Vascular Plant Taxa of Hujran Basin, Erbil, Iraq*

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Received (Geliş): **06.05.2016** **Accepted** (Kabul): **17.05.2016**

ABSTRACT: This research has been made to determine the flora of Hujran Basin. For this purpose; field works have been done at 17 waypoints and almost 950 plant samples were collected. In the study area, 288 plant taxa belonging to 57 families and 200 genera were determined. The largest families are *Fabaceae* (38; 13.2%), *Asteraceae* (37; 12.8%) and *Brassicaceae* (27; 9.4%) respectively. 272 plant taxa were categorized according to Raunkiaer life forms. Of these; 143 plant taxa (52.57 %) were determined as *Therophyte*,59 species (21.69 %)as *Hemicryptophyte*, 30 species (11.03 %)as *Phanerophyte*, 24 species (8.82 %)*as Cryptophyte* (Cr-He: 1, Cr-Ge: 13) and 16 species (5.88 %)as *Chamaephyte*.
Key Words: Vascular plants, Hujran Basin, Erbil, Iraq

Hujran Havzasının Vasküler Bitki Türleri, Erbil, Irak

ÖZET: Bu çalışma Hujran Havzasının florasını tespit etmek amacıyla yapılmıştır. Bu amaçla; 17 mevkide arazi çalışmaları yürütülmüş ve yaklaşık 950 bitki örneği toplanmıştır. Sonuç olarak çalışma alanında 57 familya, 200 cinse ait 288 bitki taksonu tespit edilmiştir. En fazla taksona sahip familyalar sırasıyla; *Fabaceae* (38; %13.2), *Asteraceae* (37; %12.8) ve *Brassicaceae* (27; %9.4) olarak belirlenmiştir. 272 bitki taksonu Raunkiaer yaşam formlarına göre gruplandırılmıştır. Bunlardan; 143 bitki taksonu(%52.57) Therofit,59 bitki taksonu (%21.69) Hemikriptofit, 30 bitki taksonu (%11.03) Fanerofit, 24 bitki taksonu (%8.82) Kriptofit (Cr-Helofit: 1, Cr-Geofit: 13)ve 16 bitki taksonu (%5.88) Kamefit grubundadır.
Anahtar Kelimeler: Vasküler bitkiler, Hujran havzası, Erbil, Irak

INTRODUCTION

The field works related with Flora of Iraq started in 1960 as a project of the National Herbarium, Ministry of Agriculture-Baghdad in collaboration with Royal Botanic Gardens, Kew, UK. The Flora of Iraq, with its wealth of over 3300 species, was planned to be published in 9 volumes. Volumes 1, 2, 3, 4 (part 1 and part 2), 8 and 9 were published between 1965 and 1985 with contributors from all over the world, edited and published at Kew. Thereafter, vol. 5 (part 2) was published in 2013 (Ghazanfar and Edmondson, 2013).But some volumes remained unpublished up to now;

-Volume 5 (part 1): 300 species
-Volume 6: 450 species
- Volume 7: 450 species (URL 1)

Hujran Basin is one of the undiscovered area located to the right of the main road passing Salahaddin to Shaqlawa about 40 km far from the city of Erbil in northern and eastern ones surrounded by Sefin Mountain and Hujran hill and called locally (Talani Per-Rash) or (Mizqaute Mountains). The study area is located at the following coordinates; the latitudes 36º22' and 36º24' North, and the longitudes 44º16' and 44º19' East (Rashed, 1990) (Figure 1).

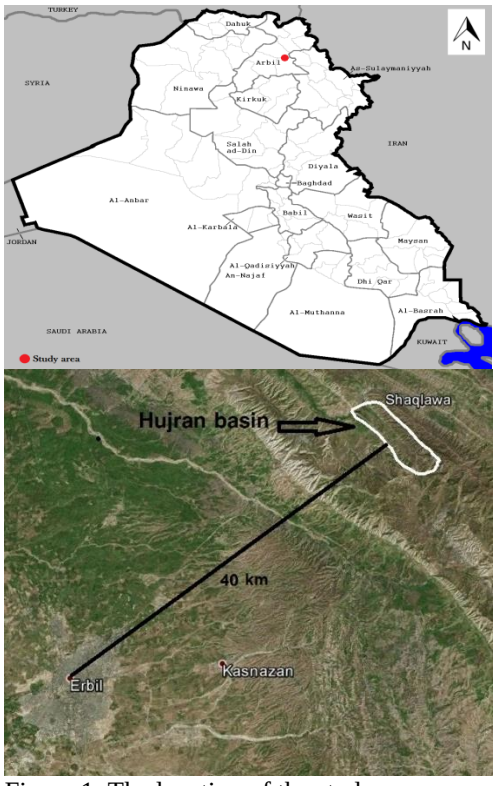

Figure 1. The location of the study area

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The aim of this study is to determine vascular flora of Hujran Basin near Erbil. The study area is not represented in Flora of Iraq. For this reason, new localities for plant taxa should be updated in flora of Iraq.

MATERIAL and METHODS

Plant samples were collected between April and May (optimum vegetation period) in 2015 and dried according to standard herbarium techniques (Bridson and Forman 1998). Field works have been done at 17 waypoints and almost 950 plant samples were collected. The identification process was followed on the present floras; Flora of Iraq (Towsend and Guest, 1966-1985; Ghazanfar and Edmondson,2013; Bor and Guest, 1968), Flora of Turkey (Davis, 1965-1985, Güner et al., 2000), Flora of Iran (Rechinger, 1965-1977).Journals (Vela and Youssef, 2013; Jaff and Rahman, 2014), scientific papers, plant field guides (Burnie, 1995; Blamey and Grey-Wilson, 2000) and dissertations pertinent to the flora of Iraq (Ahmad, 2013) and neighboring countries.

Pteridophytes were listed systematically according to Parris& Fraser-Jenkins (1980). While, *Spermatophytes* according to Cronquist (1988). Author abbreviations of plant names followed Brummitt & Powel (1992). The area lies completely within Hujran Basin of Erbil province. In citations, this knowledge has been omitted to avoid repetition. Also, lifespan (Guest and Al-Rawi, 1966; Davis, 1965-1985) and Raunkiaer life forms (1934) were assigned for each plant taxa.

