

Flora of the Region Between Ayaş, Kazan and Yenikent (Ankara/Turkey)*

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ABSTRACT: In this research, the flora of the area, northwest of Ankara, among Ayaş, Kazan and Yenikent was studied. This area is within the borders of Irano-Turanian phytogeographic region and also in A4 square according to the grid system applied for the Flora of Turkey by Davis. About 500 plant samples were collected from the area between July 2007-June 2009. 268 taxa belonging to 149 genera in 37 families were determined. The richest family and the richest genus of the research area are Asteraceae and Alyssum respectively. 37 taxa of the collected plants were endemic and its ratio to total is 13.8%. The distribution of species according to the phytogeographical regions is as follows; Irano-Turanian 17.2%, Mediterranean and East Mediterranean 5.2%, Euro-Siberian and Euxine 4.12%, widespread or unknown 73.41%.

Key Words: Flora, Ayaş, Kazan, Yenikent, Ankara, Turkey

Ayaş, Kazan, Yenikent Arasında Kalan Bölgenin Florası (Ankara/Türkiye)

ÖZET: Bu çalışmada, Ankara'nın kuzeybatısında yer alan, Ayaş, Kazan ilçeleri ve Sincan ilçesine bağlı bir belde olan Yenikent arasında kalan bölgenin florası araştırılmıştır. Temmuz 2007 ve Haziran 2009 tarihleri arasında yapılan arazi çalışmaları sonucunda yaklaşık 500 bitki örneği toplanmıştır. Bu örneklerin incelenmesi sonucunda, 37 familya, 149 cins'e ait 268 takson tespit edilmiştir. Bu taksonların 37'si Endemik olup endemizm oranı %13.8'dir. Araştırma alanındaki en zengin familya Asteraceae ve en zengin cins Brassicaceae familyasından Alyssum olarak belirlenmiştir. Taksonların fitocoğrafik bölgelere göre dağılımları ve oranları şöyledir: İran-Turan %17.2; Akdeniz ve Doğu Akdeniz %5.2; Avrupa-Sibirya ve Öksin %4.12; çok bölgeli veya bilinmeyen %73.4.

Anahtar Kelimeler: Flora, Ayaş, Kazan, Yenikent, Ankara, Türkiye

INTRODUCTION

Turkey has different vegetation types and a rich flora because of its geographic location, geomorphologic structure, various soil types and climatic diversity. These exceptions create a rich floristic diversity in Turkey. Central Anatolia, especially city of Ankara is ranked among important areas, it terms of both floristic diversity and phytogeography. The study area, the region among Ayaş, Kazan and Yenikent, is located in the northwest of Ankara (Fig 1) and phytogeographically belongs to the Irano-Turanian region. It lies within square A4 according to grid system of Davis (1965-1985) (Fig 2.). The altitudinal range of the area changes between 700 and 1100 meters. The climate of the area is semi-arid-sub-very cold Mediterranean climate according to Emberger's pluviothermique quotient (Akman 2010). Anthropogenic effects on environment such as pollution, urbanization, globalization are growing day by day, especially in the vicinities of big cities and damage naturel habitats and restraint the biodiversity of flora. To detect these destructions, floristic researches in cities or their

environs that are vulnerable to such peril have been conducted in the last decades in Turkey.

Some floristic studies carried out in the vicinities of the area are as follows:

- Flora of the Region among Ayaş, Çanlı village and Kazan (Yavuz 1992)
- Floristic Research of Step Formations Spreading among Taşpınar, İncek, Tuluntaş villages (Ankara) (Yağcı 1994)
- A Study on Flora of Kirmir Rill (Kocaçay) Valley (Güdül-Ankara) (Tarıkahya 2003)
- A Study on Flora of Hacıkadın Valley (Ankara/Turkey) (Yeşilyurt et al. 2008)
- Flora of Kıbrıs Köyü Valley (Mamak-Ankara) (Aslan et al. 2009)

In accordance with all these reasons, there are numerous purposes for carrying out this study and choosing this area. First of all, research area have not been thoroughly studied so far and it has richness. It is also aimed to rummage out the details which contribute to reveal the floristic richness of Turkey.

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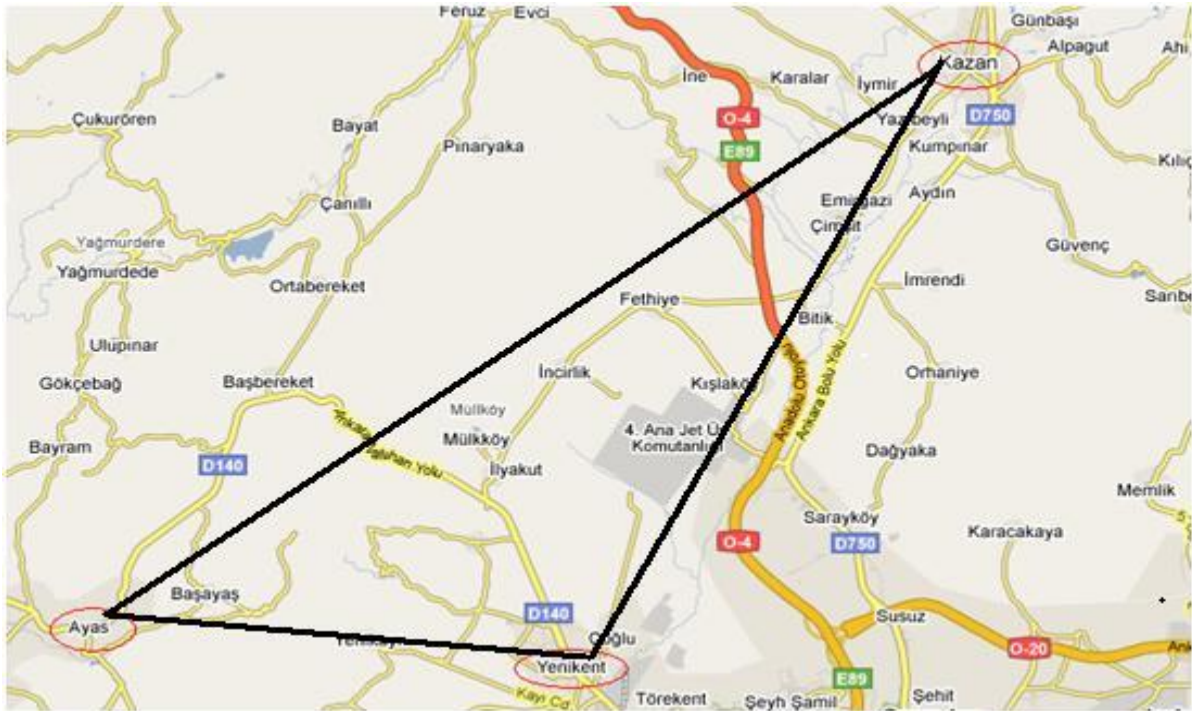


Figure 1. Map of the study area (triangle)

