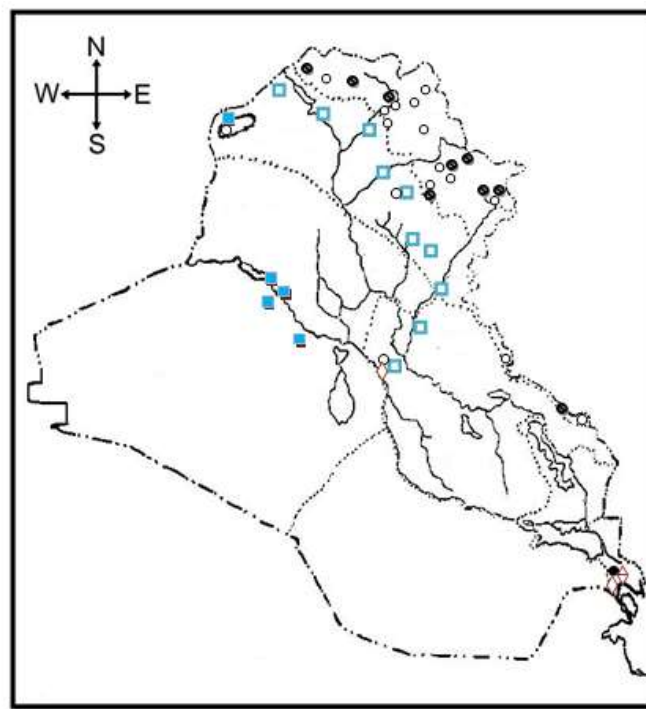
Map 2: Distribution in Iraq of *P. acrochaetum*, mentioned by literature ○, confirmed ◉, new records ●, *P. argemone*, mentioned by literature ◊, confirmed ◈, new records ◆, and *P. persicum* mentioned by literature ◊, confirmed ◈, new records ◆



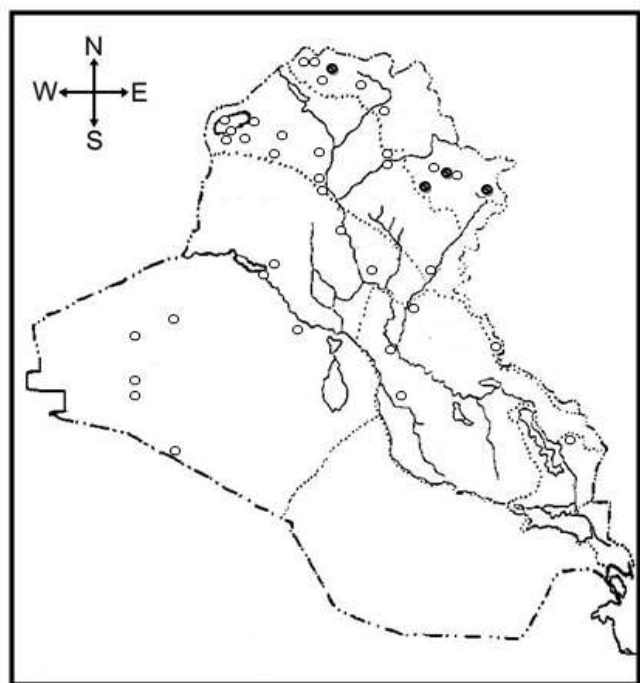
Map 3: Distribution in Iraq of *P. armeniacum*, mentioned by literature ○, confirmed ◉, new records ●, *P. bornmuelleri*, mentioned by literature ◊, confirmed ◈, new records ◆ and *P. curviscapum*, mentioned by literature ◊, confirmed ◈, new records ◆