About waypoints for the study area (Figure 2)

Wp1	Sefin Mountains, Tawuska, sandy soil place, 883-999 m, Longitude:36° 24'0.85" N, Latitude:44°16'37.14" E.
Wp2	Sefin Mountains, Tawuska, sandy soil place, 898-981 m, Longitude:36° 24'08.95" N, Latitude:44°16"41.31" E.
Wp3	Mizgauta Mountains, Tawuska, sandy soil place, 848-897 m, Longitude:36° 24'9.95" N, Latitude:44°16'15.90" E.
Wp4	Mizgauta Mountains, Tawuska, sandy soil place, 859-861 m, Longitude: 36° 24'02.97" N, Latitude: 44°16'27.59" E.
Wp5	Sefin Mountains, Tawuska, sandy soil and rocky places, 870-945 m, Longitude: 36° 24'23.65" N, Latitude: 44°16'22.40" E.
Wp6	Sefin Mountains, Tawuska, sandy soil and rocky places, 885-1000 m, Longitude: 36° 24'25.01" N, Latitude: 44°16'27.92" E.
Wp7	Mizgauta Mountains, Tawuska, sandy soil and forest places, 852-1070 m, Longitude: 36° 23'50.68" N,Latitude: 44°16'04.25" E.
Wp8	Sefin Mountains, Tawuska, rocky places, 906-1090 m, Longitude: 36° 23'41.69" N, Latitude: 44°17'06.55" E.
Wp9	Mizgauta Mountains, Tawuska, sandy soil and forest places, 887-1076 m, Longitude: 36° 23'38.54" N, Latitude: 44°16'59.53" E.
Wp10	Sefin Mountains, rocky places, 1017-1160 m, Longitude: 36° 22'44.82" N, Latitude: 44°18'0.15" E.
Wp11	Sefin Mountains, rocky places, 1000-1110 m altitude, Longitude: 36° 22'58.06" N, Latitude: 44°17'54.92" E.
Wp12	Sefin Mountains, Qallasinj, rocky and Forest Places, 1174-1388 m, Longitude: 36° 21'28.43" N, Latitude: 44°19'38.36" E.
Wp13	Mizgauta Mountains, sandy soil, 958-1090 m, Longitude: 36° 22'46.56" N, Latitude: 44°17'43.76" E.
Wp14	Sefin Mountains, Qallasinj, rocky places, 1197-1290 m, Longitude: 36° 21'51.43" N, Latitude: 44°19'11.84" E.
Wp15	Mizgauta Mountains, Sheraswar, river places, 819-829 m, Longitude: 36° 24'15.98" N, Latitude: 44°15'34.02" E.
Wp16	Mizgauta Mountains, Sheraswar, forest places, 829-1064 m, Longitude: 36° 24'14.60" N, Latitude: 44°15'31.44" E.
Wp17	Mizgauta Mountains, Kani zaituna, forest places, 991-1040 m, Longitude: 36° 22'46.07" N, Latitude: 44°17'32.23" E.

Figure 2. Waypoints in the study area

ABBREVIATIONS

The abbreviations used in the text and in the floristic list are as follows: (*) for taxa determined for the first time during the present study for Hujran basin, an: annual plants, bi: biennial plants, pe: perennial plants, Ph: *Phanerophytes*, He: *Hemicryptophytes*, Ch: *Chamaephytes*, Th: *Therophytes*, Cr: *Cryptophytes* [(Cr-He) for *Helophytes*; (Cr-Ge) for *Geophytes*].

RESULTS and DISCUSSION

A total of 288 taxa from 57 families and 200 genera were identified. Of these, 285 belonged to *Spermatophyta*, which included 3 taxa from *Gymnospermae* and 282 taxa from *Angiospermae* (Table 2), and the remaining 3 taxa belonged to *Pteridophyta* (Table 1). The *Angiospermae* also included 240 taxa from the class *Magnoliatae* (*Magnoliopsida*) and 42 taxa from the class *Liliatae* (*Liliopsida*).

Table 1. The Dispersion of taxa according to the large taxonomical groups

	Number of Families	Number of Genera	Number of Taxa
Pteridophyta	3	3	3
Spermatophyta	54	197	285
Total	57	200	288

Table 2.The Dispersion of *Spermatophyta*

	Number of Families	Number of Genera	Number of Taxa
Gymnospermae	2	3	3
Angiospermae	52	194	282
Total	54	197	285

The largest 10 families of this study are given as follow; *Fabaceae* with 38 plant taxa, *Asteraceae* with 37 plant taxa, *Brassicaceae* with 27 plant taxa, *Poaceae* with 17 plant taxa, *Apiaceae* with 12 plant taxa, *Rosaceae*, *Lamiaceae* and *Orchidaceae* with 11 plant taxa for each, *Caryophyllaceae* and *Boraginaceae* with 10 plant taxa for each and *Plantaginaceae* with 8 plant taxa, *Ranunculaceae* and *Rubiaceae* with 7 plant taxa for each (Table 3).

Table 3. Comparison of taxa numbers according to 10 largest families

Family	**Taxa number**	**Ratio (Total Flora)**	**Ratio (10 largest family)**
Fabaceae	38	13.2	18.4
Asteraceae	37	12.8	18.0
Brassicaceae	27	9.4	13.1
Poaceae	17	5.9	8.3
Apiaceae	12	4.2	5.8
Rosaceae	11	3.8	5.3
Lamiaceae	11	3.8	5.3
Orchidaceae	11	3.8	5.3
Caryophyllaceae	10	3.5	4.9
Boraginaceae	10	3.5	4.9
Plantaginaceae	8	2.8	3.9
Ranunculaceae	7	2.4	3.4
Rubiaceae	7	2.4	3.4
Total	**206**	**71.5**	**100.0**

A total of 272 vascular plant species were categorized according to five major Raunkiaer life form groups. The percentages of these groups belonging to life forms presented in Table 3. Of these; 143 plant taxa (52.57 %) were determined as *Therophyte*,59 species (21.69 %) as *Hemicryptophyte*, 30 species (11.03 %) as *Phanerophyte*, 24 species (8.82 %) *as Cryptophyte* (Cr-He: 1, Cr-Ge: 13) and 16 species (5.88 %) as *Chamaephyte*.

Table 4. Comparison of taxa numbers according to Raunkiaer life forms

Raunkiaer	Taxa number	Ratio
Therophyte	143	52.57
Hemicryptophyte	59	21.69
Phanerophyte	30	11.03
Cryptophyte	24	8.82
Chamaephyte	16	5.88
Total	**272**	**100.00**

The largest life cycle of identified 272 vascular plant species are herbs with 234 (86.0%) plant species, of these 148 (63.2%) of which are `annual`, 2 (0.9%) of which are `biennial`, 84 (35.9%) of which are `perennial`, (Table 5).The others; 20 shrubs (7.4%), 16 trees (5.9%) and 2 ferns (0.7%) (Table 6)

Table 5. Life cycle of the plants

Life cycle	Taxa number	Ratio
Herb	234	86.0
Shrub	20	7.4
Tree	16	5.9
Fern	2	0.7
Total	**272**	**100.00**

Table 6.Lifespans of herbs

Lifespans	Taxa number	Ratio
Annual herbs	148	63.2
Perennial herbs	84	35.9
Biennial herbs	2	0.9
Total	234	100.0

Following plant distributions of 95 taxa are new for Hujran Basin. These distributions were not mentioned in the Flora of Iraq.