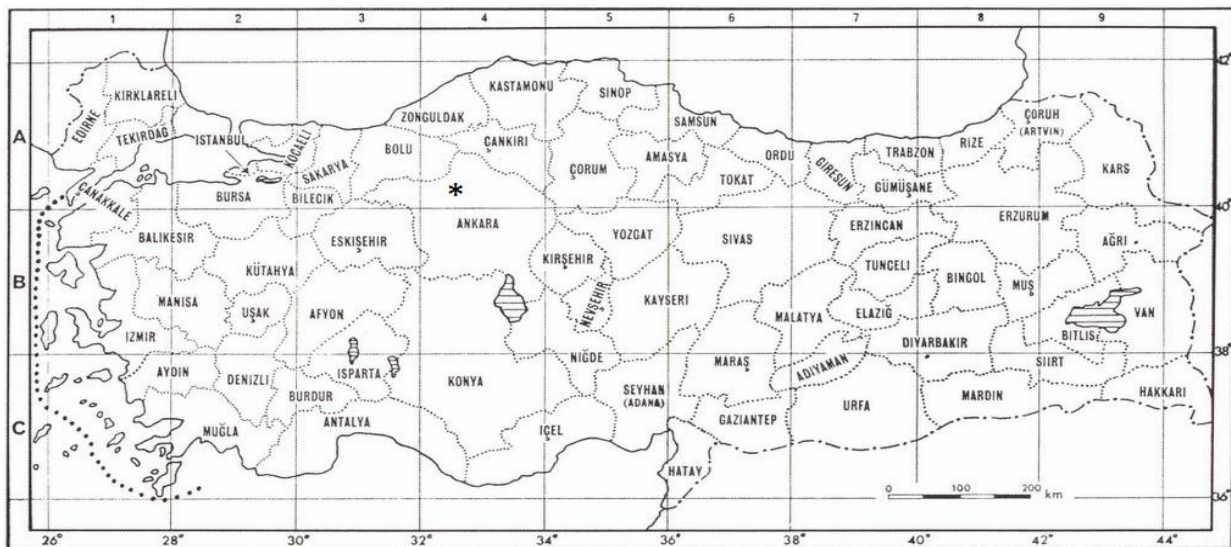


Figure 2. The location of the area according to grid system of Davis (1965-1985): A4

MATERIAL and METHODS

The research materials are plant specimens collected from the area at different vegetation periods (flowering, fruiting) between the years 2007 and 2009. The collected plants were prepared as herbarium materials and the identified. Endemism and conservation status of species were detailed by using International Union for Conservation of Nature in Red Data Book of Turkish Plants (Ekim et al. 2000) and the changes and the regulations in 2014 (IUCN Standarts and Petitions

Subcommittee Guidelines for Using the IUCN Red List Categories and Criteria 2014).

Identified plant taxa are listed according to Flora of Turkey (Davis 1965-1985, Davis 1988) and the following informations were added to each taxa: the names and authors of species, subspecies and varieties, locality, habitat, altitude, date, collector's name and number of plants; respectively, phytogeographic distribution, endemism, conservation status. And also a dictionary (Baytop 1998), some systematic and books about plant biology (Donner 1990, Küçüker 1998,

Kılınç et al. 2006, Seçmen et al. 2008) and some articles (Akman et al. 1979, Erik et al. 1996, Eraslan 2001) were used for identification.

The abbreviations used in the text are as follows:

S. Akdeniz	Sanem AKDENİZ (collector's name)
K	Kazan
A	Ayaş
Y	Yenikent
IFN	Provincial Directorate of Environment and Forests Ilyakut Forest Nursery

RESULTS

In the field studies carried out between July 2007 – June 2009 were collected about 500 plant samples. As a result of the identification of these plant samples were

determined as 268 taxa, including 37 families. Number of endemic taxa is 37 (13.8%). According to The IUCN Red List Categories, distributions of these 37 endemic taxa and the names of these plants and the categories are given Table 1. The phytogeographical distribution of the taxa in the study area and their rates are as follows; Irano-Turanian 17.2%, Mediterranean and East Mediterranean 5.2%, Euro-Siberian and Euxine 4.12%, Widespread or unknown 73.41%. Irano-Turanian elements are the richest ones due to the location of the area.

The richest families and their numbers in the research area are as following: Asteraceae 45, Poaceae 18, Papaveraceae 12, Brassicaceae 42, Lamiaceae 17, Ranunculaceae 12, Fabaceae 28, Scrophulariaceae 12.

Table 1. The names of endemic taxa and The IUCN Red List Categories

Names of the endemic taxa	The IUCN Red List Categories
<i>Consolida hellespontica</i> (Boiss.) Chater	EN
<i>Glaucium grandiflorum</i> Boiss. & Huet. var. <i>torquatum</i> Cullen	EN
<i>Papaver commutatum</i> Fisch. & Mey. subsp. <i>euxinum</i> Kaderet	EN
<i>Hesperis balansae</i> Fourn. subsp. <i>balansae</i> Fourn.	EN
<i>Aethionema capitatum</i> Boiss. & Bal	NT
<i>Alyssum blepharocarpum</i> Dudley & Hub. – Mor.	NT
<i>Alyssum hirsutum</i> Bieb. var. <i>caespitosum</i> Dudley.	NT
<i>Trigonella rostrata</i> (Boiss. & Bal.) Boiss.	NT
<i>Causinia iconica</i> Hub. – Mor.	NT
<i>Centaurea paphlagonica</i> (Bornm.) Wagenitz	NT
<i>Consolida glandulosa</i> (Boiss. & Huet) Bornm.	LC
<i>Ranunculus reuterianus</i> Boiss.	LC
<i>Thlaspi violascens</i> Boiss.	LC
<i>Alyssum paphlagonicum</i> (Hausskn.) Dudley	LC
<i>Erysimum thyrsoideum</i> Boiss. subsp. <i>ponticum</i> (Hausskn. & Bornm.) Cullen	LC
<i>Erodium absinthoides</i> Willd. subsp. <i>absinthoides</i>	LC
<i>Astragalus lycius</i> Boiss.	LC
<i>Astragalus xylobasis</i> Freyn. & Bornm. var. <i>angustus</i> (Freyn. & Sint.) Freyn. & Bornm.	LC
<i>Astragalus hirsutus</i> Vahl.	LC
<i>Astragalus humillimus</i> Freyn. & Sint.	LC
<i>Astragalus sigmoideus</i> Bunge.	LC
<i>Onobrychis armena</i> Boiss. & Huet.	LC
<i>Helichrysum noeanum</i> Zahn.	LC
<i>Achillea phrygia</i> Boiss. & Bal.	LC
<i>Cirsium leucopsis</i> DC.	LC
<i>Crepis macropus</i> Boiss. & Heldr.	LC
<i>Onosma tauricum</i> Pallas ex Willd. var. <i>brevifolium</i> DC.	LC
<i>Verbascum cheiranthifolium</i> Boiss. var. <i>asperulum</i> (Boiss.) Murb.	LC
<i>Linaria corifolia</i> Desf.	LC
<i>Digitalis lamarekii</i> Ivan.	LC
<i>Veronica multifida</i> L.	LC
<i>Phlomis armeniaca</i> Willd.	LC
<i>Wiedemannia orientalis</i> Fisch. & Mey.	LC
<i>Stachys cretica</i> L. subsp. <i>anatolica</i> Rech.	LC
<i>Salvia cryptantha</i> Montbret & Aucher	LC
<i>Asperula stricta</i> Boiss. subsp. <i>latibracteata</i> (Boiss.) Ehr.	LC
<i>Bellevalia clusiana</i> Griseb.	LC

