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FLORA OF ÜÇPINAR TOWN (MANİSA-TURKEY)

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Abstract This investigation was carried out on the flora of Üçpınar Town (Manisa) located in West Anatolia between 2005 and 2006. The research area is located in the Manisa province and on the B1 square in the grid system. In research area 407taxa, which are in 66 families and 277 genera were determined The distributions of these taxa by the phytogeographic regions are as follows: 29.4 % Mediterranean, 3.7 % Euro-Siberian and 1.7 % Irano-Turanian. Endemism rate is 1.7%. The families including the largest taxa are as follows: Fabaceae 13.5 % (55 taxa), Asteraceae 12.0 % (49 taxa), Poaceae 8.6 % (35 taxa), Apiaceae 5.1 % (21 taxa), Brassicaceae 4.6 % (19 taxa), Lamiaceae 4.6 % (19 taxa), Rosaceae 4.1 % (17 taxa), Caryophyllaceae 3.7 % (15 taxa), Boraginaceae 2.7 % (11 taxa), Scrophulariaceae 2.5 % (10 taxa) and Liliaceae 2.5 % (10 taxa).

Keywords: *Flora, Üçpınar, Manisa, Turkey*

ÜÇPINAR BELDESİ (MANİSA-TÜRKİYE)'NİN FLORASI

Özet Bu çalışma 2005-2006 yılları arasında Batı Anadolu'da Üçpınar Beldesi (Manisa)' nin bitki varlığını belirlemek amacıyla yapılmıştır. Araştırma alanı Manisa il sınırları içinde ve grid sistemine göre B1 karesinde yer almaktadır. Araştırma alanında 66 familya ve 277 cinse ait 407 takson belirlenmiştir. Bu taksonların fitocoğrafik bölgelere dağılımı şöyledir: Akdeniz % 29.4, Avrupa-Sibirya % 3.7 ve Iran-Turan % 1.7. Endemizm oranı % 1.7'dir. En çok takson içeren familyalar sırasıyla Fabaceae % 13.5 (55 takson), Asteraceae % 12.0 (49 takson), Poaceae % 8.6 (35 takson), Apiaceae % 5.1 (21 takson), Brassicaceae % 4.6 (19 takson), Lamiaceae % 4.6 (19 takson), Rosaceae % 4.1 (17 takson), Caryophyllaceae % 3.7 (15 takson), Boraginaceae % 2.7 (11 takson), Scrophulariaceae % 2.5 (10 takson) ve Liliaceae % 2.5 (10 takson)'dir.

Anahtar Kelimeler: *Flora, Üçpınar, Manisa, Türkiye*

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1. INTRODUCTION

Üçpınar is a town which is 25 km far away from Manisa. It is located between 38° 42' N latitude and 27° 16' E longitude. The research area is limited with Manisa at southeast, Muradiye and Gediz River at south, Çamlık village at northeast and Mollasüleymaniye village at northwest (Figure 1).

Figure 1. Map of research area (1/2500)
The study area is placed on B1 square according to the grid system adopted by Davis [1] and the Mediterranean phytogeographical region.

There are some neogen depots at the east of town. These depots, which mostly consist of marls, were, with most probability, made up of marinal existences [2].

There are yellow-white and silicified limestones from lacustrine sediment, clayey limestone, black colored oblivion basalt, sand, sandstone, pebble, basalt, andesite, basaltic shape, aglomera with blog, lava, tuff, and Akçaköy tuff around Üçpınar Town. In the southwest of Tekeliler formation river torrent deposits, at northeast in Karayenice yellow-white colored, limestones, at south Gediz River is second rivers deposits [3].

There are mainly three soil types in the study area, namely chestnut colored, colluvial and alluvial soils [4].

The meteorological characteristics of research area are examined by the information gathered from the near Meteorology Department of Manisa [5].

According to these data, which were obtained from the station, the hottest moths are June, July and August. The highest temperature degree is 36.2 ºC in July. The lowest average temperature degree is recorded in December, January, and February. The lowest average degree is surveyed in January with 10.8 ºC. The lowest degree of average low degree is in January, February and March with 3.1 ºC.

Average rain fall is 727.7 mm annually. The rainiest season is winter, and the rainiest month is December with 145.4 mm. The lowest rainy month is August with 4.3 mm. The average rainfall in August is 4.3 mm. 51.4% of total rain falls in winter and 3.3% of it is in summer. The second rainiest season is spring. 24.2% of total rainfall is observed in spring. According to these raining data, the station is under the effect of Mediterranean climate.

The average humidity rate is 62 % in a year. The most humid season is winter, autumn and spring follow it. The lowest proportional humidity is in summer time.

For Manisa, Emberger's [5] according to summer dry indicator "S" which is making both raining and heat measuring, S=PE/M value is small than 5. P is total raining rate per year, PE is total raining rate per year for summertime, M is the highest heat average of hottest month, m is the lowest heat average of the coldest month, S is summer dry indicator, Q is raining-heat indicator.

For Manisa these values follow:

P	PE	M	m	Q:2000P/(M+273)^2-(m+273)^2	S:PE/M
727.7	24.2	36.2	3.1	75.07	0.66

The fact that the poorest rainy season is summer, in which the rainfalls are under 200mm, it's been a certain summer drought, there is a maximum summer heat along with the summer drought, a drought indice (S) which is under 5 shows us that the climate has Mediterranean characterstics [6].

Paying attention to the raining-heat indicator (Q:75.07), total raining rate per year (P:727.7 mm) and the lowest heat average of the coldest month (m:3.1 °C) Manisa is "a little rainy moderate" type of Mediterranean climate [7]. According to Gaussen (1954) [8] is drawn in ombrothermic diagram (Figure 2) summer dry period between May and September.

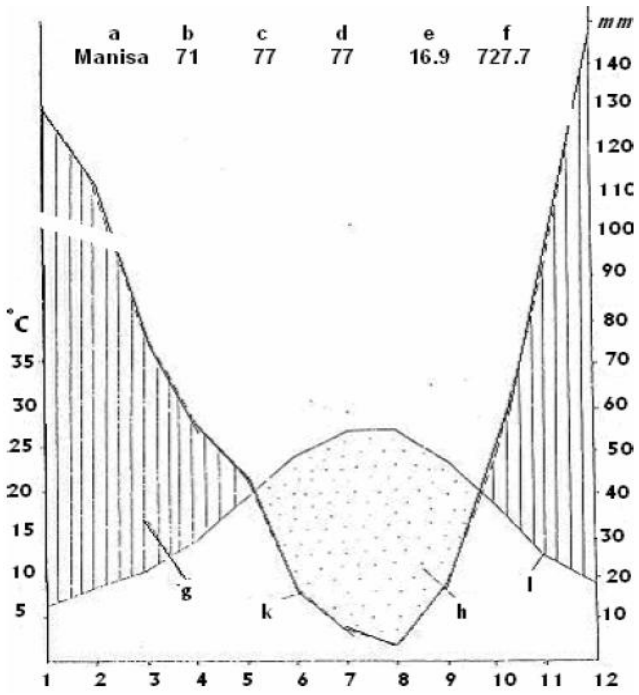
Phrygana is the most common vegetation type in the study area. Macchia and forest are other vegetation types.