Astracantha cephalotes (Banks & Sol.) Podl., *Astragalus rawianus* C.C.Towns., *Astragalus gudrunensis* Boiss., *Astragalus spinosus* (Forssk.) Muschl., *Hippocrepis unisiliquosa* L., *Hymenocarpus circinnatus* (L.) Savi., *Medicago truncatula* Gaertn., *Melilotus messanensis* (L.) All., *Melilotus officinalis* (L.) Pall., *Prosopis farcta* (Banks & Sol.) J.F.Macbr., *Scorpiurus muricatus* L., *Trifolium alexandrinum* L., *Trifolium angustifolium* L., *Trifolium campestre* Schreb., *Trifolium fragiferum* L., *Trifolium grandiflorum* Schreb., *Equisetum ramosissimum* Desf., *Potentilla reptans* L., *Prunus arabica* (Oliv.) Meikle., *Rubus caesius* L., *Rubus sanctus* Schreb., *Typha lugdunensis* Chab. ex Ser., *Aegilops columnaris* Zhuk., *Alopecurus arundinaceus* Poir., *Avena fatua* L., *Boissiera squarrosa* (Sol.) Nevski., *Catabrosa aquatic* (L.) P.Beauv., *Chrysopogon gryllus* (L.) Trin., *Echinaria capitata* (L.) Desf., *Heteranthelium piliferum* (Sol.) Hochst. ex Jaub. & Spach., *Hordeum glaucum* Steud., *Hordeum spontaneum* K.Koch., *Hordeum vulgare* L., *Phalaris minor* Retz., *Phragmites australis* (Cav.) Trin. ex Steud., *Poa bulbosa* L., *Setaria glauca* (L.) P.Beauv., *Adonis microcarpa* DC., *Populus alba* L., *Salix alba* L., *Aethionema carneum* (Banks & Sol.) B.Fedtsch., *Alliaria petiolata* (M.Bieb.) Cavara & Grande., *Alyssum contemptum* Schott & Kotschy., *Arabis aucheri* Boiss., *Arabis auriculata* Lam., *Brassica rapa* L., *Eruca sativa*Mill., *Isatis lusitanica* L., *Neslia apiculate* Fisch., C.A.Mey. & Avé-Lall., *Thlaspi arvense* L., *Cupressus sempervirens* var. *horizontalis* (Mill.) Loudon., *Juniperus oxycedrus* L., *Helianthemum salicifolium* (L.) Mill., *Ammi majus* L., *Anthriscus cerefolium* var. *trichosperma* Wimm. & Grab., *Daucus carota* L., *Pimpinella kotschyana* Boiss., *Smyrnium cordifolium* Boiss., *Turgenia latifolia* (L.) Hoffm., *Bellevalia kurdistanica* Feinbrun., *Ornithogalum cuspidatum* Bertol., *Scilla persica* Hausskn., *Muscari longipes* Boiss., *Platanus orientalis* L., *Plantago afra* L., *Plantago cretica* L., *Plantago lanceolata* L., *Callipeltis cucullaris* (L.) DC., *Sherardia arvensis* L., *Sedum caespitosum* (Cav.) DC., *Sedum rubens* L., *Malva sylvestris* L., *Euphorbia aleppica* L., *Euphorbia helioscopia* L., *Euphorbia peplus* L., *Anagallis arvensis* L., *Parietaria lusitanica* L., *Morus alba* L., *Limodorum abortivum* (L.) Sw., *Ophrys bornmuelleri* M.Schulze., *Ophrys mammosa* Desf., *Ophrys umbilicata* Desf., *Orchis anatolica* Boiss., *Orchis collina* Banks & Sol. ex Russell., *Orchis simian* Lam., *Pterocephalus kurdicus* Vatke var. *viscosissimus* Bommullerin Beih. Bot. Centralbl., *Allium roseum* L., *Valerianella vesicaria* (L.) Moench., *Gladiolus atroviolaceus* Boiss., *Tulipa systole* Stapf., *Papaver decaisnei* Hochst. & Steud. ex Elkan., *Papaver fugax* Poir., *Olea europaea* L., *Juglans regia* L., *Vitis vinifera* L.

ACKNOWLEDGEMENTS

Special thanks to Mr. Ali Mala Galalaey (MSc) for valuable supports and comments. I would like to thank Mr. Sherzad Salah Ali (MSc) for accompany me in the field works and identification of some plants. I would also like to thank to Mr. Muhammed Dler Faisal who helped in the creation of field maps.

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Appendix: Flora list of the study area

PTERIDOPHYTA

1. EQUISETACEAE
1. ***Equisetum ramosissimum*** Desf**.**
(*, pe, Cr), Wp15 (616).
2. ASPLENIACEAE
2. ***Ceterach officinarum*** Willd.
(pe, He), Wp8 (171).
3. ADIANTACEAE
3.***Cheilanthes persica*** (Bory)Mett. ex Kuhn.
Wp8 (178), Wp10 (469).

SPERMATOPHYTE
GYMNOSPERMAE

4. PINACEAE
4. ***Pinus brutia*** Ten.
(pe, Ph), Wp7 (193), Wp9, Wp15, Wp16.
5. CUPRESSACEAE
5. ***Cupressussempervirens*** L. var. ***horizontalis*** (Mill.) Loudon
(*, pe, Ph), Wp15, Wp16.
6.***Juniperus oxycedrus*** L.
(*, pe, Ph), Wp4 (248), Wp7, Wp9, Wp13.

ANGIOSPERMAE
MAGNOLIATAE (DICOTYLEDONAE)

6. RANUNCULACEAE
7. ***Adonisaestivalis*** L.
(an, Th), Wp2 (273), Wp3, Wp8 (126, 134), Wp9 (445), Wp16 (632).
8.***A. microcarpa*** DC.
(*, an, Th), Wp12 (374), Wp13 (316), Wp15 (608).
9. ***Anemone coronaria*** L.
(pe, Cr), Wp1 (227), Wp8 (181), Wp11 (497), Wp13 (300).
10. ***Ranunculusaucheri***Boiss.
(an, Cr), Wp8 (121).
11. ***R. macrorhynchus***Boiss.
(pe, Cr), Wp2 (258), Wp9 (388, 421), WP11 (532), Wp12 (338), Wp13 (309),
Wp14, (560), Wp15 (602).
12. ***R. asiaticus*** L.
(an, Th), Wp1 (276), Wp2, Wp5 (231), Wp6, Wp7, Wp8 (100), Wp10 (459), Wp11, (526), Wp12 (375), Wp14, Wp16 (639).
13. ***R. sericeus*** Poir.
(pe, Cr), Wp8 (175).
7. BERBERIDACEAE
14. ***Bongardia chrysogonum*** (L.) Spach.
(pe, Cr-Ge)Wp9 (383), Wp16 (629).
8.PAPAVERACEAE
15. ***Papaverdecaisnei*** Hochst. & Steud. ex Elkan
(*, an, Th), Wp8, Wp16 (659).
16. ***P. fugax*** Poir**.**
(*, an,Th), Wp12.
17. ***Papaver***sp.
Wp8 (143), Wp11, Wp12 (376).
9. ARISTOLOCHIACEAE
18. ***Aristolochiabottae*** Jaub. & Spach.
(an, He), Wp9 (386), Wp11 (506), Wp12, Wp14 (567).
10. PLATANACEAE
19. ***Platanus orientalis*** L.
(*, pe, Ph), Wp15.
11. MORACEAE