Table 2. Comparison of the number of total taxa with the others carried out neighbour areas

Study code number*	Name of study (Author and Year)	Number of taxa
S1	Flora of the Region among Ayaş, Kazan and Yenikent (Ankara/Turkey)	268
S2	Flora of the Region among Ayaş, Çanlı Köyü, Kazan (Yavuz 1992)	203
S3	A Study on Flora of Hacıkadın Valley (Ankara/Turkey) (Yeşilyurt et al. 2008)	343
S4	Flora of Kıbrıs Köyü Valley (Mamak-Ankara) (Aslan et al. 2009)	624
S5	A Study on Flora of Kirmir Rill (Kocaçay) Valley (Güdül-Ankara) (Tarıkahya 2003)	452
S6	Floristic Research of Step Formations Spreading among Taşpınar, İncek, Tuluntaş Villages (Ankara) (Yağcı 1994)	276

*Studies, in the table, will be mentioned with their “study code number” in the text.

DISCUSSION

Results of the study have been compared with the others carried out neighbour areas. These studies are showed at Table 2.

Variability on the taxa number is depends on size of research area, dominance status of step vegetation, the

presence of deep valley and antropogenic effects of the area.

Phytogeographical distribution, endemism structure and the families with the most taxa have been compared with the other studies carried out neighbour areas (respectively: Table 3, Table 4, Table 5).

Table 3. Comparison of the flora of research area with the studies carried out neighbour areas from the phytogeographical point of view

Study code number		S1		S2		S3		S4		S5		S6	
N: Number of taxa, R: Rate (%)		N	R	N	R	N	R	N	R	N	R	N	R
Phytogeographical region	Irano - Turanian	49	18.3	50	24.6	56	16.3	127	20.3	78	17.3	94	35.05
	Mediterranean / East Mediterranean	11 / 4	5.6	13	6.4	31	9.0	50	8.0	46	10.2	13	4.71
	Euro – Siberian / Euxine	10 / 2	4.5	11	5.4	30	8.7	67	10.7	43	9.5	6	2.17
	Widespread or unknown	192	71.6	129	63.6	226	65.8	380	61	285	63	163	58.07
Total		268	100	203	100	343	100	624	100	452	100	276	100

Table 4. Comparison of the flora of research area with the studies carried out neighbour areas from the endemism point of view

Study code number		S1		S2		S3		S4		S5		S6	
N: Number of taxa, R: Rate (%)		N	R	N	R	N	R	N	R	N	R	N	R
Endemism structure	Endemic	37	13.8	26	12.8	27	7.8	67	10.7	36	8	54	19.56

Table 5. Comparison of largest families in study area with the studies carried out near areas

Study code number	S1	S2	S3	S4	S5	S6
Name of family Number of taxa / %	Asteraceae 45/16.8	Asteraceae 26/12.7	Asteraceae 40/11.6	Asteraceae 87/13.9	Asteraceae 43/9.5	Fabaceae 38/13.8
	Brassicaceae 42/15.7	Fabaceae 20/9.8	Fabaceae 37/10.7	Fabaceae 53/8.4	Brassicaceae 40/8.9	Asteraceae 36/13.0
	Fabaceae 28/10.5	Lamiaceae 18/8.8	Lamiaceae 27/7.8	Poaceae 46/7.3	Fabaceae 37/8.2	Lamiaceae 25/9.0
	Poaceae 18/6.72	Boraginaceae 15/7.3	Poaceae 23/6.7	Lamiaceae 45/7.2	Lamiaceae 35/7.8	Poaceae 20/7.0
	Lamiaceae 17/6.34	Poaceae 13/6.8	Brassicaceae 22/6.4	Brassicaceae 35/5.6	Poaceae 29/6.5	Brassicaceae 19/6.9
	Ranunculaceae 12/4.5	Brassicaceae 12/6.4	Boraginaceae 19/5.5	Rosaceae 33/5.2	Boraginaceae 24/5.3	Caryophyllaceae 14/5.0
	Papaveraceae 12/4.5	Caryophyllaceae 8/3.9	Caryophyllaceae 18/5.2	Apiacea 31/4.9	Apiaceae 21/4.6	Apiaceae 14/5.0
	Scrophulariaceae 12/4.5	Apiaceae 8/3.9	Rosaceae 16/4.6	Boraginaceae 26/4.1	Rosaceae 19/4.2	Boraginaceae 11/4.0
	Total	268	203	343	624	452

Phytogeographical distribution of the study and the others shows parallelism. In all of the studies, Irano-Turanian elements occupy the first rank due to the location of all areas in the same phytogeographical region. In respect to endemism S6 coded study has the highest rate with 19.56% and followed by this study with 13.8%. In terms of the families with the most taxa, in the five of studies (included our study), Asteraceae is the richest family as is in the flora of Turkey. And the other richest families are Fabaceae, Brassicaceae, Poaceae, Boraginaceae, Lamiaceae, Apiaceae, Scrophulariaceae, Ranunculaceae, Caryophyllaceae, Rosaceae, Liliaceae. These are known as the richest families in Turkey. All studies exhibit similarities about having the most taxa.

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Appendix: Flora list of the study area

**SPERMATOPHYTA
GYMNOSPERMAE**

1. PINACEAE

1. *Pinus nigra* Arn. subsp. *pallasiana* (Lamb.) Holmboe, Y, forest, 850 m, 23.04.2008, S. Akdeniz 1074.

2. CUPRESSACEAE

2. *Juniperus oxycedrus* L. subsp. *oxycedrus* L., A, Mountain pass of Ayaş, forest gaps, 1060 m, 15.05.2009, S. Akdeniz 1279.

**ANGIOSPERMAE
DICOTYLEDONAE**

3. RANUNCULACEAE

3. *Nigella segetalis* Bieb. , A, field edge, 910 m, 28.05.2008, S. Akdeniz 1095.

4. *Consolida orientalis* (Gay) Schröd

A, cultivated areas, 850 m, 28.05.2008, S. Akdeniz 1347a., Y, roadside, 780 m, 31.05.2009, S. Akdeniz 1347b.

5. *C. regalis* S. F. Gray subsp. *paniculata* (Host) Soo var. *paniculata* Host, K, step, 900 m, 08.07.2007, S. Akdeniz 1002., K, cultivated areas, 900 m, 07.08.2007, S. Akdeniz 1049., A, step, 960 m, 25.06.2008, S. Akdeniz 1349.