The dominant species of phrygana formation is called *Sarcopoterium spinosum* (L.) Spach. In phrygana there are *Asphodelus aestivus* Brot., *Eryngium creticum* Lam., *E. campestre* L. var. *campestre*, *Verbascum lasianthum* Boiss ex Bentham. Phrygana can be seen in research area between 0-550 meters.

The macchia can be seen locally. The formation is represented by *Phillyrea latifolia* L., *Olea europaea* L. var. *sylvestris*, *Paliurus spina-christi* Mill., *Cercis siliquastrum* L.subsp. *siliquastrum*, *Cistus creticus* L., *Quercus infectoria* Olivier subsp. *infectoria, Pyrus amygdaliformis* Vill. var. *amygdaliformis.*

Pinus brutia Ten., *P. nigra* Arn. ssp. *pallasiana* (Lamb.) Holmboe, can be seen rarely in woody parts of town.

Rosa canina L., *Nerium oleander* L., *Saponaria officinalis* L. can be seen around the brooksides, *Campanula lyrata* Lam. subsp. *lyrata, Geranium rotundifolium* L., *G. dissectum L.*, *Daucus carota* L., *Echium italicum* L., *Rosa canina* L., *Rubus sanctus* Schreb., *Hypericum atomarium* Boiss. can be seen at roadsides. At the agricultural areas, *Zea mays* L., *Gossypium herbaceum* L. and *Vitis vinifera* L., *Olea europaea* L., *Triticum aestivum* L., *Nicotiana tabacum* L. can be seen often. Generally the species which are cultivated in small gardens are *Lycopersicum esculentum* Mill., *Cucumis sativus* L., *Cucurbita pepo* L., *Cucumis melo* L., *Capsicum annuum* L., *Citrullus lanatus* (Thunb.), *Solanum melongena* L. At the edges of agricultural areas these species can be found: *Hordeum murinum* L. subsp. *glaucum* (Steudel) Tzvelev, *Poa bulbosa* L., *Avena barbata* Pott ex Link subsp. *barbata*, *Papaver rhoeas* L., *Bromus intermedius* Guss., *B. madritensis* L., *Silene behen* L.



a: Station name
b: Station height
c: Temperature observation time (year)
d: Rain observation time (year)
e: Average temperature per year (°C)
f: Total rainfall per year
g: Rainy period
h: Dry period
I: Temperature curve
k: Rainfall curve

Figure 2. Ombrothermic diagram of Manisa

2. MATERIALS AND METHODS

The materials of study area are the plant samples which were collected between 2005 March and 2006 June. Samples were collected at vegetative session with flowers. At the research area, 28 collecting centers have been designated (Table 1), and the name of areas has been abbreviated in floristic list with their numbers. The specimens were prepared according to herbarium techniques. The "Flora of Turkey and East Aegean Islands" [1,9] was used for identifying the plant specimens. The floristic list was prepared according to the order in "Flora of Turkey". The numbers of the collection centers, collector's name and number, endemism, and phytogeographical region were written after its taxa names. The abbreviations of the taxa writers are formed as Brummit & Powel [10]. A list of the flora was given in Appendix A. All plant samples were preserved in Celal Bayar University Department of Biology. The abbreviations below are used:

E. Medit: East Mediterranean, Euro-Sib.: Euro-Siberian, Ir.-Tur.: Irano-Turanian, Medit.: Mediterranean, Omni-Medit.: Omni Mediterranean, End.: Endemic, C.: Collector (Cavlan).

Table 1. Collection centers

Number	The name of the collection centers
1	Üçpınar, entrance of town, roadsides, phrygana, 125 m, 05.03.2005
2	Üçpınar, centre of town, open areas, 150 m,12.03.2005
3	Üçpınar, centre of town, roadside, 125 m, 18.03.2005
4	Üçpınar, entrance of town, sides of cultural areas, 130 m, 18.03.2005
5	Üçpınar, east of town, around Bağlararası region, 200 m,18.03.2005
6	Üçpınar, sides of road which from entrance of town to east, 150 m, 20.03.2005
7	Üçpınar, west of town, around of graveyard, road sides, 200 m, 05.04.2005
8	Üçpınar, north slopes of town, 250 m, 09.04.2005
9	Üçpınar, south slopes of town, 250 m, 16.04.2005
10	Üçpınar, around Taşlıdere region, 105 m, 18.04.2005
11	Üçpınar, south of town, road sides, 250 m, 18.04.2005
12	Üçpınar, upper area of Taşlıdere region, 110 m, 20.04.2005
13	Üçpınar, centre of town, Değirmenci street, 100 m, 30.04.2005
14	Üçpınar, south hill of town, 250 m, 30.04.2005
15	Üçpınar, north hill of town, woody areas, 250 m, 30.04.2005
16	Üçpınar, cultural area sides in west of town, 100 m, 15.05.2005
17	Üçpınar, road sides of between Bağlararası and Taşlıdere, 150 m, 17.05.2005
18	Üçpınar, road sides of entrance town, 150 m, 17.05.2005
19	Üçpınar, entrance of town, back side of Tarım Kredi Kooperatifi, open areas, 100 m, 01.06.2005
20	Üçpınar, south hills of town, 250 m, 15.06.2005
21	Üçpınar, north hills of town, 250 m, 15.06.2005
22	Üçpınar, around Taşlıdere region, 100 m, 19.06.2005
23	Üçpınar, road sides which from south of town to north, 250 m, 19.06.2006
24	Üçpınar, Bağlararası region, woody area, 150 m, 21.06.2006
25	Üçpınar, Bağlarası region, slopes, 150 m, 09.06.2005
26	Üçpınar, west of town, upper of graveyard, 100 m, 09.06.2005
27	Üçpınar, road side of which from west of town to centre of town, 100 m, 20.10.2005
28	Üçpınar, north hills of town, 250 m, 20.6.2005

3. RESULT AND DISCUSSION

Having recorded 880 plant species in the course of the study, it was detected that 407 taxa belonging to 277 genera within 66 families. 2 species are Pteridophyta, and the other 405 are Spermatotphyta. 5 taxa belong to Gymnospermae and 400 taxa belong to Angiospermae. From the subdivision of Angiosperm, 342 taxa belong to Magnoliopsida (Dicotyledoneae) and 58 taxa belong to Liliopsida (Monocotyledoneae) classes. The dispersion of the plant taxa was defined in the study area according to the large taxonomical groups shown in Table 2.