20. ***Ficuscarica*** L.
(pe, Ph), Wp6, Wp8, Wp12, Wp16.
21. ***Morusalba*** L.
(*, pe, Ph), Wp11, Wp15.
12. URTICACEAE
22. ***Parietaria lusitanica*** L.
(*, an, Th), Wp8 (107, 182), Wp11 (495).
13. JUGLANDACEAE
23.***Juglansregia*** L.
(*, pe, Ph), Wp17.
14. FAGACEAE
24.***Quercusbrantii*** Lindl. (syn= *Q. aegilops* L.)
(pe, Ph), Wp6 (218-219), Wp7, Wp8 (127), Wp9, Wp10, Wp11, Wp13, Wp15, Wp16.
25.***Q. infectoria***Oliv.
(pe, Ph), Wp9, Wp12, Wp13.
15. CARYOPHYLLACEAE
26.***Cerastiumdichotomum*** L.
(an, Th), Wp4 (243), Wp7, Wp9 (407)
27.***Micromeriamyrtifolia*** Boiss. & Hohen.
(an, Th),Wp10 (487).
28.***Minuartia hamata*** (Hausskn.) Mattf.
(an, Th), Wp7 (201), Wp13 (296).
29.***M. hybrida*** (Vill.) Schischk.
(an, Th), Wp9 (442), Wp10, Wp11 (502), Wp14 (585), Wp15 (623), Wp16.
30.***Silenelatifolia***Poir.
(pe, He), Wp12 (343).
31.***S. aegyptiaca*** (L.) L.f.
(an, Th), Wp8 (129, 133), Wp10 (470), Wp11 (508), Wp12 (366), Wp14 (580).
32.***S. araratica*** Schischk.
(pe, He), Wp8 (185).
33.***S. conoidea*** L.
(an, Th), Wp12 (332), Wp17 (673).
34.***Silene*** sp.
Wp8 (186), Wp10 (480), Wp11 (523, 540), Wp12 (359), Wp14 (591).
35.***Stellariapallida***(Dumort.) Pire.
(an, Th), Wp1, Wp11 (492), Wp12 (331).
36.***S. media*** (L.) Vill.
(an, Th), Wp2 (262), Wp3 (257), Wp7, Wp8 (132), Wp9 (444), Wp10, Wp12, Wp14, Wp15.
16. POLYGONACEAE
37.***Polygonumlapathifolium*** L.
(an, Th), Wp15.
38.***Rumexcrispus*** L.
(pe, He), Wp15.
17. CYNOCRAMBACEAE
39.***Theligoniumcynocrambe***L.
(an, Th), Wp11.
18. HYPERICACEAE
40.***Hypericumperforatum*** L.
(pe, He), Wp8 (102).
19. MALVACEAE
41.***Alceakurdica*** Alef.
(pe, He), Wp8.
42.***Malvaneglecta*** Wallr.
(an, Th), Wp8.
43.***M. sylvestris*** L.
(*, pe, He), Wp8 (158).

20. CISTACEAE
44.***Helianthemumledifolium*** (L.) Mill.
(an, Th), Wp5 (230), Wp7, Wp9, Wp10 (452), Wp11 (499), Wp12, Wp13 (295, 323), Wp14 (584), Wp15 (592), Wp16.
45.***H. salicifolium*** (L.) Mill.
(*, an, Th), Wp1, Wp2, Wp3, Wp6, Wp11.
21. VIOLACEAE
46.***Viola modesta***Fenzl**.**
(an, Th), Wp8 (177).
22. SALICACEAE
47.***Populusalba*** L.
(*, pe, Ph), Wp15.
48.***Salixalba***L.
(*, pe, Ph), Wp15 (604).
23. BRASSICACEAE
49.***Aethionemacarneum*** (Banks & Sol.) B.Fedtsch.
(*, an, Th), Wp4 (239), Wp7, Wp9, Wp13 (297), Wp16 (657).
50.***Alliaria petiolata***(M.Bieb.) Cavara & Grande.
(*, an, Th), Wp8.
51.***Alyssumstrigosum*** Banks & Sol.
(an, Th), Wp7 (208), Wp12 (341), Wp13.
52.***A. contemptum*** Schott & Kotschy.
(*, an, Th), Wp7 (210), Wp9 (379, 395), Wp16 (633).
53.***Arabisaucheri*** Boiss.
(*,an, Th), Wp2 (268), Wp4 (241), Wp9 (438), Wp11, Wp16.
54.***A. auriculata*** Lam.
(*, an, Th), Wp3.
55.***A.nova*** Vill.
(an, Th), Wp13.
56.***Aubrieta parviflora*** Boiss.
(pe, He), Wp8 (174).
57.***Biscutelladidyma*** L.
(an, Th), Wp5, Wp8 (130, 142), Wp10 (466), Wp11 (520), Wp12 (344), Wp16.
58.***Brassicarapa*** L.
(*, an, Th), Wp10 (489).
59.***Calepinairregularis***(Asso) Thell.
(an, Th), Wp1 (291), Wp8, Wp11 (493), Wp12 (334).
60.***Capsellabursa-pastoris*** (L.) Medik.
(an, bi, Th), Wp2 (272), Wp8 (110), Wp9.
61.***Clypeolajonthlaspi*** L.
(an, Th), Wp2, Wp5, Wp7, Wp8 (141), Wp9 (404), Wp10, Wp11 (528), Wp13.
62.***Conringia perfoliata*** (Crantz) Link.
(an, Th), Wp7 (209).
63.***Erucasativa*** Mill.
(an, Th), Wp13 (326).
64.***Erysimumrepandum***L.
(an, Th), Wp2, Wp11.
65.***Euclidiumsyriacum***(L.) R.Br.
(an, Th), Wp15 (596).
66.***Fibigia clypeata*** (L.) Medik.
(pe, He), Wp12 (362), Wp14 (564).
67.*Isatislusitanica* L.
(*, an, Th), Wp8 (105), Wp12 (342), Wp16 (637).
68.*Lepidiumdraba* L.
(an, Th), Wp5, Wp15 (600).
69.*Nasturtium officinale* R.Br.
(pe, He), Wp15.
70.*Neslia apiculata* Fisch., C.A.Mey. & Avé-Lall.