6. *C. glandulosa* (Boiss. & Huet) Bornm., A, cultivated land, 960 m, 29.06.2009, S. Akdeniz 1348. **Irano – Turanian. Endemic. LC.**

7. *C. hellespontica* (Boiss.) Chater, K, step, 780 m, 08.07.2007, S. Akdeniz 1003. **Endemic. EN.**

8. *Adonis aestivalis* L. subsp. *aestivalis* L., Y, cultivated area, 855 m, 23.04.2008 S. Akdeniz 1090., A, rocky slopes, 890 m, 28.05.2008, S. Akdeniz 1350.

9. *A. flammea* Jacq., A, step, 869 m, 28.05.2008, S. Akdeniz 1351a., Y, IFN, 800 m, 16.04.2009, S. Akdeniz 1351b. A, Mountain pass of Ayaş, stony slopes, 1060 m, 15.05.2009, S. Akdeniz 1352c.

10. *Ranunculus oxyspermus* Wild., A, field, 800 m, 28.05.2008, S. Akdeniz 1093.

11. *R. reuterianus* Boiss., Y, stony slopes, 925 m, 23.04.2008, S. Akdeniz 1064. **Endemic. LC.**

12. *R. illyricus* L. subsp. *illyricus* L., A, cultivated areas, 925 m, 28.05.2008, S. Akdeniz 1094.

13. *R. arvensis* L., Y, stony slopes, 23.04.2008, S. Akdeniz 1084.

14. *Ceratocephalus falcatus* (L.) Pers., Y, Akçaören, grassland, 855 m, 16.04.2009, S. Akdeniz 1213.

4. BERBERIDACEAE

15. *Berberis crataegina* DC., A, Mountain pass of Ayaş, stony slopes, 1060 m, 15.05.2009, S. Akdeniz 1276.

5. PAPAVERACEAE

16. *Glaucium corniculatum* (L.) Rud. subsp. *refractum* (Nab.) Cullen, K, step, 780 m, 08.07.2007, S. Akdeniz 1004., K, field edge, 800 m, 07.08.2007, S. Akdeniz 1045.

17. *G. grandiflorum* Boiss. & Huet. var. *torquatum* Cullen, A, Mountain pass of Ayaş, 1060 m, 15.05.2009, S. Akdeniz 1281. **Irano – Turanian. Endemic. EN.**

18. *Roemeria hybrida* (L.) DC. subsp. *hybrida*, A, plowed land, 858 m, 28.05.2008, S. Akdeniz 1097.

19. *Papaver rhoeas* L., Y, roadside, 800 m, 31.05.2009, S. Akdeniz 1290.

20. *P. commutatum* Fisch. & Mey. subsp. *euxinum* Kadereit, A, stony slopes, 960 m, 28.05.2008, S. Akdeniz 1098. **Euxine. Endemic. EN.**

21. *P. syriacum* Boiss. & Blanche, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1249.

22. *P. dubium* L., A, cultivated land, 900 m, 25.06.2008, S. Akdeniz 1159., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1248.

23. *Hypecoum procumbens* L., Y, grassland, 850 m, 23.04.2008, S. Akdeniz 1071., A, field edge, 91 m, 28.05.2008, S. Akdeniz 1096. Mediterranean.

24. *H. imberbe* Sibth. & Sm., Y, Akçaören, grassland, 800 m, 16.04.2009, S. Akdeniz 1206.

25. *H. pendulum* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1250.

26. *Fumaria vailantii* Lois., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1280.

27. *F. parviflora* Lam., A, yola yakın wasteland, 920 m, 28.05.2008, S. Akdeniz 1099., A, cultivated land, 93 m, 25.06.2008, S. Akdeniz 1158.

6. BRASSICACEAE (CRUCIFERAE)

28. *Brassica elongata* Ehrh., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1333.

29. *Sinapis arvensis* L., A, wasteland, 960 m, 28.05.2008, S. Akdeniz 1102.

30. *Hirschfeldia incana* (L.) Lag. - Foss., Y, Akçaören, grassland, 800 m, 16.04.2009, S. Akdeniz 1201., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1331.

31. *Diplotaxis tenuifolia* (L.) DC., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1328.

32. *Eruca sativa* Miller, Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1332.

33. *Raphanus raphanistrum* L., K, cultivated areas, 710 m, 08.07.2007, S. Akdeniz 1023., A, step, 900 m, 28.05.2008, S. Akdeniz 1103.
34. *Conringia orientalis* (L.) Andrz., K, step, 700 m, 08.07.2007, S. Akdeniz 1025.
35. *C. perfoliata* (C. A. Mey.) Busch, A, Mountain pass of Ayaş, stony slopes, 1060 m, 15.05.2009, S. Akdeniz 1224.
36. *Lepidium perfoliatum* L., Y, stony slopes, 780 m, 23.04.2008, S. Akdeniz 1069., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1330.
37. *Cardaria draba* (L.) Desv. subsp. *draba*, Y, field edge, 790 m, 23.04.2008, S. Akdeniz 1062., Y, Akçaören, grassland, 16.04.2009, S. Akdeniz 1199., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1327.
38. *Iberis taurica* DC., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1228.
39. *Aethionema capitatum* Boiss. & Bal., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1226. **Endemic. NT.**
40. *Ae. armenum* Boiss., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1225. **Irano – Turanian.**
41. *Thlaspi perfoliatum* L., Y, IFN, grassland, 840 m, 16.04.2009, S. Akdeniz 1194., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1231.
42. *T. violascens* Boiss., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1230 **Endemic. LC.**
43. *Capsella bursa-pastoris* (L.) Medik., Y, field edge, 850 m, 23.04.2008, S. Akdeniz 1061., Y, Akçaören, grassland, 860 m, 16.04.2009, S. Akdeniz 1197., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1326.
44. *Boreava orientalis* Jaub. & Spach, Y, roadside, 23.04.2008, S. Akdeniz 1076., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1227.
45. *Myagrurn perfoliatum* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1235.
46. *Alyssum linifolium* Steph ex Wild. var. *linifolium*, Y, IFN, grassland, 830 m, 16.04.2009, S. Akdeniz 1203., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1245.
47. *A. blepharocarpum* Dudley & Hub. – Mor., Y, Akçören, wasteland, 800 m, 16.04.2009, S. Akdeniz 1205a., Y, IFN, grassland, 810 m, 16.04.2009, S. Akdeniz 1205b. A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1240. **Irano – Turanian. Endemic. NT.**
48. *A. alyssoides* (L.) L., Y, destroyed lands, 855 m, 23.04.2008, S. Akdeniz 1078., Y, Akçören, wasteland, 800 m, 16.04.2009, S. Akdeniz 1204.
49. *A. desertorum* Stapf. var. *desertorum*, A, wasteland, 950 m, 28.05.2008, S. Akdeniz 1101., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1239.
50. *A. minus* (L.) Rothm. var. *micranthum* (Mey.) Dudley, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1242.
51. *A. stapfii* Vierh., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1238. **Irano – Turanian.**
52. *A. strigosum* Banks & Sol. subsp. *cedrorum* (Schott & Kotschy) Dudley, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1243.
53. *A. xanthocarpum* Boiss., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1237.
54. *A. hirsutum* Bieb. var. *caespitosum* Dudley, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1244. **Irano – Turanian. Endemic. NT.**
55. *A. paphlagonicum* (Hauskn.) Dudley, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1236. **Irano – Turanian. Endemic. LC.**
56. *A. tortuosum* Willd., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1241. **Euro – Siberian.**
57. *Erophila verna* (L.) Chevall subsp. *verna*, Y, IFN, sloping terrain, 855 m, 16.04.2009, S. Akdeniz 1202.
58. *Arabis nova* Vill., A, wasteland, 960 m, 28.05.2008, S. Akdeniz 1100., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1233.
59. *Matthiola longipetala* (Vent.) DC. subsp. *bicornis* (Sibth. & Smith) P.W. Ball, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1232.
60. *Chorispora syriaca* Boiss., Y, grassland, 800 m, 23.04.2008, S. Akdeniz 1075., Y, Akçaören, cultivated land, 16.04.2009, S. Akdeniz 1200. **Irano – Turanian.**
61. *Hesperis balansae* Fourn. subsp. *balansae* Fourn., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1234., **East Mediterranean. Endemic. EN.**
62. *Erysimum thyrsoides* Boiss. subsp. *ponticum* (Hauskn. & Bornm.) Cullen, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1246. **Endemic. LC.**
63. *E. smyrnaeum* Boiss. & Bal., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1247.
64. *E. repandum* L., Y, wasteland, 880 m, 23.04.2008, S. Akdeniz 1068.

