



## Flora of the region between copper mine and Tekevler village (Maden-Elazığ/Turkey)

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### Abstract

This study was carried out in 2005-2007 period in the surrounding of copper mine site (Maden District of Elazığ Province) which was shut and where flora was destroyed. Research area was located in the fitogeographic region and, according to David Grid system, in B7 square. Samples were collected from 2071 plant species in the scope of the study. On the basis of the analysis of these samples; 63 families, 284 types and 506 species and subspecies-level of taxons were identified. Distribution of the taxons on the basis of fitogeographic regions was as follows: Irano-Turanian 173 (34.2 %), Mediterranean 23 (4.5 %), Europe-Siberian 22 (4.3 %), and the ones with wide distribution and unknown distribution 288 (56.9 %). The number of endemic taxons was 45, with a ratio of 8.9 % to the total flora. Endemism rate recorded in the study field was found to be lower than the rate recorded in the floristic studies conducted around Maden District.

**Key words:** Copper, Endemic, Flora, Maden, Elazığ

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## Bakır madeni -Tekevler köyü arasında kalan bölgenin florası (Maden-Elazığ/Türkiye)

### Özet

Bu araştırma 2005-2007 yılları arasında bitki örtüsünün tahrip olduğu kapatılan bakır madeni sahası (Elazığ ili - Maden ilçesi) çevresinde gerçekleştirilmiştir. Çalışma alanı, İran-Turan fitocoğrafik bölgesinde ve Davis'in Grid sistemine göre B7 karesinde yer almaktadır. Çalışma sonucunda 2071 bitki örneği toplanmıştır. Bu örneklerin teşhisinden sonra, 63 aile, 284 cins ve 506 tür ve tür altı seviyede takson saptanmıştır. Taksonların fitocoğrafik bölgelere dağılımları ise şöyledir: İran Turan 173 (%34.2), Akdeniz 23 (%4.5), Avrupa-Sibirya 22 (%4.3), geniş yayılışlı ve yayılışı bilinmeyenler 288 (%56.9). Endemik takson sayısı 45 olup toplam floraya oranı %8.9'dir. Araştırma alanında tesbit ettiğimiz endemizm oranı Maden çevresinde yapılan floristik çalışmalardaki endemizm oranından düşüktür.

**Anahtar kelimeler:** Bakır, Endemic, Flora, Maden, Elazığ

### 1. Introduction

Plant diversity of Turkey stands out among those of her neighboring countries thanks to its distinctive characteristics. The number of the plant species growing in Turkey is close to the number of those growing in Europe (Erik and Tarıkahya, 2004). As can be seen, Turkey is very rich in terms of floristic structure (Cansaran and Kaya, 2010). This characteristic of Turkey results from diversity of plant-growing environments (Avcı, 2005). In other words, it can be suggested that Turkey has a rich and interesting flora due to the fact that many climatic and geomorphologic changes occur in Turkey; Turkey is located on an area where Mediterranean, Irano-Turanian and Europe-Siberia plant geographies; many crop plants grow in and around Anatolia; and Anatolia serves as a bridge between South Europe and Southwest Asia (Davis, 1965-1985).

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Anthropogenic geodynamic events occur on or in the lithosphere. People damage rock stress situation (via mines and construction works), rock composition (via agriculture, mineral degradation and change), underground and ground water regime (via desert irrigation, meadow, pasture, mine water and karstification) and lead to changes in the biosphere through these events. As the case in the geologic events; human actions result in hardening, softening, decomposition, transfer and sedimentation of rocks as well as in flooding and mass movement (Çelebi, 1994). Mass moved by people is now nearly at an equal amount to the mass moved by the natural events (Hasemann, 1978).

No floristic research was previously carried out in the research area. This study was conducted to detect characteristic features of the flora and to find out the effects of the soil, chemical wastes and toxic gases produced by the mine on the number of endemic plants.

### 1. 1. Study area

Maden copper mine is the most important mine in Turkey. Operated for more than 4000 years (Seeliger et al., 1985). Then, the decision was brought forward to 1995 (Çelebi and Peker, 1994).

East Anatolia has a rich flora, due to its variable climate and many ecological zones (Özgökçe and Özçelik, 2004). This study was carried out in 2005-2007 period in the surrounding of copper mine site (Maden District of Elazığ Province) which was shut and where flora was destroyed. Study area was located on the east of Anatolian diagonal, in the skirts of South-Eastern Taurus Mountains (Çakılcıoğlu et al., 2008), in the Upper Euphrates Region of the Eastern Anatolia Region (Şengün, 2007). Maden (Figure 1) belongs to the Iran-Turan Plant Geography Region and falls within the B7 grid square according to the Grid classification system developed by Davis (Davis, 1965-1985).

Ergani-Maden copper mine is located in the west of Maden District, at 80 km southeast of Elazığ province in the East Anatolia Region. Mine is accessed via Elazığ- Diyarbakır railway and highway (Çelebi and Peker, 1994).