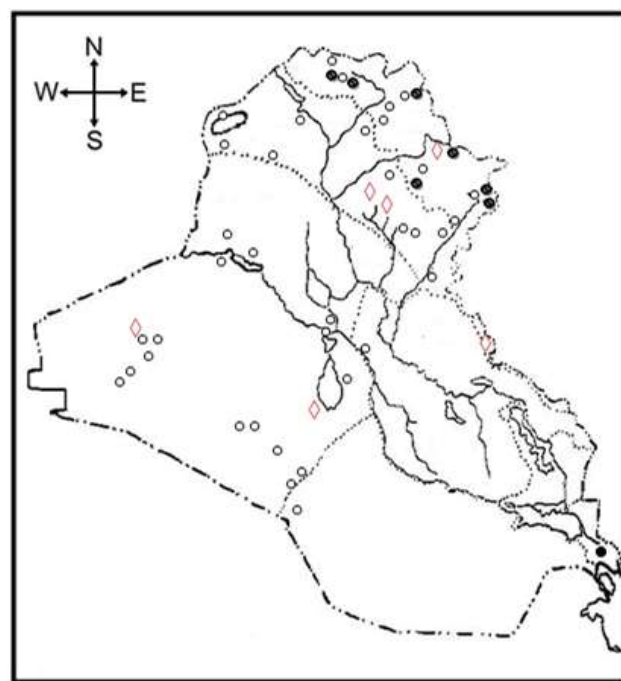
Map 4: Distribution in Iraq of *P. dubium*, mentioned by literature ○, confirmed ●, new records ◆, *P. fugax*, mentioned by literature ◇, confirmed ◊, new records ◆, and *P. cylindricum*, mentioned by literature ◇ confirmed ◆, new records ◆



Map 5: Distribution in Iraq of *P. macrostomum*, mentioned by literature ○, confirmed ●, new records ◆, *P. somniferum*, mentioned by literature ◇, cultivate ◊, new records ◆ and *P. hybridum*, mentioned by literature □ confirmed ◻, new records ◻



Map 6: Distribution in Iraq of *P. rhoeas*, mentioned by literature ○, confirmed ●, new records ◆



Map 7: Distribution in Iraq of *P. glaucum* mentioned by literature ○, confirmed ●, new records ◆, and *P. decaisnei*, mentioned by literature ◇, confirmed ◆, new records ◆