Table 2. The number of species according to the large taxonomical groups

Systematic category	Numbers of taxa
1. Pteridophyta	2
2. Spermatophyta	405
2.a. Gymnospermae	5
2.b. Angiospermae	400
2.b.1. Dicotyledoneae	342
2.b.2.Monocotyledoneae	58

When we look at the disturbance of the taxa from the area with respect to phytogeographic regions, it is recognized that Mediterranean elements are high.

This consequence supports the notion of that study area is located within Mediterranean phytogeographical region. The distribution of taxa by the phytogeographic regions is as follows; 29.4 % (120 species) is Mediterranean element, 3.7 % (15 species) is Euro-Siberian element, 1.7 % (7 species) Irano-Turanian element (Table 3). The others are multiregional or phytogeographically unknown (65.1 %).

Table 3. Distribution of species in research area within phytogeographic regions

Phytogeographic region	Number of species	Rates %
Mediterranean elements	120	% 29.4
Euro-Siberian elements	15	% 3.7
Irano-Turanian elements	7	% 1.7
Multiregional or phytogeographically unknown	265	% 65.1

The largest families in terms of their species numbers are *Fabaceae* (55 species), *Asteraceae* (49 species), *Poaceae* (35 species), *Apiaceae* (21 species), *Brassicaceae* (19 species) (Table 4).

A comparison of families in terms of the largest number of species found in this study and to previous studies carried out in nearby regions given in Table 4.

Table 4. Comparison of the largest families in the research area and nearby region

Familya	Üçpınar Town	Dumanlı Mountain [11]	Avdal Village [12]	Maldan Village [13]	Gürle Village [14]	C.B.Ü Campus [15]	Yunt Mountain [16]	Spil Mountain [17]	Yamanlar Mountain [18]
Fabaceae	55	46	68	57	34	37	57	72	104
Asteraceae	49	40	52	51	44	34	55	79	88
Poaceae	35	34	35	41	27	24	41	32	64
Apiaceae	21	17	21	26	10	15	19	31	27
Brassicaceae	19	16	25	31	18	14	20	41	31
Lamiaceae	19	17	25	18	17	18	15	43	28
Rosaceae	17	17	13	15	14	11	12	24	21
Caryophyllaceae	15	9	18	21	7	9	19	33	36
Boraginaceae	11	10	12	15	9	13	9	18	15
Scrophulariaceae	10	10	10	12	7	11	14	14	23
Total Taxa	**407**	**337**	**448**	**468**	**324**	**315**	**423**	**593**	**725**

The richest genera in terms of the number of species are *Trifolium* (18), *Bromus* (8), *Vicia* (7), *Ranunculus* (6), *Geranium* (5), *Medicago* (5) *Silene* (5) *Valeriana* (5).

7 of 407 taxa are endemic for area. Endemism rate is 1.7%. The endemism rate in the study area is low in accordance with estimated average Turkey endemism rate (31%) [19, 20]. In fact its topographic, ecological and climatic features are homogenous in research area. A comparison of the endemism ratio of this and carried out nearby region studies are given in Table 5.

Flora studies show the plant list of a region. This list also beneficial to those who need the natural plants. In recent years, the need for natural plants increases more and more. In order to take advantage of them properly one must know them effectively.

We are of the opinion that this study will be relevant, besides of the morphological, anatomical, cytological, palynological and the other studies that will take place in the future, to the usage of plants for economical and medical purposes.

Table 5. Altitude**,** endemic species number and the rate of endemism in study area and neighboring areas

Research area	Altitude (m)	The number of endemic taxa	The rate of endemics to total flora (%)
Üçpınar Town	250	7	1.7
Dumanlı Mountain [11]	1092	4	1.2
Avdal Village [12]	384	10	2.2
Maldan Village [13]	617	15	3.2
Gürle Village [14]	289	7	3.1
C.B.Ü. Campus [15]	300	10	3.0
Yunt Mountain [16]	1075	16	3.8
Spil Mountain [17]	1917	76	13
Yamanlar Mountain [18]	1114	25	4.9

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Appendix A

The Plant List

PTERIDOPHYTA

EQUISETACEAE

Equisetum ramosissimum Desf., 22, C. 677.

ASPLENIACEAE

Ceterach officinarum DC., 1, C. 3.

SPERMATOPHYTA

GYMNOSPERMAE

PINACEAE

Pinus nigra Arn. subsp. *pallasina* (Lamb.) Holmboe, 18, C. 562, E. Medit.

P. brutia Ten., 9, 18, C. 167, 533, E. Medit.

CUPRESSACEAE

Cupressus sempervirens L., 17, 28, C. 481, 822. E. Medit.

Juniperus oxycedrus L. subsp. *oxycedrus*, 8, 10, C. 136,265.

J. phoenica L., 20, C. 632.

ANGIOSPERMAE

DICOTYLEDONES

RANUNCULACEAE

Anemone coronaria L., 2, 5, C. 8,76, Medit.

Ranunculus paludosus Poir., 2, 5, 7, 10, 12, C. 9, 75, 122, 264, 331.

R. ficaria L. subsp. *ficariiformis* Rouy & Fouc., 11, C. 271, 276, 279, 286.

R. muricatus L., 9, C. 162.

R. arvensis L., 9, 13, 16, 18, C. 203, 236, 354, 446, 518.

R. sprunerianus Boiss., 9, 14, C. 185, 384, E. Medit.

R. chius DC., 2, 8, 9, C. 7, 155, 144, 161, E. Medit.

BERBERIDACEAE

Berberis thunbergii DC., 25, C. 756.

PAPAVERACEAE

Glaucium flavum Crantz, 26, C. 773.

Papaver rhoeas L., 9, 13, 14, 16, C. 169, 193, 375, 392, 450.

Hypecoum imberbe Sibth & Sm., 11, 18, C. 285, 512.

Fumaria parviflora Lam., 9, 15, C. 160, 205, 404.

BRASSICACEAE (CRUCIFERAE)

Sinapis alba L., 9, 12, 13, 24, C. 165, 310, 368, 719, 732.

S. arvensis L., 6, 8, 9, 12, 13, 14, 21, C. 108, 127,141, 164, 309, 349, 382, 652.

Cardaria draba (L.) Desv. subsp. *draba*, 9, 25, C. 176, 758.