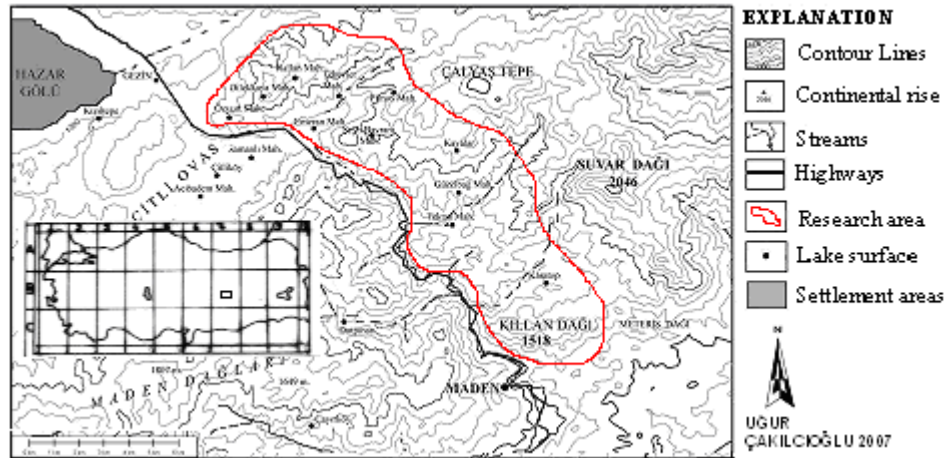


Figure 1. Topographical map of the research area

### 1. 2. Climate and geology of the study area

Data related to the climate of the study area were supplied by Maden meteorology station (Elevation: 1100 m.). The source of the data supplied by the station was Turkish State Meteorological Service (DMİGM, 2006).

Eastern Anatolia is the coldest region of Turkey (Şengün, 2007). The rainfall regime in Maden follows the order (from the most to the least rainfall) of spring, winter, autumn and summer. This regime falls into the category of Eastern Mediterranean type-2 rainfall regime. Annual average temperature is 4.3 °C, annual average rainfall is 509.7 mm., minimum average temperature in the coldest month is -7.4 °C, the lowest temperature is d: -14.2 °C, the number of years when temperature is measured is 20 and the number of years when rainfall is measured is 20. The rainfall-temperature coefficient value calculated for Maden station is 31.7. Arid period value calculated for Maden is 0.55. Accordingly, it can be concluded that research area is in the semi-arid Mediterranean bioclimatic zone and under the influence of Mediterranean climate.

Heavy exposure of the research area to intensive tectonic evolution has been reflected on the geomorphologic units as certain characteristics. In the study carried out in Ergani-Maden area; Özkaya named a deposit which is composed of grit-shale-marn intercalation and has the characteristics of flysch deprived of grey volcanic additives as "Caspian Formation", which also includes Simaki Formation. Özkan added it into Baykan Group (Özkaya, 1978).

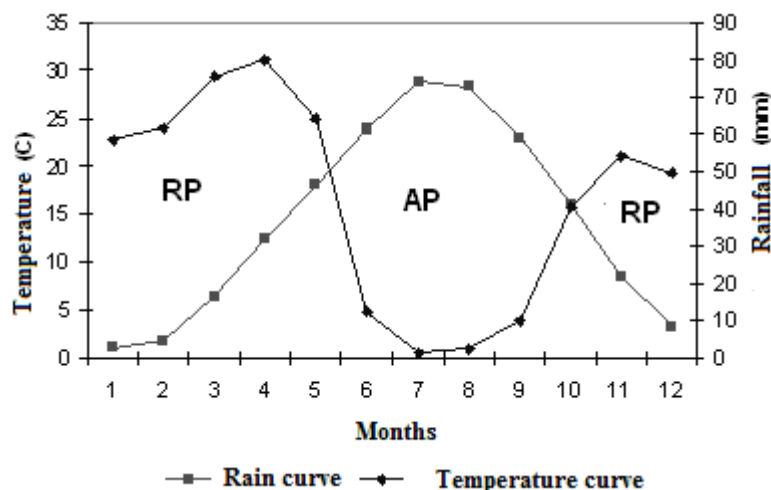


Figure 2. Rainfall-temperature diagram of Maden District

## 2. Materials and methods

This paper is based on a Ph.D. thesis. 2071 vascular plant samples collected within a period of nearly three years (March 2005-October 2007) constituted the research material. Field surveys were carried out via periodical visits paid to the research area. Plants were identified according to “Flora of Turkey and the East Aegean Islands” (Davis, 1965-1985; Davis et al., 1988) and they were compared with the samples in Fırat University Herbarium (FUH). A list of the flora is given in Appendix A. Those plants which were identified are still kept in FUH.

In listing the taxons identified, evolutionary system presented in David’s work “Flora of Turkey and the East Aegean Islands” was adopted. Then, the names of the species, their subspecies units, if any, (subspecies and variety), locality, habitat, altitude, date of collection, name of the collectors and numbers were listed. The information on the endemic status of the taxons, plant geography and the IUCN categories of the taxons (Ekim et al., 2000) were listed after the tag information. Information obtained during the floristic study was analyzed on the basis of comparisons with the flora studies conducted in the areas close to the region.

Plant collection stations (B7 Elazığ-1235-1450 m.); 1. Roadsides of Lower Karatop vil. 2. Northern slope of mt. Killan. 3. Southern slope of mt. Killan. 4. Roadside of Şehribayram st. 5. Field sides of Güzelbağ st. 6. Roadsides of Kayalar vil. 7. Roadsides of Karatop vil. 8. Slopes of Hallan st. 9. Streamsides of Pirnos st., Tekevler vil. 10. Surrounding area of the tap in Çörekli st., Tekevler vil. 11. Roadsides of Çörekli st., Tekevler vil. 12. Western slopes of Pirnos st., Tekevler vil. 13. Southern slopes of Pirnos st., Tekevler vil. 14. Southern slopes of Pirnos st., Tekevler vil. 15. Northern slopes of Pirnos st., Tekevler vil. 16. Field sides of Çörekli st., Tekevler vil. 17. Field sides of Pirnos st., Tekevler vil. 18. Field sides of Pirnos st., Tekevler vil. 19. Northern slopes of Pirnos st., Tekevler vil. 20. Roadsides of Pirnos st., Tekevler vil. 21. Eastern slopes of Pirnos st., Tekevler vil. 22. Roadsides of Pirnos st., Tekevler vil. 23. Field sides of Tektaş st. 24. Roadsides of Dilekkaya st. 25. Roadsides of Özyurt st. 26. Lower parts of western slopes and streamsides of Pirnos st., Tekevler vil. 27. Streamsides of Pirnos st., Tekevler vil. 28. Roadsides of Halan st. 29. Tekevler vil., Elazığ- Diyarbakır highway, and roadsides. 30. Field sides, Şeyhbayram st.