65. *Sisymbrium altissimum* L., A, cultivated land, 970 m, 25.06.2008, S. Akdeniz 1157., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1329.
66. *Descurainia sophia* (L.) Webb. ex Prantl, Y, wasteland, 855 m, 23.04.2008, S. Akdeniz 1070., A, abandoned lands, 960 m, 28.05.2008, S. Akdeniz 1104., Y, Akçaören, grassland, 800 m, 16.04.2009, S. Akdeniz 1195.
67. *Camelina laxa* C. A. Mey., A, step, 960 m, 28.05.2008, S. Akdeniz 1105.
68. *C. rumelica* Vel., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1229.
69. *C. hispida* Boiss. var. *hispida*, A, wasteland, 960 m, 28.05.2008, S. Akdeniz 1106.
7. RESEDACEAE
70. *Reseda lutea* L. var. *lutea*, K, dere yatağı, 780 m, 07.08.2007, S. Akdeniz 1047.
71. *R. lutea* L. var. *nutans* Boiss., A, field, 1000 m, 28.05.2008, S. Akdeniz 1122.
8. CISTACEAE
72. *Helianthemum nummularium* (L.) Miller subsp. *ovatum* (Viv.) Schinz & Thellung, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1263.
9. VIOLACEAE
73. *Viola occulta* Lehm., Y, IFN, grassland, 800 m, 16.04.2009, S. Akdeniz 1211., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1264.
74. *V. parvula* Tineo., Y, grassland, 780 m, 23.04.2008, S. Akdeniz 1072.
75. *V. kitaibeliana* Roem. & Schult., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1265.
10. CARYOPHYLLACEAE
76. *Arenaria serpyllifolia* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1312.
77. *Cerastium chlorifolium* Fisch. & Mey., A, field, 960 m, 28.05.2008, S. Akdeniz 1310.
78. *C. perfoliatum* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1311.
79. *Holosteum marginatum* C. A. Mey., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1309.
80. *H. umbellatum* L. var. *umbellatum*, A, grassland, 990 m, 23.04.2008, S. Akdeniz 1092., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1308.
81. *H. umbellatum* L. var. *glutinosum* (Bieb.) Gay, Y, Akçaören, grassland, 780 m, 16.04.2009, S. Akdeniz 1306., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1307.
82. *Silene supina* Bieb. subsp. *pruniosa* (Boiss.) Chowdh., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1313.
83. *S. vulgaris* (Moench) Garcke var. *vulgaris*, A, cemetery, 970 m, 28.05.2008, S. Akdeniz 1123.
84. *S. dichotoma* Ehrh. subsp. *dichotoma*, A, wasteland, 990 m, 28.05.2009, S. Akdeniz 1314.
11. GUTTIFERAE
85. *Hypericum perforatum* L., A, field, 960 m, 25.06.2008, S. Akdeniz 1162.
12. GERANIACEAE
86. *Geranium tuberosum* L. subsp. *tuberosum*, Y, stony slopes, 780 m, 23.04.2008, S. Akdeniz 1060., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1270.
87. *Erodium absinthoides* Willd. subsp. *absinthoides*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1269., **Irano – Turanian. Endemic. LC.**
88. *E. cicutarium* (L.) L'Hérit subsp. *cicutarium*, Y, step, 800 m, 23.04.2008, S. Akdeniz 1065., A, wasteland, 980 m, 28.05.2008, S. Akdeniz 1120., Y, Akçaören, grassland, 800 m, 16.04.2009, S. Akdeniz 1209.
89. *E. acaule* (L.) Becherer & Thell, Y, grassland, 855 m, 16.04.2009, S. Akdeniz 1210. Mediterranean.
13. RHAMNACEAE
90. *Paliurus spina-christi* Miller, A, forestland, 1020 m, 28.05.2008, S. Akdeniz 1119.
14. FABACEAE (LEGUMINOSAE)
91. *Genista sessilifolia* DC., A, Mountain pass of Ayaş, eroded land, 1060 m, 15.05.2009, S. Akdeniz 1285. **Irano – Turanian.**
92. *Colutea cilicica* Boiss. & Bal, K, dere yatağı, 780 m, 07.08.2007, S. Akdeniz 1046.
93. *Astragalus microcephalus* Willd., Y, Akçaören, eroded land, 790 m, 16.04.2009, S. Akdeniz 1212. **Irano – Turanian.**
94. *A. ponticus* Pall., A, step, 950 m, 25.06.2008, S. Akdeniz 1166.
95. *A. lycius* Boiss., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1288. **Endemic. LC.**
96. *A. xylobasis* Freyn. & Bornm. var. *angustus* (Freyn. & Sint.) Freyn. & Bornm., A, wasteland, 980 m, 25.06.2008, S. Akdeniz 1319. **Irano – Turanian. Endemic. LC.**
97. *A. hirsutus* Vahl., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1355. **Endemic. LC.**
98. *A. humillimus* Freyn. & Sint., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1318. **Euxine. Endemic. LC.**