Capsella bursa-pastoris (L.) Medik., 18, 24, C. 516, 733.

Biscutella didyma L., 18, 20, C. 556, 627.

Cardamine hirsuta L., 24, C. 717.

Erophila verna (L.) Chevall. subsp. *praecox* (Steven) Walters, 3, 17, C. 38, 488.

Thlaspi perfoliatum L., 11, 22, C. 277, 678.

Arabis verna (L.) DC., 2, 5, 9, C. 23, 97, 217, Medit.

Eruca sativa Mill., 8, 13, C. 151, 360.

Alyssum smyrnaeum C.A.Mey., 13, 16, C. 364, 456, E. Medit.

Raphanus raphanistrum L., 9, 13, C. 168, 368.

Rapistrum rugosum (L.) All., 16, 19, C. 442, 607.

Erysimum smyrnaeum Boiss. & Balansa, 2, 10, 16, 18, C. 24, 262, 466, 514, 540.

Sisymbrium officinale (L.) Scop., 4, 10, 20, C. 60, 259, 636.

S. orientale L., 10, C. 246, 256.

Lepidium spinosum Ard., 3, 10, C. 37, 260.

Camelina rumelica Velen., 8, 18, C. 129, 555.

Alliaria petiolata (M.Bieb.) Cavara & Grande, 13, C. 373.

CAPPARACEAE

Capparis ovata Desf. var. *herbaceae* (Willd.) Zohary, 28, C. 841, 857, 860.

RESEDACEAE

Reseda lutea L. var. *lutea*, 6, 9, 12, C. 107, 209, 215, 308.

CISTACEACE

Cistus creticus L., 8, 18, C. 147, 534, Omni-Medit.

C. salviifolius L., 5, 12, C. 83,301.

Fumana thymifolia (L.) Verlot var. *thymifolia*, 18, C. 563, 588.

Tuberaria guttata (L.) Four. var. *guttata*, 4, 18, C. 54,510.

POLYGONACEAE

Polygonum aviculare L., 19, 28, C. 596, 824, 845, 848, 864.

Rumex tuberosus L. subsp. *tuberosus*, 2, 5, 9, C. 14, 80, 163.

R. tuberosus L. subsp. *creticus* (Boiss.) Rech., 4, 5, 9, 13, C. 53, 81, 232, 367.

R. conglomeratus Murray, 15, 19, 20, C. 438, 603, 650.

R. patentia L., 16, C. 452, Medit.

R. bucephalophorus L., 6, 17, C. 104, 502, Medit.

CHENOPODIACEAE

Chenopodium urbicum L., 18, 21, 23, 28, C. 554, 660,707, 846.

Spinacia oleracea L., 27, C. 802.

AMARANTHACEAE

Amaranthus retroflexus L., 23, 28, C. 697, 817, 867.

A. albus L., 25, 26, 27, 28, C. 734, 787, 801, 820, 839, 847.

GUTTIFERAE

Hypericum hyssopifolium Chaix subsp. *elongatum* (Ledep.) Woronow, 18, 20, 23, 24, C. 546, 629, 706, 721.

H. triquetrifolium Turra, 16, 19, 27, 28, C. 461, 600, 604, 809, 852, 869.

H. perforatum L., 16, 18, C. 447, 549.

MALVACEAE

Malva sylvestris L., 9, 15, 24, 25, C. 227, 433, 735, 759.

M. nicaeensis All., 15, 19, 24, C. 428, 609, 739.

Alcea pallida Waldst. & Kit., 18, 20, 25, C. 529, 623, 640, 748.

Gossypium hirsutum L., 28, C. 859, 865.

LINACEAE

Linum nodiflorum L., 9, 23, C. 159, 692, Medit.

L. bienne Mill., 17, C. 505, Medit.

L. strictum L. var. *spicatum* Pers., 18, 19, 20, C. 539, 618, 651.

GERANIACEAE

Geranium dissectum L., 6, 7, 8, 10, 12, 13, C. 103, 119, 153, 251, 303, 370.

G. lucidum L., 2, C. 10, 11.

G. purpureum Vill., 5, 7, 8, 9, C. 78, 121, 156, 235.

G. rotundifolium L., 2, 5, 9, 11, 15, C. 12, 79, 204, 284, 403.

G. tuberosum L. subsp. *tuberosum*, 9, 13, C. 179, 380.

Erodium botrys (Cav.) Bertol., 8, C. 138.

E. ciconium (L.) L' Hér., 9, 13, C. 180, 381.

E. cicutarium (L.) L' Hér., subsp. *cicutarium*, 9, 11, 13, C. 171, 280, 346.

PORTULACEAE

Portulaca oleraceae L., 20, C. 628.

CARYOPHYLLACEAE

Petrorhagia velutina (Guss.) P.W.Ball & Heywood, 5, 12, C. 86, 305, 328.

Stellaria media (L.) Vill. subsp. *media*, 9, 15, C. 166, 407.

Silene italica (L.), Pers., 5, 24, C. 87, 720.

S. behen L., 9, 13, C. 245, 365.

S. cretica L., 13, C. 344, Medit.

S.conica L., 3, C. 143.

S. dichotoma Ehrh. subsp. *dichotoma*, 9, 12, 13, 15, C. 225, 237, 316, 350, 431.

Arenaria serpyllifolia L., 9, 15, C. 229, 436.

Dianthus pubescens Sbith. & Sm., 17, 24, C. 506, 713, E. Medit.

Cerastium glomeratum Thuill, 8, 10, 11, C. 149, 249, 290.

C. illyricum Ard. subsp. *comatum* (Desv.) P.D. Sell & Whitehead, 11, C. 268, 283.

Minuartia hybrida (Vill.) Schischk. subsp. *hybrida*, 4, 18, 19, C. 58, 584, 608.

Velezia rigida L., 18, 20, C. 541, 625, Medit.

Saponaria officinalis L., C. 595, 753.

Agrostemma githago L., 8, 16, C. 145, 469.

ZYGOPHYLLACEAE

Tribulus terrestris L., 23, 28, C. 695, 836.

VITACEAE

Vitis vinifera L., 24, 28, C. 737, 827.

RHAMNACEAE

Paliurus spina-christi Mill., 9, 13, 15, 17, 20, 24, C. 231, 348, 437, 500, 639, 709.

ANACARDIACEAE

Rhus coriaria L., 8, 12, 28, C. 133, 340, 833.

Pistacia lentiscus L., 10, 17, C. 257, 266, 483, Medit.

P. vera L., 10, 16, C. 258, 459.

P. terebinthus L. subsp. *palaestina* (Boiss.) Engler, 16, 19, 26, 28, C. 458, 599, 786, 825, 870, E. Medit.

FABACEAE (LEGUMINOSAE)

Cercis siliquastrum L.subsp. *siliquastrum*, 6, 9, 12, 22, C. 105, 240, 306, 663.