Data supplied by Maden meteorology station (Elevation:1100 m.) was used to evaluate the climate of the research area. DMİGM was the source of the data supplied by the station (DMİGM, 2006). The data pertaining to this station was evaluated on the basis of the evaluations of Walter (Walter, 1960) and Akman (Akman, 1990).

The abbreviations used in the floristic list are as follows; End: Endemic, Ç: Uğur Çakılçioğlu (the first author, collector), mt: Mountain, st: Street, vil; Village, Medit: Mediterranean, E.Medit: East Mediterranean, Euro-Sib: Euro-Siberian, Ir-Tur: Irano-Turanian, VU: Vulnerable, LR: Lower risk, cd: Conservation dependent, nt: Nea threaned, Ic: Least concern. AP: Arid period (Summer aridity), RP: Rainy period.

## 3. Results

Plant list of the area

### PTERIDOPHYTA

#### EQUISETACEAE

*Equisetum ra mosissimum* Desf. 1, 07.05.2006, Ç 1300; 10,

02.06.2006, Ç 2360.

### SPERMATOPHYTA

#### GYMNOSPERMAE

#### CUPRESSACEAE

*Cupressus sempervirens* L. 11, 27.05.2006, Ç 2163; 2, 18.06.2006, Ç 2570.

*Juniperus oxycedrus* L. subsp. *oxycedrus*, 11, 27.05.2006, Ç 2161; 3, 21.05.2006, Ç 1995.