(*, an, Th), Wp12 (439).
71.*Sameraria stylophora* Boiss.
(an, Th), Wp8 (187), Wp12 (371), Wp16 (625).
72.*Thlaspiarvense* L.
(*, an, Th), Wp8 (166).
73.*T. perfoliatum* L.
(an, Th), Wp7, Wp9 (410).
24. PRIMULACEAE
74.***Anagallisarvensis*** L.
(*, an, Th), Wp1, Wp2 (263), Wp3 (256), Wp5, Wp6, Wp8 (112, 173), Wp9 (428), Wp10 (467), Wp11 (521), Wp12, Wp14, Wp16.
25. CRASSULACEAE
75.***Rosulariasempervivum*** subsp. ***kurdica*** Eggli.
(pe He), Wp8.
76.***Sedumcaespitosum***(Cav.) DC.
(*, an, Th), Wp8 (183), Wp16 (631).
77.***S. rubens*** L.
(*, an, Th), Wp6 (212), Wp11 (500).
78.***Umbilicushorizontalis*** (Guss.) DC.
(pe, He), Wp8, Wp12.
79.***Umbilicus*** **tropaeolifolius** Boiss.
(pe, He), Wp8 (122).
26. ROSACEAE
80.***Crataegusazarolus*** L.
(pe, Ph), Wp4 (247), Wp5, Wp6, Wp7 (198), Wp10, Wp12, Wp15.
81.***Potentilla reptans*** L.
(*, pe, He), Wp15.
82.***Poteriumsanguisorba*** L.
(pe, He), Wp2, Wp7 (200), Wp8 (162), Wp12 (364), Wp13, Wp15 (615).
83.***Prunusamygdalus***Batsch.
(pe, Ph), Wp12 (356).
84.***P.arabica***(Oliv.) Meikle.
(*, pe, Ph), Wp6, Wp15.
85.***P. argentea***(Lam.) Rehd.
(pe, Ph), Wp15 (594).
86.***P. microcarpa*** C.A.Mey.var.***pubescens***(Bornm.') Meikle.
(pe, Ph), Wp6, Wp7, Wp8 (155), Wp9 (417), Wp10, Wp11, Wp12, Wp14 (586), Wp15, Wp16.
87.***Pyrussyriaca*** Boiss.
(pe, Ph), Wp7.
88.***Rosa canina***L.
(pe, Ph), Wp17.
89.***Rubuscaesius*** L.
(*, pe, Ph), Wp15.
90.***R. sanctus*** Schreb.
(*, pe, Ph), Wp7, Wp16.
27. FABACEAE
91.***Anagyrisfoetida*** L.
(pe, Ph), Wp6, Wp7, Wp8 (128), Wp9, Wp16.
92.***Astracantha cephalotes***(Banks & Sol.) Podl.
(*, pe, Ch), Wp16 (662).
93.***Astragalusrawianus***C.C.Towns.
(*, pe, Ch), Wp7.
94.***A. gudrunensis*** Boiss.
(*, pe, Ch), Wp12 (357), Wp14 (589).
95.***A. spinosus*** (Forssk.) Muschl.
(*, pe, Ch), Wp2 (270), Wp4 (244), Wp7, Wp9 (418).
96.***Coronillascorpioides*** (L.) Koch.

(an, Th), Wp7.
97.***Glycyrrhizaglabra*** L.
(pe, Ch), Wp3, Wp5, Wp15.
98.***Hippocrepisunisiliquosa***L.
(*, an, Th), Wp6, Wp7, Wp10, Wp12.
99.***Hymenocarposcircinnatus***(L.) Savi
(*, an, Th), Wp2, Wp5 (225), Wp6, Wp8 (137), Wp9 (437), Wp10 (471),
Wp11, Wp12, Wp13 (317), Wp14 (554), Wp15.
100.***Lathyrusaphaca***L.
(an, Th), Wp9, Wp15 (597).
101.***L. cicera***L.
(an, Th), Wp1 (284), Wp2 (264), Wp8, Wp9 (429), Wp11 (536), Wp13
(314), Wp14 (544, 579), Wp15 (605), Wp16 (653).
102.***Medicagominima*** (L.) L.
(an, Th), Wp8, Wp12.
103.***M. orbicularis*** (L.) Bartal.
(an, Th), Wp15 (599).
104.***M. polymorpha*** L.
(an, Th), Wp1 (281), Wp3 (253), Wp8 (118, 119), Wp10 (464), Wp11, Wp12(337), Wp15.
105.***M. radiata*** L.
(an, Th), Wp7 (207).
106.***M. truncatula*** Gaertn.
(*, an, Th), Wp5 (237).
107.***Melilotusmessanensis*** (L.) All.
(*, an, Th), wp3, Wp11.
108.***M. officinalis*** (L.) Pall.
(*, an, Th), Wp8, Wp11, Wp15.
109.***Onobrychiscaput-galli*** (L.) Lam.
(an, Th), Wp5, Wp6, Wp9 (446), Wp10 (465), Wp11 (524), Wp13 (321).
110.***Pisum sativum*** L.
(an, Th), Wp8 (113), Wp10 (450), Wp11 (517), Wp12 (355, 372), Wp14 (583),
Wp16.
111.***Prosopisfarcta***(Banks & Sol.) J.F.Macbr.
(*, pe, Ph), Wp15.
112.***Scorpiurusmuricatus*** L.
(*, an, Th), Wp2 (274), Wp5.
113.***Trifoliumarvense***L.
(an, Th), Wp8 (154).
114.***T. spumosum***L.
(an, Th), Wp8, Wp9 (398), Wp12, Wp14 (561), Wp15 (617), Wp16 (638).
115.***T. alexandrinum*** L.
(*, an, Th), Wp8, Wp9.
116.***T. angustifolium*** L.
(*, an, Th), Wp8, Wp15 (612).
117.***T. campestre*** Schreb.
(*, an, Th), Wp15.
118.***T. dasyurum*** C.Presl.
(an, Th), Wp3 (255), Wp9 (391), Wp12 (347, 370).
119.***T. fragiferum*** L.
(*, pe, He), Wp15.
120.***T. grandiflorum*** Schreb.
(*, an, Th), Wp11 (539), Wp14 (545), Wp15 (618), Wp16 (656).
121.***T. purpureum*** Loisel.
(an, Th), Wp15.
122.***T. repens*** L.
(pe, He), Wp11, Wp14.
123.***T. stellatum*** L.
(an, Th), Wp2, Wp6 (214), Wp8, Wp9, Wp10 (453), Wp11 (514), Wp14 (548),