Anagyris foetida L., 9, 10, 22, C. 244, 255, 665, Medit.

Genista anatolica Boiss., 18, C. 511, E. Medit.

Spartium junceum L., 17, C. 454, Medit.

Astragalus hamosus L., 9, 15, C. 183, 416.

Vicia villosa Roth. subsp. *eriocarpa* (Hausskn) P.W.Ball, 5, 13, C. 68, 352.

V. peregrina L., 11, C. 291.

V. lutea L. var. *hirta (*Balbis) Lois., 7, C. 109.

V. hybrida L., 7, 9, 12, 15, C. 125, 223, 333, 413.

V. sativa L., subsp. *nigra* (L.) Ehrh var. *segetalis* (Thuill) Ser. ex DC., 12, C. 297.

V. faba L., 9, 13, C. 233, 358.

V. ervilia Willd., 9, C. 196.

Ononis natrix L.subsp. *natrix*, 18, 19, C. 538, 610, Medit.

O. viscosa L. subsp. *breviflora* (DC) Nyman, 12, C. 324, Medit.

O. spinosa L. subsp. *antiquorum* (L.) Briq., 24, C. 722, Medit.

Lathyrus annuus L., 9, C. 159, Medit.

L. digitatus (M.Bieb.) B.Fedtsch., 5, C. 69, E. Medit.

L. cicera L., 1, 9, C. 2, 158.

L. aphaca L. var. *affinis* (Gus.) Arc., 6, 9, C. 102, 178.

Pisum sativum L. subsp. *elatius* (Bieb.) Aschers. & Graebn. var. *elatius*, 9, C. 214, Medit.

Trifolium nigrescens Viv. subsp. *petrisavii* (Clem.) Holmboe, 14, C. 383.

T. campestre Schreb., 1, 4, 9, C. 4, 51, 200.

T. glomeratum L., 7, 9, C. 116, 223.

T. spumosum L., 7, 9, 12, C. 110, 170, 212, 314, Medit.

T. fragiferum L. var. *fragiferum*, 23, C. 694.

T. tomentosum L., 9, 13, C. 201, 345.

T. stellatum L. var. *stellatum*, 3, 9, C. 27, 175.

T. strictum L., 5, C. 63,100, Euro-Sib.

T. scabrum L., 15, C. 421, 432.

T. lappaceum L., 15, 16, C. 422, 449, Medit.

T. cherleri L., 18, C. 587.

T. arvense L. var. *arvense*, 5, C. 74.

T. angustifolium L. var. *angustifolium*, 4, 5, 6, 7, 12, 17, C. 50, 93, 113, 124, 295, 332, 480.

T. purpureum Loisel. var. *purpureum*, 15, 16, C. 423, 463.

T. echinatum M.Bieb., 12, C. 312, E. Medit.

T. pilulare Boiss., 3, 17, C. 28, 471.

T. globosum L., 8, 9, 12, C. 132, 195, 313.

T. subterraneum L., 2, C. 5, 6.

Melilotus indica All., 11, C. 270.

Trigonella spicata Sibth. & Sm., 5, 9, 13, 15, C. 73, 218, 355, 412, E. Medit.

Medicago orbicularis (L.) Bartal., 2, 9, 15, C. 11, 192, 418, Medit.

M. lupulina L., 5, 9, 12, C. 94, 230, 294.

M. varia Martyn, 15, C. 419.

M. minima (L.) Bartal. var. *minima*, 9, 14, C. 191, 222, 239, 394.

M. rigidula (L.) All. var. *rigidula*, 9, C. 220.

Dorycnium hirsutum Ser., 7, 16, 19, 20, C. 112, 460, 601, 646, Medit.

Lotus angustissimus L., C. 361, 378.

Hymenocarpus circinatus (L.) Savi, 9, 12, 15, C. 207, 226, 321, 408, 426, Medit.

Securigera securidaca (L.) Degen & Dörf., 26, C. 790.

Coronilla cretica L., 4, 8, 9, 15, C. 48, 152, 210, 211, 417, E. Medit.

C. scorpioides W.D.J.Koch., 12, 18, C. 294, 586.

Hippocrepis unisiliquosa L., 9, C. 221.

Scorpiurus muricatus L. var. *subvillosus* (L.) Fiori, 7, 12, C. 120, 327, Medit.

Onobrychis caput-galli Lam., 15, 16, C. 420, 467, Medit.

O. aequidentata d'Urv., 8, 9, 10, 12, 13, C. 146, 206, 213, 219, 247, 326, 353, Medit.

ROSACEAE

Prunus domestica L., 27, C. 803.

P. divaricata Ledeb. subsp. *divaricata*, 13, C. 363.

Cerasus vulgaris Mill., 18, C. 548.

C. avium Moench, 10, 19, C. 253, 605.

Armeniaca vulgaris Lam., 27, 28, C. 800, 811, 858.

Persica vulgaris Mill., 19, C. 614.

Amygdalus communis L., 26, C. 775.

Rubus sanctus Schreb., 12, 18, C. 339, 526.

Potentilla recta L., 19, C. 606.

Fragaria vesca L., 26, C. 776.

Sarcopoterium spinosum Spach, 3, C. 30, E. Medit.

Sanguisorba minor Scop. subsp. *magnolii* (Spach) Briq., 5, 15, C. 77, 424.

Rosa canina L., 4, C. 52.

Cydonia oblonga Mill., 9, 13, 14, C. 242, 359, 402.

Malus sylvestris Mill., 26, C. 774.

Pyrus amygdaliformis Vill. var. *amygdaliformis*, 3, 18, 23, C. 29, 550, 698.

P. communis L. subsp. *communis*, 26, C. 778.

MYRATACEAE

Myrtus communis L. subsp. *communis*, 25, C. 751.

PUNICACEAE

Punica granatum L., 26, C. 777.

CUCURBITACEAE

Citrullus lanatus (Thunb.) Matsum. & Nakai., 22, 28, C. 686, 838, 873.

Ecbalium elaterium L. A. Rich., 26, C. 779.

Cucurbita pepo L., 23, C. 702.

C. maxima Dach., 27, 28, C. 799, 879.

Cucumis melo L., 18, C. 523.

C. sativus L., 23, 28, C. 701, 880.

CRASSULACEAE

Umbilicus erectus DC., 12, C. 337.

Sedum caespitosum (Cav.) DC., 3, C. 31, Medit.

APIACEAE (UMBELLIFERAE)

Eryngium creticum Lam., 5, 18, 25, C. 96, 519, 743, E. Medit.