### ANGIOSPERMAE

#### DICOTYLEDONES

#### RANUNCULACEAE

- Nigella o xypetala* Boiss. 12, 29.06.2005, Ç 41; 14, 29.06.2005, Ç 104; 1, 07.05.2006, Ç 1351; 2, 21.05.2006, Ç 1955; 9, 27.05.2006, Ç 2263. Ir-Tur.
- N. arvensis* L. var. *glauca* Boiss. 7, 07.05.2006, Ç 1408.
- N. ni gellastrum* (L.) Willk. 2, 21.05.2006, Ç 1956; 11, 27.05.2006, Ç 2146.
- Delphinium peregrinum* L. 3, 21.05.2006, Ç 2558; 8, 15.07.2006, Ç 2716. Ir-Tur.
- Consolida oliveriana* (DC.) Schröd. 11, 27.05.2006, Ç 2164. Ir-Tur.
- Clematis orientalis* L. 11, 27.05.2006, Ç 2147.
- Adonis aestivalis* L. subsp. *aestivalis* 11, 27.05.2006, Ç 2186.
- A. aestivalis* L. subsp. *parviflora* (Fisch. ex DC.) Busch 6, 30.04.2006, Ç 1089.
- A. flammea* Jacq. 12, 14.05.2006, Ç 1620.
- Ranunculus c onstantinopolitanus* (DC.) d'Urv. 11, 27.05.2006, Ç 2194.
- R. cuneatus* Boiss. 17, 24.04.2006, Ç 821; 18, 14.05.2006, Ç 1627.
- R. isthmicus* Boiss. subsp. *stepporum* Davis 19, 23.04.2006, Ç 815.
- R. arvensis* L. 20, 01.07.2005, Ç 458; 5, 07.05.2006, Ç 1257; 1, 07.05.2006, Ç 1301.
- R. kochii* Ledeb. 15, 23.04.2006, Ç 800. Ir-Tur.
- R. sintenisii* Freyn 11, 27.05.2006, Ç 2185. Ir-Tur.
- Ceratocephalus falcatus* (L.) Pers. 11, 27.05.2006, Ç 2192.
- PAPAVERACEAE**
- Glaucium leiocarpum* Boiss. 9, 27.05.2006, Ç 2220.
- Roemeria hybrida* (L.) DC. subsp. *hybrida* 6, 30.04.2006, Ç 1085; 5, 07.05.2006, Ç 1233.
- Papaver ac rochaetum* Bornm. 12, 21.05.2006, Ç 1805; 2, 21.05.2006, Ç 1957; 11, 27.05.2006, Ç 2129; 9, 27.05.2006, Ç 2230; 3, 21.05.2006, Ç 2576. Ir-Tur.
- P. trinifolium* Boiss. 12, 21.05.2006, Ç 1840. End. Ir-Tur. LR (lc)
- P. macrostomum* Boiss. & Huet ex Boiss. 5, 07.05.2006, Ç 1214. Ir-Tur.
- P. rhoeas* L. 21, 30.06.2005, Ç 367; 12, 21.05.2006, Ç 1844; 11, 05.08.2006, Ç 2881.
- P. lacerum* Popov 5, 07.05.2006, Ç 1252.
- P. dubium* L. 21, 30.06.2005, Ç 368; 12, 21.05.2006, Ç 1846.
- P. arenarium* Bieb. 5, 07.05.2006, Ç 1253.
- Hypocoum imberbe* Sibth. & Sm. 4, 02.04.2006, Ç 782.
- Corydalis rutifolia* (Sibth. & Sm.) DC. subsp. *erdellii* (Zucc.) Cullen & Davis 19, 23.04.2006, Ç 813.
- Fumaria as epala* Boiss. 12, 14.05.2006, Ç 1641; 24, 27.05.2006, Ç 2311. Ir-Tur.
- BRASSICACEAE (CRUCIFERAE)**
- Raphanus raphanistrum* L. 2, 21.05.2006, Ç 1958.
- Conringia perfoliata* (C.A. Mey.) Busch. 12, 14.05.2006, Ç 1650; 11, 27.05.2006, Ç 2158.
- Cardaria draba* (L.) Desv. subsp. *draba* 19, 23.04.2006, Ç 803; 5, 07.05.2006, Ç 1261.
- C. draba* (L.) Desv. subsp. *chalepensis* (L.) O.E. Schulz. 12, 29.06.2005, Ç 84.
- Isatis c andolleana* Boiss. 20, 01.07.2005, Ç 472; 21, 29.04.2006, Ç 1063. End. Ir-Tur. LR (lc)
- I. aucheri* Boiss. 19, 23.04.2006, Ç 801. End. Ir-Tur. LR (lc)
- Aethionema arabicum* (L.) Andr. ex DC. 12, 14.05.2006, Ç 1646; 3, 21.05.2006, Ç 2577.
- Ae. armenum* Boiss. 1, 07.05.2006, Ç 1353; 2, 21.05.2006, Ç 1959. Ir-Tur.
- Ae. grandiflorum* Boiss. & Hohen. 12, 29.06.2005, Ç 60; 21, 30.06.2005, Ç 433; 8, 14.05.2006, Ç 1712; 12, 21.05.2006, Ç 1834; 22, 10.06.2007, Ç 3111. Ir-Tur.
- Thlaspi arvense* L. 21, 30.06.2005, Ç 378.
- T. perfoliatum* L. 4, 02.04.2006, Ç 780; 14, 24.04.2006, Ç 826; 21, 29.04.2006, Ç 1078; 7, 07.05.2006, Ç 1408.
- Capsella bursa-pastoris* (L.) Medik. 2, 21.05.2006, Ç 1993; 12, 14.05.2006, Ç 1611.
- Boreava orientalis* Jaub. Spach 8, 14.05.2006, Ç 1718; 19, 17.06.2006, Ç 2453.
- Neslia apiculata* Fisch., Mey. & Ave-Lall. 6, 30.04.2006, Ç 1086; 5, 07.05.2006, Ç 1264; 8, 14.05.2006, Ç 1729; 24, 27.05.2006, Ç 2308.
- Tchihatchewia i satidea* Boiss. 21, 30.06.2005, Ç 441; 21, 29.04.2006, Ç 1070; 12, 14.05.2006, Ç 1644; 25, 02.06.2006, Ç 2339; 3, 21.05.2006, Ç 2578; 22, 10.06.2007, Ç 3103. End. Ir-Tur. VU
- Fibigia clypeata* (L.) Medik. 11, 27.05.2006, Ç 2184.
- F. macrocarpa* (Boiss.) Boiss. 12, 29.06.2005, Ç 73; 3, 21.05.2006, Ç 2590.
- Alyssum desertorum* Stapf. var. *desertorum* 7, 07.05.2006, Ç 1407.
- A. minutum* Schlecht. ex DC. 14, 24.04.2006, Ç 828.
- A. strictum* Willd. 12, 29.06.2005, Ç 90. Ir-Tur.
- A. szowitsianum* Fisch. & Mey. 12, 29.06.2005, Ç 69; 25, 02.06.2006, Ç 2351.
- A. minus* (L.) Rothm var. *minus* 22, 10.06.2007, Ç 3099.
- A. strigosum* Banks & Sol. subsp. *strigosum* 5, 07.05.2006, Ç 1236; 12, 14.05.2006, Ç 1613; 2, 21.05.2006, Ç 1960; 9, 27.05.2006, Ç 2244.
- A. hirsutum* Bieb. 23, 28.04.2006, Ç 895.
- A. pateri* Nyar. subsp. *pateri* 21, 22.06.2006, Ç 2645. End. Ir-Tur. LR (lc)
- A. murale* Waldst. & Kit. var. *murale* 12, 29.06.2005, Ç 96; 3, 21.05.2006, Ç 2579; 21, 22.06.2006, Ç 2664.
- Erophila verna* (L.) Chevall. subsp. *praecox* (Stev.) Walters 2, 21.05.2006, Ç 1961.
- Arabis verva* (L.) DC. 5, 07.05.2006, Ç 1220. Medit.
- Barbarea plantaginea* DC. 25, 02.06.2006, Ç 2351.
- Hesperis pendula* D.C. 21, 29.04.2006, Ç 1062.
- Malcolmia africana* (L.) R. Br. 11, 27.05.2006, Ç 2183.
- Erysimum uncinatifolium* Boiss. 8, 14.05.2006, Ç 1750; 12, 21.05.2006, Ç 1800; 2, 21.05.2006, Ç 1994. End. LR (lc)
- E. crassipes* Fisch. & Mey. 25, 02.06.2006, Ç 2351.
- E. repandum* L. 11, 27.05.2006, Ç 2191.
- Alliaria petiolata* (Bieb.) Cavara & Grande 7, 07.05.2006, Ç 1406; 8, 14.05.2006, Ç 1708.
- Sisymbrium a ltissimum* L. 19, 23.04.2006, Ç 807; 6, 30.04.2006, Ç 1095; 5, 07.05.2006, Ç 1235; 12, 14.05.2006, Ç 1637.
- Descurainia sophia* (L.) Webb ex Prantl 21, 30.06.2005, Ç 386; 8, 14.05.2006, Ç 1700; 3, 21.05.2006, Ç 2580.
- Camelina rumelica* Vel. 5, 07.05.2006, Ç 1234.
- CAPPARACEAE**
- Capparis spinosa* L. var. *spinosa* 8, 15.07.2006, Ç 2701.
- Cleome ornithopodioides* L. 16, 14.07.2007, Ç 3174.
- RESEDACEAE**
- Reseda l utea* L. var. *lutea* 12, 29.06.2005, Ç 63; 12, 14.05.2006, Ç 1609; 8, 15.07.2006, Ç 2706.
- CISTACEAE**
- Helianthemum ledifolium* (L.) Miller var. *ledifolium* 12, 21.05.2006, Ç 1827.
- VIOLACEAE**
- Viola odorata* L. 7, 07.05.2006, Ç 1406.
- V. m odesta* Fenzl 4, 02.04.2006, Ç 779; 2, 21.05.2006, Ç 1961.
- POLYGALACEAE**
- Polygala pruinosa* Boiss. subsp. *pruinosa* 3, 21.05.2006, Ç 2581.
- PORTULACACEAE**
- Portulaca oleracea* L. 16, 14.07.2007, Ç 3157.