Wp16.
124.***Trigonellafilipes***Boiss.
(an, Th), Wp7 (196), Wp9 (394), Wp11 (513), Wp12, Wp13 (313), Wp14 (551).
125.***Trigonella***sp**.**
Wp8, Wp10, Wp11 (541).
126.***Vicianarbonensis***L.
(an, Th), Wp1 (287), Wp9 (436), Wp14 (581).
127.***V. sativa*** L.
(an, Th), Wp1 (289), Wp3, Wp8 (145), Wp9 (425), Wp10, Wp11 (527), Wp12 (373), Wp13 (319), Wp14 (546, 587), Wp15 (603), Wp16 (627).
128.***V. tenuifolia*** Roth.
(pe, He), Wp16 (643).
28. EUPHORBIACEAE
129.***Euphorbiaaleppica*** L.
(*, an, Th), Wp9 (419).
130.***E. denticulata*** Lam.
(pe, Ch), Wp2 (271), Wp16 (635).
131.***E. helioscopia*** L.
(*, an, Th), Wp2, Wp3 (251), Wp8 (124), Wp12 (340).
132.***E. peplus*** L.
(*, an, Th), Wp7 (203), Wp8 (152).
29. **RHAMNACEAE**
133. Paliurusspina-christi Mill.
(pe, Ch), Wp15.
30. VITACEAE
134.***Vitisvinifera*** L.
(*, pe, Ph), Wp12, Wp16.
31. LINACEAE
135.***Linumbienne***Mill.
(an. Pe, He), Wp2, Wp3, Wp5, Wp7, Wp9, Wp10, Wp12, Wp13, Wp16.
32. ACERACEAE
136.***Acermonspessulanum***L.
(pe, Ph), Wp12, Wp14.
33. ANACARDIACEAE
137.***Pistaciaeurycarpa***Yalt.
(pe, Ph), Wp11, Wp15.
138.***P. khinjuk***Stocks.
(pe, Ph), Wp6, Wp8.
34. SIMAROUBACEAE
139.***Ailanthusaltissima*** (Mill.) Swingle.
(pe, Ph), Wp17.
35. GERANIACEAE
140.***Erodiumciconium*** (L.) L'Hér.
(an, Th), Wp11 (534).
141.***E. cicutarium*** (L.) L'Hér.
(an, Th), Wp1, Wp6, Wp8, Wp9 (433), Wp10, Wp11 (509).
142.***Geraniumpurpureum*** Vill.
(an, Th), Wp16 (660).
143.***G. rotundifolium*** L.
(an, Th), Wp8 (156, 163), Wp10 Wp11 (491), Wp12.
144.***G. tuberosum*** L.
(an, Th), Wp4 (240), Wp8 (125, 146), Wp9 (440), Wp12 (352), Wp13 (294, 320), Wp15, Wp16, Wp17 (667).
36. APIACEAE
145.***Ainsworthiatrachycarpa*** Boiss.
(an, Th), Wp8 (103), Wp10 (485), Wp11 (503), Wp13.
146.***Ammimajus*** L.
(*, an, Th), Wp15.

147.***Anthriscuscerefolium***var.***trichosperma***Wimm. & Grab.
(*, an, Th), Wp8, Wp12.
148.***Daucuscarota*** L.
(*, pe, He), Wp15.
149.***Falcariavulgaris***Bernh.
(pe, He), Wp15.
150.***Lagoeciacuminoides*** L.
(an, Th), Wp1 (283), Wp5, Wp6, Wp7, WP8, Wp9 (426), Wp11, Wp13, Wp16 (644).
151.***Pimpinellakotschyana*** Boiss.
(*, bi, He), Wp2 (259), Wp5, Wp7, Wp9 (389), Wp13.
152.***Scandixpecten-veneris***L.
(an, Th), Wp1 (285), Wp7, Wp8 (108, 139), Wp9 (431), Wp11 (533), Wp12
(351), Wp13 (312), Wp14 (577), Wp16 (649).
153.***S. stellata*** Banks & Sol.
(an, Th), Wp12.
154.***Smyrniumcordifolium*** Boiss.
(*, bi, He), Wp8 (101-167), Wp14.
155.***Torilisleptophylla***(L.) Rchb.f.
(an, Th), Wp6 (215), Wp8, Wp14 (573).
156.***Turgenialatifolia*** (L.) Hoffm.
(*, an, Th), Wp5, Wp15.

37. APOCYNACEAE

157.***Neriumoleander*** L.
(pe, Ph),Wp16 (619).
158.***Vincaherbacea***Waldst. & Kit.
(pe, Ch), Wp4 (250), Wp7 (191), Wp9 (381), Wp14 (582), Wp16 (636).

38. CONVOLVULACEAE

159.***Convolvulusarvensis*** L.
(pe, He), Wp8, Wp14 (572), Wp17 (668).
160.***Cuscuta***sp.
(an, Th), Wp6, Wp10, Wp11, Wp14 (590).

39. BORAGINACEAE

161.***Anchusaitalica*** Retz.
(pe, He), Wp13 (310), Wp15 (598).
162.***Asperugoprocumbens*** L.
(pe, He), Wp8.
163.***Buglossoidestenuiflora*** (L.f.) I.M.Johnst.
(an, Th), Wp7.
164.***Cynoglossumcreticum*** Mill.
(pe, He), Wp4 (242), Wp7 (204), Wp8 (109), Wp9 (447), Wp10 (478), Wp16 (634).
165.***Echiumitalicum*** L.
(pe, He), Wp15.
166.***Lithospermumarvense***L.
(pe, He), Wp5 (235), Wp8 (150), Wp9.
167.***Onosmaalborosea*** Fisch. & C. A. Mey.
(pe, He), Wp1 (293), Wp5, Wp8 (138), Wp10 (477), Wp11 (516), Wp12, Wp13, Wp16 (646).
168.***O. rostellatum*** Lehm.
(pe, He), Wp6 (217), Wp10 (482), Wp14 (575).
169.***O.sericeum*** Willd.
(pe, He), Wp14 (624).
170.***Symphytumkurdicum*** Boiss. & Hausskn.
(pe, He), Wp11 (537), Wp12 (355).
171.***Alkanna***sp.
(Wp8).

40. LAMIACEAE

172.***Ajugachamaepitys*** (L.) Schreb.
(an, He), Wp6 (223), Wp10 (460).
173.***Eremostachyslaciniata***(L.) Bunge.