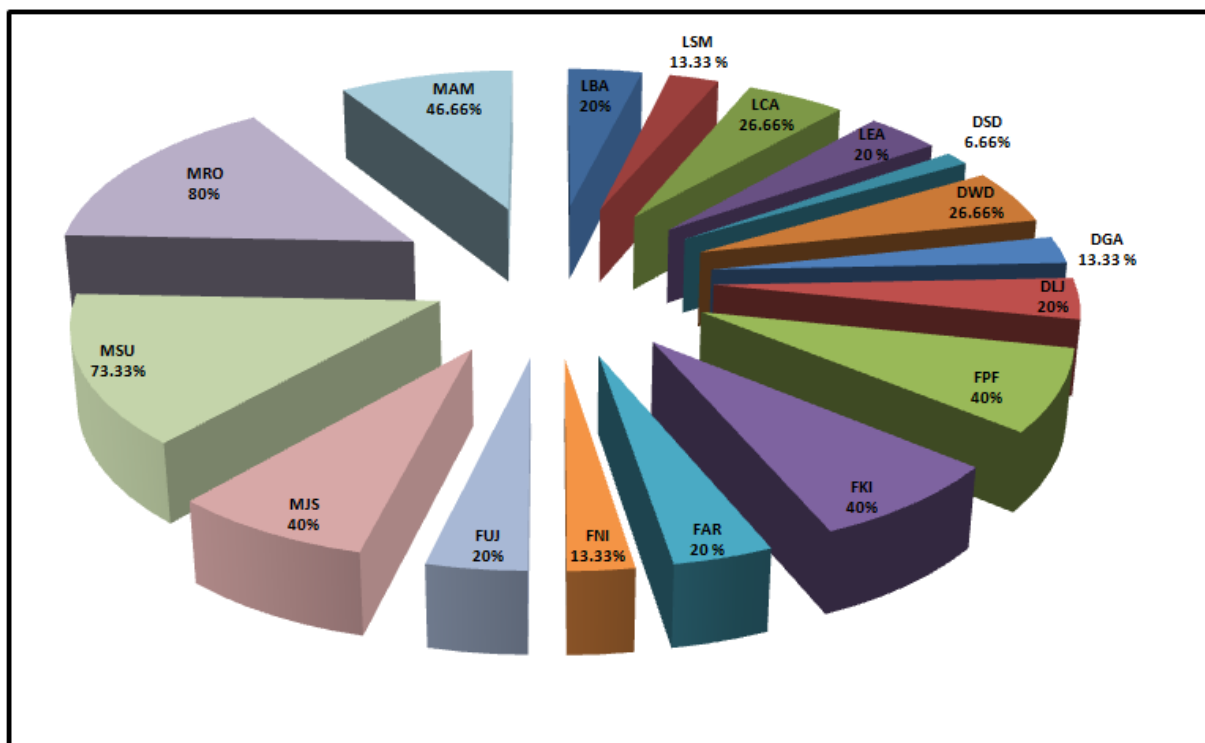


Fig. 1: Percentage of species presence in the Districts

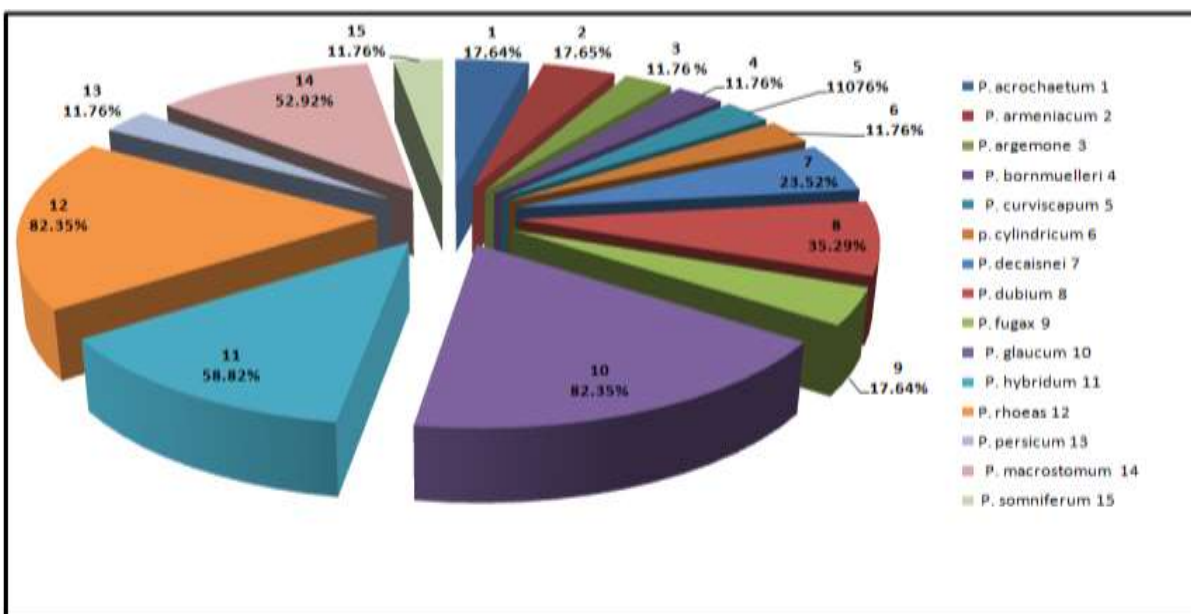


Fig 2: Percentage of districts occupied by species

انتشار الجنس *Papaver* في العراق

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الخلاصة:

تهدف الدراسة الحالية الى تحديث التوزيع الجغرافي للجنس *Papaver* في العراق ، حيث تم إجراء العديد من السفرات الحقلية خلال السنوات 2013 و 2014 لمناطق مختلفة في العراق. أظهرت النتائج وجود 15 نوع من جنس *Papaver* أغلبها انتشرت في المناطق كردستان وخاصة في مقاطعة راوندوز (MRO) التي تحتوي على 80% من الانواع. كما تم جمع وتسجيل 5 انواع لأول مره في مقاطعات مختلفة وشملت *P. bornmuelleri* Fedde. في مقاطعة (MSU) و *P. curviscapum* Nab. في (MRO) و *P. glaucum* Boiss. في (LBA) و *P. hybridum* L في المقاطعات (MJS) و (DLJ) و (DWD) أما النوع *P. macrostomum* Boiss فقد وجد في المقاطعات (LBA) و (LSM). في هذه الدراسة تم تأكيد وجود معظم الانواع التي ذكرت في المصادر والفلورات.

وكانت الانواع *P. glaucum* و *P. rhoeas* L هي اكثر الانواع تواجداً بنسبة (82.35%) ثم يليها النوع *P. hybridum* بنسبة (58.82%) . كما لم يتم تأكيد وجود النوعين *P. decaisnei* Hochst والنوع *P. persicum* Lindl. في الدراسة الحالية. كما تم تحديد عدد الانواع في كل مقاطعه ونسبة تواجد كل نوع في المقاطعات بالاضافة الى رسم خارطة التوزيع الجغرافي لكل نوع