**CARYOPHYLLACEAE**

*Arenaria serpyllifolia* L. 4, 02.04.2006, Ç 784; 7, 07.05.2006, Ç 1405.

*A. acaerosa* Boiss. 20, 01.07.2005, Ç 445; 8, 14.05.2006, Ç 1730. End. LR (lc)

*Minuartia juniperina* (L.) Maire & Petitm. 12, 29.06.2005, Ç 50.

*Stellaria media* (L.) Vill. subsp. *pallida* (Dumort.) Aschers. & Graebn. 11, 27.05.2006, Ç 2183.

*Cerastium dichotomum* L. subsp. *dichotomum* 21, 30.06.2005, Ç 421; 14, 24.04.2006, Ç 829; 2, 21.05.2006, Ç 1962.

*C. glomeratum* Thuill. 11, 27.05.2006, Ç 2190.

*Telephium oligospermum* Steud. ex Boiss. 12, 29.06.2005, Ç 92; 21, 30.06.2005, Ç 365; 20, 01.07.2005, Ç 437; 14, 18.06.2006, Ç 2535. Ir-Tur.

*Dianthus floribundus* Boiss. 21, 22.06.2006, Ç 2623; 8, 15.07.2006, Ç 2767.

*Velezia rigida* L. 14, 18.06.2006, Ç 2555.

*Saponaria viscosa* C.A. Meyer 11, 27.05.2006, Ç 2182. Ir-Tur.

*S. prostrata* Willd. subsp. *anatolica* Hedge 21, 30.06.2005, Ç 399; 20, 01.07.2005, Ç 483; 12, 21.05.2006, Ç 1811. End. LR (lc)

*Gypsophila v enusta* Fenzl 14, 18.06.2006, Ç 2552; 8, 15.07.2006, Ç 2781. Ir-Tur.

*Vaccaria pyramidata* Medik. var. *grandiflora* (Fisch. ex DC.) Cullen 12, 29.06.2005, Ç 40; 14, 29.06.2005, Ç 138; 20, 01.07.2005, Ç 438; 9, 27.05.2006, Ç 2256; 3, 21.05.2006, Ç 2582; 19, 17.06.2006, Ç 2447. Ir-Tur.

*Silene armena* Boiss. var. *armena* 21, 29.04.2006, Ç 1079.

*S. chlorifolia* Sm. 12, 29.06.2005, Ç 59; 14, 29.06.2005, Ç 108; 25, 02.06.2006, Ç 2357; 21, 22.06.2006, Ç 2621; 8, 15.07.2006, Ç 2708; 16, 14.07.2007, Ç 3150. Ir-Tur.

*S. muradica* Schischk. 12, 29.06.2005, Ç 83; 21, 22.06.2006, Ç 2643. End. Ir-Tur. LR (lc)

*S. s upina* Bieb. subsp. *pruinosa* (Boiss.) Chowdh. 7, 07.05.2006, Ç 1404.

*S. ampullata* Boiss. 20, 01.07.2005, Ç 442; 25, 02.06.2006, Ç 2338. Ir-Tur.

*S. vulgaris* (Moench) Garcke var. *vulgaris* 12, 29.06.2005, Ç 80; 26, 14.05.2006, Ç 1612; 11, 27.05.2006, Ç 2109.

*S. compacta* Fischer 14, 18.06.2006, Ç 2553; 8, 15.07.2006, Ç 2780.

*S. c onoidea* L. 14, 29.06.2005, Ç 103; 12, 21.05.2006, Ç 1820.

*Agrostemma gi thago* L. 21, 30.06.2005, Ç 375; 19, 17.06.2006, Ç 2434; 3, 21.05.2006, Ç 2591.

**ILLECEBRACEAE**

*Herniaria incana* Lam. 25, 02.06.2006, Ç 2361.

*Paronychia kurdica* Boiss. subsp. *kurdica* var. *kurdica* 21, 29.04.2006, Ç 1066; 2, 21.05.2006, Ç 1963; 14, 18.06.2006, Ç 2544.

**POLYGONACEAE**

*Atraphaxis bi llardieri* Jaub. & Spach var. *billardieri* 21, 22.06.2006, Ç 2676. Ir-Tur.

*Polygonum cognatum* Meissn. 27, 10.06.2007, Ç 3117.

*P. arenarium* Waldst. & Kit. 8, 15.07.2006, Ç 2714.

*Rumex acetosella* L. 12, 29.06.2005, Ç 55; 21, 30.06.2005, Ç 418; 12, 21.05.2006, Ç 1823.