(pe, He), Wp7, Wp8.
174.***Lamiumamplexicaule*** L.
(an, Th), Wp7, Wp8 (172), Wp9, Wp11 (501, 525).
175.***Marrubiumcuneatum*** Banks & Sol.
(pe, He), Wp15 (606).
176.***Menthalongifolia*** (L.) L.
(pe, He), Wp15 (595).
177.***Phlomiskurdica*** Rech.f.
(pe, Ch), Wp2 (275), Wp5, Wp7, Wp9 (434), Wp13 (315), Wp16.
178.***Salviaindica*** L.
(pe, He), Wp8 (147-170), Wp9, Wp14 (569), Wp16.
179.***S. multicaulis*** Vahl.
(pe, He), Wp2 (261), Wp7, Wp9 (414), Wp12 (365), Wp13 (328), Wp14 (558),Wp16 (655).
180.***S. trichoclada*** Benth.
(pe, He), Wp6 (221), Wp8 (165), Wp9 (387), Wp10 (458), Wp11 (531), Wp12(360), Wp14 (549), Wp15 (601), Wp16 (658).
181.***Thymuscapitatus*** (L.)Hoffmanns. & Link.
(pe, Ch), Wp7 (194), Wp9 (416).
182.***Ziziphoracapitata***L.
(an, Th), Wp5, Wp10 (451), Wp13 (318), Wp14 (556), Wp16 (650).
41. PLANTAGINACEAE
183.***Linariachalepensis*** (L.) Mill.
(an, Th), Wp8 (114, 157), Wp9 (392), Wp12 (367), Wp14 (547).
184.***Plantagoafra*** L.
(*, an, Th), Wp3, Wp5, Wp6, Wp8 (120, 151), Wp10 (463).
185.***P. cretica*** L.
(*, an, Th), Wp5 (226), Wp6 (216), Wp8, Wp9.
186.***P. lanceolata*** L.
(*, an, Th), Wp3 (254), Wp15 (614), Wp16.
187.***Veronicaanagallis aquatica***L.
(an, Th), Wp15.
188.***V. cymbalaria***Bodard.
(an, Th), Wp8 (184), Wp11.
189.***V. orientalis*** Mill.
(pe, Ch), Wp12 (361), Wp13 (311), Wp14 (559), Wp16 (641).
190.***V. persica*** Poir.
(pe, Ch), Wp8, Wp11 (496), Wp14 (555).
42. OLEACEAE
191.*Oleaeuropaea* L.
(*, pe, Ph), Wp16, Wp17.
43. SCROPHULARACEAE
192.***Scrophularia deserti*** Delile.
(pe, Ch), Wp4 (249), Wp5.
193.***Verbascumalceoides*** Boiss. & Hausskn.
(pe, Ch), Wp6 (220), Wp9 (384), Wp10, Wp13 (327).
194.***V. orientale*** (L.) All.
(an, Th),Wp8 (179), Wp11 (505).
44. OROBANCHACEAE
195.***Orobancheaegyptiaca***Pers.
(*, an, Th), Wp10 (457).
196.***O. anatolica*** Boiss. & Reut.
(*, an, Th), Wp13 (324), Wp16 (630).
197.***O. arenaria*** Borkh.
(*, an, Th), Wp14 (562), Wp17 (669).
198.***O. ramosa*** L.
(*, an, Th), Wp6 (213), Wp8 (131), Wp10 (484), Wp11 (515), Wp14 (565).
199.***Parentucellialatifolia*** Caruel.
(an, Th), Wp1, Wp2, Wp5 (224), Wp7, Wp8 (104), Wp9, Wp11 (494), Wp12, Wp13 (302), Wp14, Wp16.

45. CAMPANULACEAE
200.***Campanulaflaccidula*** Vatke.
(an, Th), Wp11 (529-543).
46. RUBIACEAE
201.***Asperulaarvensis*** L.
(an, Th), Wp1 (288), Wp2, Wp5 (227), Wp7 (202), Wp8 (140, 153), Wp9 (403, 443), Wp10 (473), Wp11 (498), Wp12 (349), Wp13 (304), Wp14 (576), Wp15, Wp16 (648).
202.***Callipeltiscucullaris*** (L.) DC.
(*, an, Th), Wp10 (488), Wp11 (530).
203.***Cruciatataurica*** (Pall. ex Willd.) Ehrend.
(pe, Ch), Wp9 (385), Wp14 (578).
204.***Galiumaparine*** L.
(an, Th), Wp8 (106), Wp9 (420), Wp11, Wp12 (369), Wp13, Wp14, Wp15.
205.***G. setaceum*** Lam. subsp.***decaisnei***(Boiss.) Ehrend.
(an, Th), Wp8 (144), Wp11, Wp14 (570).
206.***G. tricornutum*** Dandy.
(an, Th), Wp11, Wp12.
207.***Sherardiaarvensis*** L.
(*, an, Th), Wp9.
47. CAPRIFOLIACEAE
208.***Valerianellavesicaria*** (L.) Moench.
(*, an, Th), Wp10 (474), Wp12 (358), Wp14 (574).
48. DIPSACACEAE
209.***Cephalariasyriaca*** (L.) Schrad. ex Roem. & Schult.
(an, Th), Wp7.
210.***Pterocephaluskurdicus*** Vatke var. ***viscosissimus***Bommullerin Beih. Bot.Centralbl.
(*, pe, Ch), Wp6 (211).
49. ASTERACEAE
211.***Anthemispseudocotula*** Boiss.
(an, Th)Wp2, Wp4, Wp5, Wp8, Wp9, Wp11 (504), Wp12 (350), Wp14.
212.***Anthemis***sp.
Wp1 (280), Wp5 (228), Wp8 (115), Wp9 (423), Wp10 (449), Wp14 (552).
213.***Atractyliscancellata*** L.
(pe, He), Wp6.
214.***Bellisperennis*** L.
(an, Th), Wp3, Wp4 (245), Wp6, Wp7, Wp8, Wp10, Wp11, Wp16 (640).
215.***Carduuspycnocephalus*** L.
(an, Th), Wp1 (292), Wp8 (123, 168), Wp11 (511, 518), Wp15 (609), Wp16.
216.***Carthamusoxyacantha*** M.Bieb.
(an, Th), Wp1, Wp6, Wp15.
217.***Centaureabenedicta***(L.) L.
(pe, He), Wp16 (651).
218.***C. iberica*** Trev. ex Spreng.
(pe, He), Wp2, Wp4 (246).
219.***C. solstitialis*** L.
(pe, He), Wp2.
220.***C. melitensis*** L.
(pe, He), Wp3 (252).
221.***Chardiniaorientalis*** (L.) Kuntze.
(pe, He), Wp5 (229), Wp7, Wp8 (159), Wp9 (435), Wp12 (368), Wp14 (553),Wp16.
222.***Cnicusbenedictus*** L.
(pe, He), Wp2, Wp7 (188).
223.***Crupinacrupinastrum***(Moris) Vis.
(an, Th), Wp5, Wp7, Wp9 (390), Wp10 (472), Wp12, Wp13, Wp14, Wp16(642).
224.***Filagopyramidata*** L.
(an, Th), Wp2, Wp7, Wp8 (169), Wp9, Wp10 (461), Wp14 (568).
225.***Gundeliatournefortii*** L.