E. campestre L. var. *campestre*, 24, 25, C. 730, 754.

Lagoecia cuminoides L., 11, 17, C. 274, 289, 473, Medit.

Echinophora tenuifolia L. subsp. *sibthorpiana* (Guss.) Tutin, 22, 25, 28, C. 676, 757, 851, Ir.-Tur.

Scandix pecten-veneris L., 9, 13, C. 198, 366.

S. australis L. subsp. *australis*, 21, C. 654.

Pimpinella tragium Vill. subsp. *polyclada* (Boiss et Heldr.) Tutin, 18, 20, C. 547, 589, 633, Ir.-Tur.

Conium maculatum L., 20, C. 631.

Anethum graveolens L., 25, C. 747.

Apium graveolens L., 18, C. 591.

Amni majus L., 22, 23, C. 668, 700, Medit.

Falcaria vulgaris Bernh., 7, 22, C. 126, 667.

Ferula communis L. subsp. *communis*, 17, C. 474, Medit.

Bupleurum intermedium Poiret, 20, C. 647.

Tordylium apulum L., 11, 14, 17, C. 292, 389, 494, Medit.

Torilis nodosa L., 18, C. 564.

T. arvensis (Huds.) Link subsp. *purpurea* (Ten.) Hayek., 15, 19, 24, 27, C. 440, 611, 616, 716, 798, Medit.

T. leptophylla Rchb.f., 12, 19, C. 317, 597.

Orlaya daucoides (L.) Greuter, 9, 14, C. 194, 397, 400, Medit.

Daucus carota L., 20, 22, 28, C. 630, 688, 840.

Artedia squamata L., 18, C. 544, 590.

ARALIACEAE

Hedera helix L., 24, 25, C. 712, 752.

VALERIANACEAE

Valeriana dioscoridis Sibth. & Sm., 4, 9, C. 55, 216, E. Medit.

V. echinata L., 5, C. 85, Medit.

V. orientalis (Schlecht.) Boiss. & Bal., 9, 13, C. 187, 343, E. Medit.

V. coronata (L.) D.C., 15, C. 425.

V. muricata (Stev.) Baxt., 8, 13, C. 144, 351.

DIPSACACEAE

Cephalaria transylvanica (L.) Schrader., 27, C. 804.

Knautia integrifolia (L.) Bert. var. *bidens* (Sm) Borbas., 18, 19, 21, 24, C. 537, 615, 655, 725, E. Medit.

Scabiosa argentea L., 18, 24, C. 522, 724.

Tremastelma palaestinum (L.) Janchen., 4, 12, C. 49, 293, E. Medit.

ASTERACEAE (COMPOSITAE)

Helianthus tuberosus L., 22, C. 681.

Xanthium spinosum L., 19, C. 621.

X. strumarium L. subsp. *strumarium.*, 24, C. 728.

Pallenis spinosa (L.) Cass., 16, C. 464, Medit.

Inula graveolens (L.) Desf., 26, 28, C. 781, 819, 828, Medit.

Pulicaria dysenterica (L.) Bernh., 26, C. 765.

Filago vulgaris Lam., 7, C. 118.

F. eriocephala Guss., 19, C. 619, E. Medit.

Conyza canadensis (L.) Cronquist, 28, C. 851.

Bellis perennis L., 2, 10, C. 20, 261, Euro-Sib.

B. sylvestris Cyr., 2, C. 21, Medit.

Senecio vulgaris L., 26, C. 767.

Calendula arvensis L., 11, 13, C. 288, 377.

Anthemis auriculata Boiss., 16, 18, C. 453, 593, E. Medit.

A. cotula L., 5, C. 91.

A. pseudocotula Boiss., 3, C. 36.

A. tinctoria L. var. *tinctoria*, 17, 18, 22, C. 493, 592, 669.

Onopordum illyricum L., 25, C. 745, Medit.

Silybum marianum (L.) Gaertner, 19, 25, C. 620, 761, Medit.

Cirsium lappaceum (Bieb.) Fischer subsp. *anatolicum* Petrak, 25, C. 746, Ir.-Tur.

C. vulgare (Savi) Ten., 24, C. 716.

Picnomon acarna (L.) Cass., 17, 20, 24, C. 498, 649, 729, Medit.

Notobasis syrica (L.) Cass., 17, C. 487, Medit.

Carduus pycnocephalus L. subsp. *albidus* (Bieb.) Kazmi, 9, 13, 14, C. 173, 347, 395.

Jurinea mollis Rchb., 24, C. 731, E. Medit.

Centaurea polyclada DC., 24, 26, 27, C. 711, 764, 792, End., E. Medit.

C. solstitialis L. subsp. *solstitialis*, 16, C. 443.

C. thirkei Schultz, 18, C. 525, 594.

C. cyanus L., 17, C. 497.

Crupina crupinastrum (Moris.) Vis., 11, C. 272.

Carthamus lanatus L., 18, 26, 27, C. 513, 780, 793.

Scolymus hispanicus L., 23, C. 675, Medit.

Cichorium intybus L., 25, 26, 27, C. 741, 766, 796.

C. pumilum Jacq., 25, 27, 28, C. 760, 795, 862, E. Medit.

Scorzonera laciniata L. subsp. *laciniata*, 5, C. 92.

Tragopogon longirostris Bisch. ex Sch. var. *longirostris*, 9, C. 208.

Hypochoeris glabra L., 22, C. 682.

Sonchus asper (L.) Hill subsp. *glaucescens* (Jordan) Ball., 18, 21, C. 542, 653.

Leontodon tuberosus L., 7, 20, C. 117, 642, Medit.

Picris altissima Delile., 15, C. 411, Medit.

Rhagadiolus stellatus (L.) Gaertner var. *edulis* (Gaertner) DC., 5, C. 95, Medit.

Aetheorhiza bulbosa (L.) Cass., subsp. *microcephala* Rech., 2, C. 22, E. Medit.

Hedypnois cretica (L.) Dum-Cours., 25, 27, C. 742, 794, Medit.

Lactuca serriola L., 22, C. 671, Euro-Sib.

L. sativa L., 24, C. 718.

Taraxacum hybernum Stev., 20, C. 643.

Chondrilla juncea L. var. *juncea*, 27, 28, C. 791, 844, 875.

Crepis foetida L. subsp. *commutata* (Spreng.) Babcock, 26, 27, C. 768, 797.

C. sancta (L.) Babcock, 9, 10, 17, 28, C. 189, 254, 492, 830.

CAMPANULACEAE

Campanula lyrata Lam. subsp. *lyrata*,12, 16, C. 329, 445, End., E. Medit.