*R. scutatus* L. 12, 29.06.2005, Ç 72; 21, 30.06.2005, Ç 405; 8, 14.05.2006, Ç 1727; 11, 27.05.2006, Ç 2128; 3, 21.05.2006, Ç 2583.

*R. t uberosus* L. subsp. *horizontalis* (Koch) Rech. 16, 14.07.2007, Ç 3180.

*R. crispus* L. 19, 17.06.2006, Ç 2460.

**CHENOPODIACEAE**

*Chenopodium bot rys* L. 3, 21.05.2006, Ç 2592; 11, 05.08.2006, Ç 2839.

*C. album* L. subsp. *album* var. *album* 16, 14.07.2007, Ç 3161. *Atriplex rosea* L. 8, 15.07.2006, Ç 2715; 11, 05.08.2006, Ç 2836.

*Salsola r uthenica* Iljin. 11, 05.08.2006, Ç 2814; 8, 15.07.2006, Ç 2718.

**AMARANTHACEAE**

*Amaranthus r etroflexus* L. 11, 05.08.2006, Ç 2885; 16, 14.07.2007, Ç 3162.

*A. albus* L. 11, 05.08.2006, Ç 2800.

**TAMARICACEAE**

*Tamarix smyrnensis* Bunge 9, 27.05.2006, Ç 2225.

*Myricaria germanica* (L.) Desv. 16, 14.07.2007, Ç 3164.

**HYPERICACEAE (GUTTIFERAE)**

*Hypericum sc abroides* Robson & Poulter 11, 05.08.2006, Ç 2872. End. Ir-Tur. VU

*H. sc abrum* L. 12, 29.06.2005, Ç 67; 21, 30.06.2005, Ç 400; 20, 01.07.2005, Ç 452; 21, 29.04.2006, Ç 1053; 9, 27.05.2006, Ç 2222; 14, 18.06.2006, Ç 2519. Ir-Tur.

*H. triguetrifolium* Tura 29, 19.10.2007, Ç 3191.

**MALVACEAE**

*Malva neglecta* Wallr. 7, 07.05.2006, Ç 1403; 2, 21.05.2006, Ç 1964; 3, 21.05.2006, Ç 2584; 16, 14.07.2007, Ç 3165.

*Alcea striata* (DC.) Alef. subsp. *rufescens* (Boiss.) Cullen 16, 14.07.2007, Ç 3160.

*Althaea cannabina* L. 16, 14.07.2007, Ç 3176.

**LINACEAE**

*Linum m ucronatum* Bertol. subsp. *armenum* (Bordz.) Davis 21, 22.06.2006, Ç 2660. Ir-Tur.

*L. nodiflorum* L. 21, 30.06.2005, Ç 392; 20, 01.07.2005, Ç 478; 9, 27.05.2006, Ç 2232; 25, 02.06.2006, Ç 2353; 19, 17.06.2006, Ç 2451. Medit.

**GERANIACEAE**

*Geranium rotundifolium* L. 12, 29.06.2005, Ç 30.

*G. tuberosum* L. subsp. *tuberosum* 14, 24.04.2006, Ç 824; 16, 29.04.2006, Ç 1048; 12, 14.05.2006, Ç 1630.

*G. stepporum* Davis 7, 07.05.2006, Ç 1402; 2, 21.05.2006, Ç 1965. Ir-Tur.

*Erodium c icutarium* (L.) L.'Herit. subsp. *cicutarium* 12, 14.05.2006, Ç 1631.

**ZYGOPHYLLACEAE**

*Zygophyllum fabago* L. 11, 05.08.2006, Ç 2825.

*Peganum harmala* L. 11, 05.08.2006, Ç 2823.

**RUTACEAE**

*Haplophyllum cappadocicum* Spach 11, 05.08.2006, Ç 2884. End. Ir-Tur.

**RHAMNACEAE**

*Paliurus s pina-christi* Miller 19, 17.06.2006, Ç 2457; 3, 21.05.2006, Ç 2593.

**ANACARDIACEAE**

*Rhus coriaria* L. 11, 05.08.2006, Ç 2833.

*Pistacia terebinthus* L. subsp. *palaestina* (Boiss.) Engler. 11, 05.08.2006, Ç 2802. Medit.

**FABACEAE (LEGUMINOSAE)**

*Robina pseudoacacia* L. 24, 27.05.2006, Ç 2325.

*Colutea cilicica* Boiss. & Bal. 3, 21.05.2006, Ç 2585.

*Astragalus l anigerus* Desf. 21, 30.06.2005, Ç 362; 20, 01.07.2005, Ç 448; 12, 21.05.2006, Ç 1803. Ir-Tur.

*A. gummifer* Lab. 21, 22.06.2006, Ç 2607; 10, 15.07.2006, Ç 2735. Ir-Tur.

*A. compactus* Lam. 14, 29.06.2005, Ç 157; 21, 22.06.2006, Ç 2608. Ir-Tur.

*A. lamarckii* Boiss. 21, 22.06.2006, Ç 2616. End. Ir-Tur.

*A. cephalotes* Banks & Sol. var. *cephalotes* 10, 15.07.2006, Ç 2754.