(pe, He), Wp7 (195), Wp8 (148), Wp9, Wp14.
226.***Hedypnoisrhagadioloides*** (L.) F.W.Schmidt.
(an, Th), Wp6.
227.***Lactucaserriola*** L.
(an, Th), Wp12, Wp15.
228.***Micropussupinus*** L.
(an, Th), Wp1 (290), Wp5, Wp10 (462), Wp11, Wp13 (303), Wp15.
229.***Notobasissyriaca***(L.).
(an, Th), Wp7, Wp8, Wp11.
230.***Onopordumcarduchorum*** Bornm. & Beauverd.
(pe, Ch), Wp8 (149), Wp10, Wp11, Wp15, Wp16.
231.***Phagnalonrupestre*** (L.) DC.
(pe, Ch), Wp10 (476).
232.***Picnomon acarna*** (L.) Cass.
(an, Th), Wp11, Wp15.
233.***Rhagadiolusstellatus*** (L.) Gaertn.
(an, Th), Wp8, Wp11 (507, 512), Wp12 (346), Wp13, Wp15, Wp16.
234.***Scorzoneraphaeopappa***(Boiss.) Boiss.
(an, Th), Wp7.
235.***S. semicana*** DC.
(an, Th), Wp9 (397, 408), Wp13 (299), Wp14 (588), Wp17 (672).
236.***Seneciovulgaris***L.
(an, Th), Wp5, Wp6, Wp8, Wp10, Wp12, Wp16 (654).
237.***S. vernalis*** Waldst. & Kit.
(an, Th), Wp1 (286), Wp2 (267), Wp6, Wp7, Wp8 (111, 161), Wp9 (427), Wp10(475), Wp12 (377), Wp13 (308), Wp14 (550).
238.***Silybummarianum*** (L.) Gaertn.
(an, Th), Wp7, Wp10, Wp12.
239.***Sonchusoleraceus*** (L.) L.
(an, Th), Wp15 (621).
240.***Tragopogonlongirostris*** Sch.Bip.
(pe, He), Wp12 (330, 363), Wp14 (563).
241.***T. porrifolius*** L.
(pe, He), Wp9 (432), Wp11 (538), Wp15, Wp16 (652), Wp17 (671).
242.***Urospermumpicroides*** (L.) Scop. ex F.W.Schmidt.
(an, Th), Wp5, Wp6 (210), Wp10 (448, 479), Wp11 (519), Wp14.
243.***Xanthiumstrumarium*** L.
(pe, He), Wp15.
244.***Crepis***sp.
Wp1 (279), Wp8, Wp9 (393), Wp11 (522), Wp17 (666).
245.***Achillea***sp.
Wp8.
246.***Picris***sp.
Wp5, Wp6, Wp8.
247.***Echinops***sp.
Wp7, Wp8.

LILIATAE (MONOCOTYLEDONAE)

50. POACEAE

248.***Aegilopscolumnaris*** Zhuk.
(*, an, Th), Wp9 (430), Wp10 (468), Wp12, Wp15 (607), Wp16.
249.***Alopecurusarundinaceus*** Poir.
(*, an, Th), Wp11 (542), Wp16 (626).
250.***Avena fatua*** L.
(*, an, Th), Wp2 (260), Wp5, Wp7, Wp9 (422), Wp12, Wp14, Wp15, Wp16.
251.***Boissierasquarrosa*** (Sol.) Nevski
(*, an, Th), Wp13 (306).
252.***Bromustomentellus*** Boiss.
(pe, He), Wp1 (278), Wp8 (135, 160), Wp9, Wp10, Wp11 (490), Wp12, Wp13(307), Wp14.

253.***Bromus***sp.
Wp6 (222), Wp9, Wp15.
254.***Catabrosaaquatica*** (L.) P.Beauv.
(*, pe, He), Wp15 (622).
255.***Chrysopogongryllus*** (L.) Trin.
(*, pe, He), Wp9.
256.***Echinariacapitata*** (L.) Desf.
(*, an, Th), Wp9, Wp15.
257.***Heterantheliumpiliferum*** (Sol.) Hochst. ex Jaub. & Spach.
(*, an, Th), Wp5 (233).
258.***Hordeumglaucum*** Steud.
(*, an, Th), Wp10, Wp11, Wp13.
259.***H. spontaneum*** K.Koch.
(*, an, Th), Wp5 (238), Wp6, Wp9 (382), Wp12 (336, 378), Wp14 (557).
260.***H. vulgare*** L.
(*, an, Th), Wp10 (481), Wp15 (613).
261.***Lolium persicum*** Boiss. & Hohen.
(an, Th), Wp14 (571), Wp15.
262.***Phalarisminor*** Retz.
(*, an, Th), Wp15.
263.***Phragmitesaustralis*** (Cav.) Trin. ex Steud.
(*, pe, Ch), Wp6, Wp15.
264.***Poabulbosa*** L.
(*, pe, Cr), Wp1 (282), Wp2 (265), Wp5, Wp6, Wp7 (199), Wp8 (136, 176),Wp9 (424), Wp11 (517), Wp12 (353), Wp14, Wp15 (610), Wp16.
265.***Setariaglauca*** (L.) P.Beauv.
(*, an, Th), Wp8, Wp10, Wp13, Wp15.

51. TYPHACEAE

266.***Typhalugdunensis*** P. Chab.
(*, pe, Cr-he), Wp15 (611).

52. LILIACEAE

267.***Gagea***sp.
Wp5 (232), Wp7 (197).
268.***Tulipasystola*** Stapf.
(*, pe, Cr-Ge), Wp9 (396, 409).

53. ALLIACEAE

269.***Alliumroseum*** L.
(*, pe, Cr-Ge), Wp2 (269), Wp8, Wp9 (411), Wp13 (298, 322).

54. ASPARAGACEAE

270.***Bellevaliakurdistanica***Feinbrun**.**
(*, pe, Cr), Wp8 (116), Wp12 (333, 348).
271.***Bellevalia***sp.
Wp5 (234), Wp6, Wp15.
272.***Muscarilongipes***Boiss.
(*, pe, Cr), Wp10 (456).
273.***Ornithogalumcuspidatum*** Bertol.
(*, pe, Cr), Wp2 (260), Wp10 (483), Wp11 (510), Wp15.
274.***Ornithogalum***sp.
Wp10 (486), Wp16 (628).
275.***Scillapersica*** Hausskn.
(*, pe, Cr), Wp17 (670).

55. IRIDACEAE

276.***Gladiolusatroviolaceus*** Boiss.
(*, pe, Cr-Ge), Wp9 (412), Wp13 (305).

56. ORCHIDACEAE

277.***Cephalantherakurdica*** Bornm. ex Kraenzl.
(pe,Cr-Ge), Wp9 (402).
278.***Limodorumabortivum*** (L.) Sw.

(*, pe, Cr-Ge), Wp7 (189, 190).
279.***Ophrysbornmuelleri*** M.Schulze.
(*, pe, Cr-Ge), Wp9, Wp13.
280.***O. mammosa*** Desf.
(*, pe, Cr-Ge), Wp7 (205), Wp9, Wp12 (354).
281.***O. schulzei*** Bornm. & Fleischm.
(pe, Cr-Ge)Wp17 (663).
282.***O. umbilicata*** Desf.
(*, pe, Cr-Ge), Wp7 (206), Wp9 (406), Wp15.
283.***Ophrys***sp**.**
(pe, Cr-Ge)Wp13 (329).
284.***Ophrys***sp.
(pe, Cr-Ge)Wp9 (405).
285.***Orchisanatolica*** Boiss.
(*, pe, Cr-Ge), Wp7 (192), Wp9 (401, 441), Wp13 (301).
286.***O. collina*** Banks & Sol. ex Russell.
(*, pe, Cr-Ge), Wp12 (339), Wp17 (664).
287.***O. simia*** Lam.
(*, pe, Cr-Ge), Wp9 (399).
57. IXIOLIRIACEAE
288.***Ixioliriontataricum*** (Pall.) Schult. & Schult.f.
(pe, Cr), Wp15 (593), Wp17 (665).