Legousia pentagonia Thell., 3, 4, 14, 15, , C. 39, 61, 391, 406, E. Medit.

L. speculum-veneris (L.) Chaix, 5, 17, C. 71, 503, E. Medit.

ERICACEAE

Arbutus andrachne L., 8, 10, 12, 13, 22, 28, C. 154, 267, 334, 362, 664, 832.

PRIMULACECAE

Lysimachia atropurpurea L., 17, C. 475, E. Medit.

Cyclamen hederifolium Aiton, 26, C. 782, Medit.

Anagallis arvensis L. var. *arvensis*, 3, 8, 9, 15, 21, C. 44, 139, 197, 405, 659.

OLEACEAE

Jasminum fruticans L., 4, 9, 11, 14, 28, C. 56, 199, 269, 398, 834, 861, Medit.

Olea europaea L. var. *sylvestris* (Miller) Lehr., 14, 17, C. 399, 496, Medit.

Phillyrea latifolia L., 9, 18, 28, , C. 188, 517, 565, 818, 874, Medit.

APOCYNACEAE

Nerium oleander L., 25, C. 750, Medit.

GENTIANACEAE

Centaurium erythraea Rafn. subsp. *erythraea*, 17, C. 491, Euro-Sib.

CONVOLVULACEAE

Convolvulus cantabrica L., 12, 16, C. 299, 470.

C. arvensis L., 18, 22, C. 551, 687.

C. betonicifolius Miller subsp. *betonicifolius*, 20, C. 645.

Calystegia sepium (L.) R.Br. subsp. *sepium*, 18, C. 530, 552.

CUSCUTACEAE

Cuscuta campestris Yuncker, 26, C. 762.

BORAGINACEAE

Heliotropium europaeum L., 18, 19, 28, C. 576, 617, 837, Medit.

Myosotis incrassata Guss., 9, C. 202, E. Medit.

M. ramosissima Rochel subsp. *ramosissima*, 4, 5, 14, C. 57, 99, 401.

Cynoglossum creticum Mill., 9, 10, 13, 16, 18, C. 177, 250, 379, 451, 543.

Buglossoides arvensis (L.) Johnston, 2, 12, 13, 18, C. 15, 298, 376, 532, 573.

Echium italicum L., 16, C. 457, Medit.

E. plantagineum L., 12, 18, C. 307, 515.

Onosma arenarium Waldst. & Kitt., 18, C. 574.

Anchusa azurea Mill. var. *arzurea*, 131, C. 131.

A. arvensis (L.) Bieb. subsp. *orientalis* (L.) Nordh., 27, C. 805, 808.

Alkanna areolata Boiss. var. *areolata*, 8, 9, C. 140, 172, 186, End., E. Medit.

SOLANACEAE

Solanum nigrum L. subsp. *nigrum* 28, C. 843.

S. melongena L., 26, C. 783.

Capsicum annuum L., 26, C. 789.

Lycopersicum esculentum Mill., 28, C. 831.

Datura stramonium L., 28, C. 812,829.

Nicotiana tabacum L., 18, 28, C. 553, 835.

SCROPHULARIACEAE

Verbascum sinuatum L. var. *sinuatum*, 18, 24, C. 535, 545, 723, Medit.

V. glomeratum Boiss., 24, C. 715, Ir.-Tur.

V. lasianthum Boiss ex Benth., 3, 26, C. 34, 788.

Linaria pelisseriana (L.) Mill., 3, C. 35, Medit.

Kickxia spuria (L.) Dumort. subsp. *integrifolia* (Brot.) R. Fernandes, 19, C. 622.

Veronica arvensis L., 8, C. 137, Euro-Sib.

V. cymbalaria Bodard, 2, 15, C. 16, 415, Medit.

V. hederifolia L., 10, 11, C. 248, 287.

Parentucellia latifolia (L.) Caruel subsp. *latifolia*, 2, 9, C. 18, 157, 184, Medit.

Bellardia trixago (L.) All., 6, 8, C. 115, 130.

OROBANCHACEAE

Orobanche mutelii Schult., 17, C. 479.

O. cernua Loefl., 12, 15, C. 311, 427.

VERBANACEAE

Verbana officinalis L., 28, C. 833.

Vitex agnus-castus L., 28, C. 831, Medit.

LAMIACEAE (LABIATAE)

Ajuga chamaepitys (L.) Schreb. subsp. *chia* (Schreb.) Arcangeli, 13, 16, 20, C. 357, 465, 626.

Teucrium polium L., 13, 18, 21, 24, C. 356, 524, 661, 708.

Phlomis pungens Willd. var. *hirta* Velen., 24, C. 710, 736, 740.

Lamium amplexicaule L., 17, C. 476, Euro-Sib.

Ballota acetabulosa (L.) Benth., 17, 25, C. 507, 744, E. Medit.

B. nigra L. subsp. *anatolica* P.H.Davis, 12, C. 336, End., Ir.-Tur.

Marrubium vulgare L., 19, 20, 25, 28, C. 613, 625, 749, 813.

Stachys cretica L. subsp. *smyrnaea* Rech., 5, 8, 16, 20, 21, C. 88, 150, 468, 641, 656, End., E. Medit.

Melissa officinalis L. subsp. *altissima* (Sm.) Arcangeli., 22, C. 691, E. Medit.

Prunella laciniata L., 17, C. 472.

Origanum onites L., 21, C. 657, E. Medit.

Clinopodium vulgare L. subsp. *vulgare*, 23, 25, C. 693, 705, 755.

Thymus zygioides Griseb. var. *lycaonicus* (Celak.) Ronniger, 17, C. 495, End., E. Medit.

Mentha pulegium L., 18, 22, 28, C. 565, 685, 821, 826, 855.

Lycopus europaeus L., 18, 19, 20, 21, C. 566, 612, 631, 662, Euro-Sib.

Ziziphora capitata L., 8, 12, C. 128, 335, Ir.-Tur.

Salvia tomentosa Mill., 16, 17, 18, C. 444, 501, 572, Medit.

S. viridis L., 9, 12, 20, C. 238, 330, 624, Medit.

S. verbeneca L., 6, 7, 9, 12, C. 106, 114, 174, 315, Medit.

PLANTAGINACEAE

Plantago lanceolata L., 9, 17, 28, C. 182, 485, 855.

P. lagopus L., 22, 28, C. 670, 856, Medit.

SANTALACEAE

Thesium bergeri Zucc., 12, 18, C. 304, 536, E. Medit.

EUPHORBIACEAE

Chrozophora tinctoria (L.) Rafin., 15, 18, 28, C. 430, 575, 842, 845.