- A. odoratus* Lam. 3, 21.05.2006, Ç 2595; 21, 22.06.2006, Ç 2650.
- A. onobrychis* L. 12, 29.06.2005, Ç 52; 21, 30.06.2005, Ç 414; 20, 01.07.2005, Ç 444; 8, 14.05.2006, Ç 1720; 2, 21.05.2006, Ç 1966.
- A. bicolor* Lam. 10, 15.07.2006, Ç 2756; 11, 05.08.2006, Ç 2870. Ir-Tur.
- A. scabrifolius* Boiss. 8, 14.05.2006, Ç 1723; 24, 27.05.2006, Ç 2301. End. Ir-Tur.
- Cicer pinnatifidum* Jaub. & Spach 7, 07.05.2006, Ç 1401. 2, 21.05.2006, Ç 1967.
- Vicia cracca* L. subsp. *stenophylla* Vel. 25, 02.06.2006, Ç 2336.
- V. noeana* Reuter ex Boiss. var. *noeana* 11, 05.08.2006, Ç 2878. Ir-Tur.
- V. sericocarpa* Fenzl var. *sericocarpa* 2, 21.05.2006, Ç 1967.
- V. anatolica* L. 12, 21.05.2006, Ç 1836; 9, 27.05.2006, Ç 2237. Ir-Tur.
- V. cuspidata* Boiss. 21, 29.04.2006, Ç 1081. Doğu Akd.
- V. sativa* L. subsp. *nigra* (L.) Ehrh. var. *nigra* 5, 07.05.2006, Ç 1225; 12, 21.05.2006, Ç 1839; 11, 27.05.2006, Ç 2140; 9, 27.05.2006, Ç 2262.
- Lens orientalis* (Boiss.) Hand.-Mazz. 11, 27.05.2006, Ç 2181.
- Lathyrus vinealis* Boiss. & Noe 21, 29.04.2006, Ç 1080. Ir-Tur.
- L. inconspicuus* L. 21, 30.06.2005, Ç 351.
- L. annuus* L. 5, 07.05.2006, Ç 1240. Medit.
- L. cicera* L. 19, 17.06.2006, Ç 2440.
- L. sativus* L. 21, 29.04.2006, Ç 1082.
- L. hirsutus* L. 5, 07.05.2006, Ç 1259.
- Pisum sativum* L. subsp. *elatius* (Bieb.) Aschers. & Graebn var. *elatius* 21, 29.04.2006, Ç 1061. Medit.
- Ononis spinosa* L. subsp. *leiosperma* (Boiss.) Sirj. 10, 15.07.2006, Ç 2769.
- Trifolium repens* L. var. *repens* 19, 17.06.2006, Ç 2431.
- T. campestre* Schreb. 12, 29.06.2005, Ç 24; 11, 05.08.2006, Ç 2883.
- T. resupinatum* L. var. *resupinatum* 9, 27.05.2006, Ç 2265.
- T. pratense* L. var. *pratense* 21, 30.06.2005, Ç 424; 12, 21.05.2006, Ç 1812.
- T. pratense* L. var. *americanum* Harz. 24, 27.05.2006, Ç 2309; 10, 15.07.2006, Ç 2753.
- T. arvense* L. var. *arvense* 11, 27.05.2006, Ç 2180.
- T. purpureum* Lois. var. *purpureum* 5, 07.05.2006, Ç 1245.
- T. dasyurum* C. Presl 10, 15.07.2006, Ç 2731. E.Medit.
- T. paucifolium* d'Urv. 6, 30.04.2006, Ç 1097; 2, 21.05.2006, Ç 1968. E.Medit.
- Melilotus officinalis* (L.) Desr. 12, 29.06.2005, Ç 38; 14, 18.06.2006, Ç 2547.
- M. alba* Desr. 10, 15.07.2006, Ç 2748.
- Trigonella pruneriana* Boiss. var. *spruneriana* 10, 15.07.2006, Ç 2722. Ir-Tur.
- T. mesopotamica* Hub.-Mor. 10, 15.07.2006, Ç 2741. Ir-Tur.
- T. monantha* C.A. Meyer subsp. *monantha* 10, 15.07.2006, Ç 2762. Ir-Tur.
- T. spicata* Sibth. & Sm. 10, 15.07.2006, Ç 2752. E.Medit.
- Medicago lupulina* L. 21, 30.06.2005, Ç 286; 25, 02.06.2006, Ç 2342.
- M. sativa* L. subsp. *sativa* 10, 15.07.2006, Ç 2723; 11, 05.08.2006, Ç 2815.
- M. minima* (L.) Bart. var. *minima* 7, 07.05.2006, Ç 1400.
- M. rigidula* (L.) All. var. *rigidula* 12, 29.06.2005, Ç 68; 2, 21.05.2006, Ç 1969.
- Lotus corniculatus* L. var. *corniculatus* 21, 30.06.2005, Ç 408; 19, 17.06.2006, Ç 2429; 21, 22.06.2006, Ç 2646.
- L. gebelia* Vent. var. *gebelia* 21, 30.06.2005, Ç 420; 20, 01.07.2005, Ç 460; 12, 21.05.2006, Ç 1804; 9, 27.05.2006, Ç 2202; 25, 02.06.2006, Ç 2343.
- Coronilla orientalis* Miller var. *orientalis* 12, 29.06.2005, Ç 25; 21, 30.06.2005, Ç 361; 19, 17.06.2006, Ç 2450.
- Hedysarum syriacum* Boiss. 11, 05.08.2006, Ç 2806. Ir-Tur.
- Onobrychis fallax* Freyn & Sint. 21, 30.06.2005, Ç 344. End.
- ROSACEAE**
- Prunus divaricata* Ledeb. subsp. *divaricata* 8, 15.07.2006, Ç 2783.
- Cerasus miocarpa* (C.A. Meyer) Boiss. subsp. *tortuosa* (Boiss. & Hausskn.) Browicz 16, 14.07.2007, Ç 3178. Ir-Tur.
- C. mahaleb* (L.) Miller var. *mahaleb* 26, 14.05.2006, Ç 1642.
- Amygdalus communis* L. 5, 07.05.2006, Ç 1205.
- Rubus sanctus* Schreber 2, 21.05.2006, Ç 1970; 25, 02.06.2006, Ç 2359.
- R. dioscori* Weihe & Nees 11, 27.05.2006, Ç 2161; 8, 15.07.2006, Ç 2778.
- R. canescens* DC. var. *canescens* 22, 22.06.2006, Ç 2678.
- Potentilla achrana* Th. Wolf 11, 27.05.2006, Ç 2179. Ir-Tur.
- P. recta* L. 24, 27.05.2006, Ç 2300; 19, 17.06.2006, Ç 2430; 22, 10.06.2007, Ç 3086.
- Agrimonia eupatoria* L. 8, 15.07.2006, Ç 2764.
- Sanguisorba minor* Scop. subsp. *minor* 20, 01.07.2005, Ç 439; 11, 27.05.2006, Ç 2124; 9, 27.05.2006, Ç 2243.
- S. minor* Scop. subsp. *muricata* (Spach) Briq. 21, 30.06.2005, Ç 376; 11, 27.05.2006, Ç 2111.
- Alchemilla pseudocartalinica* Juz. 9, 27.05.2006, Ç 2272.
- Rosa he misphaerica* J. Herrm. 22, 22.06.2006, Ç 2679. Ir-Tur.
- R. canina* L. 8, 15.07.2006, Ç 2725; 22, 10.06.2007, Ç 3087.
- Cotoneaster nummularia* Fisch. & Mey. 16, 14.07.2007, Ç 3179.
- Crataegus szovitsii* Pojark. 24, 27.05.2006, Ç 2333. Ir-Tur.
- C. meyeri* Pojark. 11, 05.08.2006, Ç 2884. Ir-Tur.
- Pyrus communis* L. subsp. *communis* 5, 07.05.2006, Ç 1209, 2, 21.05.2006; Ç 1971.
- P. elaeagnifolia* Pallas subsp. *elaeagnifolia* 21, 29.04.2006, Ç 1073.
- ONAGRACEAE**
- Epilobium hirsutum* L. 10, 15.07.2006, Ç 2772; 11, 05.08.2006, Ç 2802.
- CRASSULACEAE**
- Rosularia hausknichtii* Boiss. & Reuter 11, 27.05.2006, Ç 2178. End. Ir-Tur.
- APIACEAE (UMBELLIFERAE)**
- Eryngium bilardieri* Delar. 8, 15.07.2006, Ç 2757; 11, 05.08.2006, Ç 2810. Ir-Tur.
- E. campestre* L. var. *virens* Link 16, 14.07.2007, Ç 3166.
- Echinophora tenuifolia* L. subsp. *sibthorpiana* (Guss.) Tutin 16, 14.07.2007, Ç 3183. Ir-Tur.
- Grammosciadium platycarpum* Boiss. & Hausskn. 11, 27.05.2006, Ç 2177. Ir-Tur.
- G. pterocarpum* Boiss. & Hausskn. 26, 14.05.2006, Ç 1648. Ir-Tur.
- Scandix tellata* Banks & Sol. 20, 01.07.2005, Ç 455; 5, 07.05.2006, Ç 1254; 26, 14.05.2006, Ç 1623; 12, 21.05.2006, Ç 1843.
- Bifora radians* Bieb. 21, 22.06.2006, Ç 2677.
- Bunium paucifolium* DC. var. *paucifolium* 12, 21.05.2006, Ç 1826; 2, 21.05.2006, Ç 1972; 19, 17.06.2006, Ç 2449. Ir-Tur.
- Pimpinella kotschyana* Boiss. 14, 29.06.2005, Ç 125; 21, 22.06.2006, Ç 2639. Ir-Tur.
- Lecokia cretica* (Lam.) DC. 11, 27.05.2006, Ç 2176.
- Prangos pucedanifolia* Fenzl 16, 14.07.2007, Ç 3182. Ir-Tur.