99. *A. sigmoideus* Bunge., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1346. **Endemic. LC.**
100. *Vicia sativa* L. subsp. *sativa*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1320.
101. *Lathyrus digitatus* (Bieb.) Fiori., A, field edge, 970 m, 28.05.2008, S. Akdeniz 1154., **East Mediterranean.**
102. *Ononis spinosa* L. subsp. *leiosperma* (Boiss.) Sirj., A, eroded land, 980 m, 25.06.2008, S. Akdeniz 1168.
103. *Trifolium resupinatum* L. var. *microcephalum* Zoh., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1356.
104. *Melilotus officinalis* (L.) Desr.
A, wasteland, 980 m, 28.05.2008, S. Akdeniz 1152., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1325.
105. *Trigonella rostrata* (Boiss. & Bal.) Boiss., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1321. **Irano – Turanian. Endemic. NT.**
106. *T. spruneriana* Boiss. var. *spruneriana*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1317. **Irano – Turanian.**
107. *T. aurantiaca* Boiss., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1316. **Irano – Turanian.**
108. *T. fischeriana* Ser., A, cultivated area, 950 m, 28.05.2008, S. Akdeniz 1153. **Irano – Turanian.**
109. *T. monantha* C. A. Meyer subsp. *monantha*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1286. **Irano – Turanian.**
110. *Medicago sativa* L. subsp. *sativa*, K, wasteland, 780 m, 08.07.2009, S. Akdeniz 1012, 07.08.2007, S. Akdeniz 1041., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1155, 25.06.2008, S. Akdeniz 1169.
111. *M. minima* (L.) Bart. var. *minima*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1287.
112. *M. truncatula* Gaertn. var. *longiaculeata*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1357. Mediterranean.
113. *M. rigidula* (L.) All. var. *rigidula*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1315.
114. *Coronilla varia* L. subsp. *varia*, A, cultivated areas, 980 m, 25.06.2008, S. Akdeniz 1167.
115. *Hedysarum varium* Willd., K, step, 780 m, 08.07.2007, S. Akdeniz 1001. **Irano – Turanian.**
116. *Onobrychis armena* Boiss. & Huet., A, field edge, 980 m, 25.06.2008, S. Akdeniz 1170. **Endemic. LC.**
117. *O. oxyodontha* Boiss., A, cemetery, 970 m, 28.05.2008, S. Akdeniz 1156.
118. *O. hypargyrea* Boiss., A, field, 990 m, 25.06.2008, S. Akdeniz 1171.
15. **ROSACEAE**
119. *Prunus divaricata* Ledeb. subsp. *divaricata*, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1126.
120. *Cerasus mahaleb* (L.) Miller var. *mahaleb*, Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1067.
121. *Potentilla recta* L., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1125.
122. *Rosa canina* L., K, destroyed lands, 780 m, 07.08.2007, S. Akdeniz 1048., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1124.
123. *Crataegus orientalis* Pallas ex Bieb. var. *orientalis*, Y, rocky slopes, 810 m, 20.10.2007, S. Akdeniz 1053.
124. *Pyrus eleagnifolia* Pallas. subsp. *eleagnifolia*, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1127.
16. **APIACEAE (UMBELLIFERAE)**
125. *Echinophora tenuifolia* subsp. *sibtropiana* (Guss.) Tutin, K, destroyed lands, 705 m, 08.07.2007, S. Akdeniz 1030.
126. *Coriandrum sativum* L., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1031.
127. *Fuernrohria setifolia* C. Koch., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1129.
128. *Bifora radians* Bieb., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1128., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1335.
129. *Ferula rigidula* DC., K, wasteland, 780 m, 08.07.2007, S. Akdeniz 1026. **Irano – Turanian.**
130. *Malabaila secacul* Banks & Sol., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1133.
131. *Astradaucus orientalis* (L.) Drude, K, dere yatağı, 770 m, 07.08.2007, S. Akdeniz 1034.
132. *Turgenia latifolia* (L.) Hoffm., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1132.
133. *Daucus carota* L., K, step, 780 m, 08.07.2007, S. Akdeniz 1022., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1130.
17. **VALERIANACEAE**
134. *Valerianella coronata* (L.) DC., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1109.
135. *Valerianella vesicaria* (L.) Moench, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1272.
18. **DIPSACACEAE**
136. *Cephalaria syriaca* (L.) Schrader, K, step, 780 m, 08.07.2007, S. Akdeniz 1008.
137. *Scabiosa argentea* L., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1172.

138. *S. rotata* Bieb., K, step, 780 m, 08.07.2007, S. Akdeniz 1006., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1173., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1268. **Irano – Turanian.**
19. **ASTERACEAE (COMPOSITAE)**
139. *Inula montbretiana* DC., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1190. **Irano – Turanian.**
140. *Helichrysum noeanum* Zahn., K, step, 780 m, 08.07.2007, S. Akdeniz 1014. **Irano – Turanian. Endemic. LC.**
141. *Conyza canadensis* (L.) Cronquist, K, step, 780 m, 07.08.2007, S. Akdeniz 1039.
142. *Senecio vernalis* Waldst. & Kit., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1142., A, roadside, 950 m, 25.06.2008, S. Akdeniz 1184., Y, Akçaören, wasteland, 850 m, 16.04.2009, S. Akdeniz 1220., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1283.
143. *S. viscosus* L., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1086.
144. *Anthemis cretica* L. subsp. *pontica* (Willd.) Grierson, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1256.
145. *A. cretica* L. subsp. *albida* (Boiss.) Grierson, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1255.
146. *A. cretica* L. subsp. *tenuiloba* (DC.) Grierson, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1138.
147. *A. tinctoria* L. var. *pallida* DC., A, roadside, 950 m, 28.05.2008, S. Akdeniz 1137.
148. *A. austriaca* Jacq., Y, roadside, 850 m, 31.05.2009, S. Akdeniz 1289.
149. *Achillea wilhelmsii* C. Koch., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1145. **Irano – Turanian.**
150. *A. phrygia* Boiss. & Bal., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1085. **Irano – Turanian. Endemic. LC.**
151. *A. millefolium* L. subsp. *millefolium*, A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1186. **Euro – Siberian.**
152. *A. bieberstenii* Afan., A, roadside, 950 m, 25.06.2008, S. Akdeniz 1359., **Irano – Turanian.**
153. *Tanacetum armenum* (DC.) Schultz Bip., Y, Akçaören, grassland, 855 m, 16.04.2009, S. Akdeniz 1221.
154. *Artemisia austriaca* Jacq., K, Orhaniye, step, 780 m, 07.08.2007, S. Akdeniz 1033.
155. *Causinia iconica* Hub. – Mor., K, step, 800 m, 08.07.2007, S. Akdeniz 1028. **Irano – Turanian. Endemic. NT.**
156. *Onopordum acanthium* L., K, step, 780 m, 08.07.2007, S. Akdeniz 1018.
157. *Cirsium vulgare* (Savi) Ten., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1282.
158. *C. leucopsis* DC., Y, Mülkköy, field, 850 m, 20.10.2007, S. Akdeniz 1056., **East Mediterranean. Endemic. LC.**
159. *C. arvense* (L.) Scop. subsp. *vestitum* (Wimmer & Grab.) Petrak, Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1323.
160. *Carduus nutans* L. subsp. *nutans* sensu lato, A, roadside, 950 m, 28.05.2008, S. Akdeniz 1135.
161. *C. pycnocephalus* L. subsp. *albidus* (Bieb.) Kazmi, A, field, 950 m, 28.05.2008, S. Akdeniz 1136.
162. *Acroptilon repens* (L.) DC. K, step, 780 m, 08.07.2007, S. Akdeniz 1015. **Irano – Turanian.**
163. *Centaurea virgata* Lam., K, step, 780 m, 08.07.2007, S. Akdeniz 1020, 07.08.2007, S. Akdeniz 1036., Y, wasteland, 850 m, 20.10.2007, S. Akdeniz 1058., A, step, 980 m, 25.06.2008, S. Akdeniz 1187. **Irano – Turanian.**
164. *C. paphlagonica* (Bornm.) Wagenitz, K, step, 780 m, 07.08.2007, S. Akdeniz 1038. **Endemic. NT.**
165. *C. solstitialis* L. subsp. *solstitialis*, K, step, 780 m, 08.07.2007, S. Akdeniz 1016.
166. *C. urvillei* DC. subsp. *urvillei*, A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1188., **East Mediterranean.**
167. *C. triumfettii* All., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1257.
168. *C. depressa* Bieb., K, step, 780 m, 08.07.2007, S. Akdeniz 1017., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1144, 25.06.2008, S. Akdeniz 1189., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1322.
169. *Xeranthemum annuum* L., K, step, 780 m, 08.07.2007, S. Akdeniz 1019, 07.08.2007, S. Akdeniz 1035.
170. *Echinops ritro* L., K, step, 780 m, 07.08.2007, S. Akdeniz 1037., Y, wasteland, 850 m, 20.10.2007, S. Akdeniz 1057.
171. *E. microcephala* Sm., Y, roadside, 855 m, 08.07.2007, S. Akdeniz 1029. **Mediterranean.**
172. *Cichorium intybus* L., Y, wasteland, 850 m, 20.10.2007, S. Akdeniz 1059.
173. *Scorzonera cana* (C. A. Meyer) Hoffm. var. *cana*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1257.
174. *Tragopogon dubius* Scop., Y, roadside, 855 m, 28.05.2008, S. Akdeniz 1143, 25.06.2008, S. Akdeniz 1185.
175. *Taraxacum serotinum* (Waldst & Kit) Poiret, Y, Fethiye, grassland, 860 m, 29.10.2008, S. Akdeniz 1191.
176. *T. phaleratum* G. Hagl.ex Rech.
Y, IFN, wasteland, 16.04.2009, S. Akdeniz 1192, 16.04.2009, S. Akdeniz 1193.
177. *Chondrilla juncea* L. var. *juncea*, K, step, 780 m, 07.08.2007, S. Akdeniz 1040.
178. *Crepis macropus* Boiss. & Heldr., Y, wasteland, 850 m, 20.10.2007, S. Akdeniz 1055. **Endemic. LC.**
179. *C. pulchra* L. subsp. *pulchra*, A, roadside, 950 m, 28.05.2008, S. Akdeniz 1139.