Euphorbia helioscopia L., 9, 15, C. 224, 228, 234, 243, 429, 434.

E. taurinensis All., 15, C. 435.

URTIACEAE

Urtica urens L., 18, C. 567.

MORACEAE

Morus alba L., 26, C. 769.

M. nigra L., 26, C. 763.

Ficus carica L. subsp. *carica*, 8, C. 134.

JUGLANDACEAE

Junglans regia L., 14, 20, 22, C. 385, 644, 680.

PLATANACEAE

Platanus orientalis L., 26, C. 784.

FAGACEAE

Quercus infectoria Olivier subsp. *infectoria*, 2, 8, 12, 14, 28, C. 26, 135, 342, 387, 848, 872, 876, Euro-Sib.

Q. pubescens Willd., 26, C. 770.

Q. cerris L. var. *cerris*, 17, 28, C. 482, 823, Medit.

Q. ithaburensis Decne. subsp. *macrolepis* (Kotschy) Hedge et Yalt., 18, C. 568.

SALIACEAE

Salix alba L., 18, C. 528, Euro-Sib.

Populus alba L., 24, C. 714, Euro-Sib.

P. tremula L., 26, C. 771, Euro-Sib.

P. nigra L., 16, C. 441.

RUBIACEAE

Sherardia arvensis L., 2, 5, C. 14, 84, Medit.

Asperula arvensis L., 16, C. 448, 455, Medit.

Galium heldreichii Hal., 2, 3, 17, 18, C. 13, 28, 504, 569, E. Medit.

G. aparine L., 8, 14, C. 148, 386, 390, 396.

G. brevifolium Sm. subsp. *brevifolium*, 3, 10, C. 32, 263, End., E.Medit.

MONOCOTYLEDONES

ARACEAE

Dracunculus vulgaris Schott., 12, C. 341, E. Medit.

LILIACEAE

Asparagus acutifolius L., 18, C. 521, Medit.

Asphodelus aestivus Brot., 20, C. 648, Medit.

Allium nigrum L., 28, C. 816, Medit.

Ornithogalum pyrenaicum L., 12, 17, C. 300, 490, 499.

O. montanum Cyr., 2, 5, 15, C. 19, 89, 439, E. Medit.

Muscari comosum (L.) Mill., 4, 14, C. 59, 393, Medit.

M. neglectum Guss., 2, 5, 11, C. 18, 90, 275.

Lilium candidum L., 20, C. 651, Medit.

Gagea bohemica (Zauschn.) Schultes et Schultes fil, 28, C. 814, 868.

G. peduncularis (J. & C. Presl) Pascher, 28, C. 815, Medit.

IRIDACECAE

Iris suaveolens Boiss. & Reuter, 17, C. 486.

Gynandris sisyrinchum (L.) Parl., 2, C. 17.

Crocus chrysanthus Herb., 1, 2, 28, C. 1, 21, 853.

Romulea bulbocodium (L.) Sebast.& Mauri var. *bulbocodium*, 2, C. 20, Medit.

R. linaresii Parl. subsp. *graeca*, 11, C. 282, E. Medit.

ORCHIDACEAE

Ophrys mammosa Desf., 5, 10, C. 65, 252, E. Medit.

Serapias parviflora Parl., 5, C. 66, Medit.

Orchis anatolica Boiss., 5, C. 67, E. Medit.

JUNCACEAE

Juncus acutus L., 5, 23, C. 82, 696.

CYPERACEAE

Cyperus longus L., 20, 22, C. 634, 674, 683.

Scirpoides holoschoenus (L.) Sojak, 22, C. 666, 679.

Carex otrubae Podp., 5, 17, C. 64, 478, Euro-Sib.

POACEAE (GRAMINAE)

Brachypodium pinnatum (L.) P. Beauv., 22, C. 673, Euro-Sib.

Aegilops umbellulata Zhuk. subsp. *umbellulata*, 4, 9, 15, C. 62, 241, 409, Ir.-Tur.

A. triuncialis L. subsp. *triuncialis*, 18, 20, C. 571, 635.

Secale cereale L., 23, C. 703.

Triticum aestivum L., 18, 23, C. 527, 582, 585, 704.

Hordeum murinum L., subsp. *glaucum* (Steud.) Tzvelev, 18, C. 509.

H. bulbosum L., 22, C. 690.

Taeniatherum caput-medusae (L.) Nevski subsp. *crinitum* (Schreber) Melderis, 3, C. 41.

Bromus japonicus Thurb. subsp. *japonicus*, 18, C. 577, 583.

B. lanceolatus Roth., 13, C. 372.

B. intermedius Guss., 17, 20, C. 489, 637.

B. squarrosus L., 15, 17, 18, C. 410, 508, 561.

B. tectorum L., 12, C. 320.

B. sterilis L., 12, C. 338.

B. madritensis L., 13, C. 371.

B. fasciculatus C. Presl, 3, C. 47, E. Medit.

Avena barbata Pott ex Link subsp. *barbata*, 3, 21, C. 43, 658, Medit.

Gaudinia fragillis (L.) P. Beauv., 18, C. 531, Euro-Sib.

Rostraria cristata (L.) Tzvelev var. *glabriflora* (Trautv.) Dogan, 26, C. 772.

Aira elegantissima Schur subsp. *elegantissima*, 3, C. 42, Medit.

Holcus lanatus L., 18, C. 559, 579, Euro-Sib.

Polypogon monspeliensis (L.) Desf., 18, C. 570, 578.

Phleum subulatum (Savi) Asch. & Graebn. subsp. *subulatum*, 13, 14, 22, C. 369, 388, 689.

Lolium temulentum L. var. *temulentum*, 9, 12, C. 181, 325.

Elymus elongatus (Host) Runemark subsp. *elongatus*, 18, C. 560.

Vulpia ciliata Dumort. subsp. *ciliata*, 12, 18, C. 322, 558, 581.

Poa bulbosa L., 2, 3, 5, 9, 12, 27, C. 25, 40, 46, 98, 190, 319, 807, 810.

Dactylis glomeratus L. subsp. *hispanica* (Roth) Nyman., 12, 19, C. 318, 602.

Cynosurus echinatus L., 13, 18, C. 374, 520, Medit.

Briza maxima L., 6, 12, C. 101, 302.

Melica ciliata L. subsp. *magnolii* (Gren.& Godr.) Husnot, 26, C. 785.

Cynodon dactylon (L.) Pers. var. *dactylon*, 28, C. 854, 863, 877.

Saccharum strictum (Host) Spreng., 22, C. 684.

Sorghum halepense (L.) Pers. var. *halepense*, 28, C. 866, 878.

Zea mays L., 11, 18, 21, C. 273, 557, 580, 672.

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