180. *C. alpina* L., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1141.
181. *C. foetida* L. subsp. *rhoeadifolia* (Bieb.) Čelak., K, step, 780 m, 08.07.2007, S. Akdeniz 1013, 1021.
182. *C. sancta* (L.) Babç., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1087., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1140., Y, IFN, Akçaören, 850 m, 16.04.2009, S. Akdeniz 1218, 16.04.2009, S. Akdeniz 1219., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1284.
183. *C. setosa* Hall., K, step, 780 m, 08.07.2009, S. Akdeniz 1027.
20. PRIMULACEAE
184. *Anagallis arvensis* L. var. *caerulea* (L.) Gouan, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1110.
21. APOCYNACEAE
185. *Vinca herbacea* Waldst. & Kit., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1271.
22. CONVULVULACEAE
186. *Convolvulus arvensis* L., K, roadside, 780 m, 08.07.2007, S. Akdeniz 1005, 07.08.2007, S. Akdeniz 1044., A, roadside, 950 m, 28.05.2008, S. Akdeniz 1116, 25.06.2008, S. Akdeniz 1160., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1334.
23. CUSCUTACEAE
187. *Cuscuta Europaea* L., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1165.
24. BORAGINACEAE
188. *Myosotis ramosissima* Rochel ex Schultes subsp. *ramosissima*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1275.
189. *Neotestema apulum* (L.) Johnston, Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1084. Mediterranean.
190. *Moltkia coerulea* (Willd.) Lehm., Y, wasteland, 850 m, 20.10.2007, S. Akdeniz 1052., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1274. **Irano – Turanian.**
191. *Onosma tauricum* Pallas ex Willd. var. *brevifolium* DC., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1273. **Endemic. LC.**
192. *Cerintho minor* L. subsp. *auriculata* (Ten.) Domac, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1111, 25.06.2008, S. Akdeniz 1161.
193. *Anchusa leptophylla* Roemer & Schuter subsp. *leptophylla*, Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1082., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1114.
194. *A. undulata* L. subsp. *hybrida* (Ten.) Coutinho, A, roadside, 950 m, 28.05.2008, S. Akdeniz 1115., **Mediterranean.**
195. *A. azurea* Miller var. *azurea*, Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1083., A, roadside, 950 m, 28.05.2008, S. Akdeniz 1112.
196. *A. pusilla* Guşul, Y, Roadside, 855 m, 23.04.2008, S. Akdeniz 1081., A, roadside, 950 m, 28.05.2008, S. Akdeniz 1113., Y, Akçaören, grassland, 850 m, 16.04.2009, S. Akdeniz 1208.
25. SOLANACEAE
197. *Hyosyamus niger* L., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1118.
26. SCROPHULARIACEAE
198. *Verbascum lasianthum* Boiss. ex Bentham, A, roadside, 950 m, 25.06.2008, S. Akdeniz 1182.
199. *V. cheIranthifolium* Boiss. var. *asperulum* (Boiss.) Murb., K, step, 780 m, 08.07.2007, S. Akdeniz 1031. **Endemic. LC.**
200. *Linaria corifolia* Desf., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1259. **Irano – Turanian. Endemic. LC.**
201. *L. simplex* (Willd.) DC., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1258. Mediterranean.
202. *Digitalis lamareckii* Ivan., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1183., **Irano – Turanian. Endemic. LC.**
203. *Veronica arvensis* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1260. **Euro – Siberian.**
204. *V. triphillos* L., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1079, Akçaören, 16.04.2009, S. Akdeniz 1214., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1134.
205. *V. persica* Pioret., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1089, Akçaören, 16.04.2009, S. Akdeniz 1215.
206. *V. triloba* (Opiz.) Kerner, Y, Akçaören, wasteland, 850 m, 16.04.2009, S. Akdeniz 1216.
207. *V. hederifolia* L., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1080, Akçaören, 16.04.2009, S. Akdeniz 1217.
208. *V. multifida* L., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1063., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1261. **Irano – Turanian. Endemic. LC.**
209. *Bungea trifida* (Vahl) C. A. Meyer, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1262. **Irano – Turanian.**
27. OROBANCHACEAE

210. *Orobanch anatolica* Boiss. & Reuter, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1358.

28. GLOBULARIACEAE

211. *Globularia trichosantha* Fisch. & Mey., A, forestland, 980 m, 28.05.2008, S. Akdeniz 1121., Y, IFN, wasteland, 850 m, 16.04.2009, S. Akdeniz 1207., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1277.

29. LAMIACEAE (LABIATAE)

212. *Ajuga chamaepitys* (L.) Schreber subsp. *chia* (Schreber) Arcangeli var. *chia*, K, step, 780 m, 08.07.2007, S. Akdeniz 1010., A, roadside, 950 m, 28.05.2008, S. Akdeniz 1148.

213. *Teucrium chamaedrys* L. subsp. *chamaedrys* L., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1176. **Euro – Siberian.**

214. *T. polium* L., K, step, 780 m, 08.07.2007, S. Akdeniz 1032., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1177.

215. *Scutellaria orientalis* L. subsp. *pinnatifida* Edmondson, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1147.

216. *Phlomis pungens* Willd. var. *pungens*, K, step, 780 m, 08.07.2007, 25.06.2008, S. Akdeniz 1179.

217. *P. armeniaca* Willd., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1178. **Irano – Turanian. Endemic. LC.**

218. *Lamium garganicum* L. subsp. *reniforme* (Montbret & Aucher ex Benth) R. Mill, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1150.

219. *L. amplexicaule* L., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1088, Akçaören 16.04.2009, S. Akdeniz 1222, IFN, 16.04.2009, S. Akdeniz 1223., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1253. **Irano – Turanian.**

220. *Wiedemannia orientalis* Fisch. & Mey., Y, roadside, 855 m, 23.04.2008, S. Akdeniz 1091., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1146, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1254. **Irano – Turanian. Endemic. LC.**

221. *Stachys cretica* L. subsp. *anatolica* Rech., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1175. **Irano – Turanian. Endemic. LC.**

222. *S. annua* (L.) L. subsp. *annua* var. *lycaonica* Bhattacharjee, A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1174. **Irano – Turanian.**

223. *Thymus sipyleus* Boiss. subsp. *rosulans* (Borbàs) Jalas, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1251.

224. *T. leucostomus* Hausskn. & Velen. var. *leucostomus*, A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1181.

225. *T. longicaulis* C. Presl subsp. *longicaulis* var. *subisophyllus* (Borbàs) Jalas, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1149.

226. *Salvia cryptantha* Montbret & Aucher, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1252. **Irano – Turanian. Endemic. LC.**

227. *S. syriaca* L., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1151. **Irano – Turanian.**

228. *S. virgata* Jacq., A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1180. **Irano – Turanian.**

30. ELAEGNACEAE

229. *Elaeagnus angustifolia* L., K, step, 780 m, 07.08.2007, S. Akdeniz 1050., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1073.

31. EUPHORBIACEAE

230. *Euphorbia falcata* L. subsp. *falcata* var. *falcata*, A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1107.

231. *E. macroclada* Boiss., K, step, 780 m, 08.07.2007, S. Akdeniz 1011. **Irano – Turanian.**

232. *E. virgata* Waldst. & Kit., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1108.

32. JUGLANDACEAE

233. *Juglans regia* L., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1066.

33. FAGACEAE

234. *Quercus pubescens* Willd., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1117, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1278.

34. RUBIACEAE

235. *Asperula stricta* Boiss. subsp. *latibracteata* (Boiss.) Ehrend, Y, Akçaören, wasteland, 857 m, 20.10.2007, S. Akdeniz 1051. **Irano – Turanian. Endemic. LC.**

236. *A. arvensis* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1267. **Mediterranean.**

237. *Galium verum* L. subsp. *verum*, A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1163. **Euro – Siberian.**

238. *G. incanum* Sm. subsp. *elatius* (Boiss.) Ehrend, A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1164. **Irano – Turanian.**

239. *Cruciata taurica* (Pallas ex Willd.) Ehrend, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1266. **Irano – Turanian.**

240. *Rubia tinctorum* L., K, step, 780 m, 07.08.2007, S. Akdeniz 1042. **Irano – Turanian.**

MONOCOTYLEDONAE

35. LILIACEAE

241. *Allium paniculatum* L. subsp. *paniculatum*, K, step, 780 m, 07.08.2007, S. Akdeniz 1338. **Mediterranean.**
242. *A. scorodoprasum* L. subsp. *rotundum* (L.) Stearn, A, stony slopes, 980 m, 25.06.2008, S. Akdeniz 1339. **Mediterranean.**
243. *Ornithogalum sphaerocarpum* Kerner, Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1360.
244. *O. narbonense* L., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1342. **Mediterranean.**
245. *O. umbellatum* L., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1341.
246. *O. orthophyllum* Ten., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1340.
247. *Muscari armeniacum* Leichtlin ex Baker, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1337.
248. *M. neglectum* Guss., Y, Akçaören, wasteland, 850 m, 16.04.2009, S. Akdeniz 1336.
249. *Bellevalia clusiana* Griseb., Y, wasteland, 850 m, 23.04.2008, S. Akdeniz 1304. **Irano – Turanian. Endemic. LC.**

36. CYPERACEAE

250. *Carex tomentosa* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1354. **Euro – Siberian.**

37. POACEAE (GRAMINEAE)

251. *Aegilops speltoides* Tausch. var. *speltoides*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1297.
252. *A. triuncialis* L. subsp. *triuncialis*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1352.
253. *Hordeum geniculatum* All., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1345. **Euro – Siberian.**
254. *H. murinum* L. subsp. *glaucum* (Steudel) Tzvelev, Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1299.
255. *Bromus japonicus* Thunb. subsp. *japonicus*, A, roadside, 950 m, 28.05.2008, S. Akdeniz 1293.
256. *B. tectorum* L., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1292.
257. *B. sterilis* L., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1291.
258. *B. madritensis* L., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1296.
259. *B. tomentellus* Boiss., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, 1294. **Irano – Turanian.**
260. *B. riparius* Rehm., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1295.
261. *Arrhenatherum elatius* (L.) P. Beauv., Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1344. **Euro – Siberian.**
262. *Phleum pratense* L., A, stony slopes, 980 m, 28.05.2008, S. Akdeniz 1301. **Euro – Siberian.**
263. *P. montanum* C. Koch. subsp. *montanum*, Y, roadside, 855 m, 31.05.2009, S. Akdeniz 1300.
264. *Alopecurus myosuroides* Hudson var. *myosuroides*, A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1353. **Euro – Siberian.**
265. *Poa pratensis* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1303.
266. *P. angustifolia* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1302.
267. *P. timoleontis* Heldr. ex Boiss., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1343. **East Mediterranean.**
268. *P. bulbosa* L., A, Mountain pass of Ayaş, wasteland, 1060 m, 15.05.2009, S. Akdeniz 1298.