*Bupleurum rotundifolium* L. 14, 29.06.2005, Ç 131; 12, 21.05.2006, Ç 1848; 19, 17.06.2006, Ç 2445; 14, 18.06.2006, Ç 2548.

*B. gerardii* All. 11, 27.05.2006, Ç 2105.

*Falcaria vulgaris* Bernh. 14, 18.06.2006, Ç 2557.

*Ferula orientalis* L. 12, 29.06.2005, Ç 32. Ir-Tur.

*Malabaila lasiocarpa* Boiss. 8, 14.05.2006, Ç 1711. End. Ir-Tur. LR (lc)

*M. dasyantha* (C. Koch) Grossh. 19, 17.06.2006, Ç 2455. Ir-Tur.

*M. secacul* Banks & Sol. 20, 01.07.2005, Ç 470.

*Zosima absinthifolia* (Vent.) Link 12, 29.06.2005, Ç 71; 9, 27.05.2006, Ç 2212.

*Torilis arvensis* (Huds.) Link subsp. *arvensis* 21, 30.06.2005, Ç 430.

*T. leptophylla* (L.) Reichb. 21, 29.04.2006, Ç 1077.

*T. leptocarpa* (Hochst) Townsend 22, 22.06.2006, Ç 2680. Ir-Tur.

*Astrodaucus orientalis* (L.) Drude. 21, 22.06.2006, Ç 2638. Ir-Tur.

*Caucalis platycarpus* L. 20, 01.07.2005, Ç 456.

*Turgenia latifolia* (L.) Hoffm. 14, 29.06.2005, Ç 115; 20, 01.07.2005, Ç 467.

*Daucus carota* L. 8, 15.07.2006, Ç 2771.

*Artemisia squamata* L. 19, 17.06.2006, Ç 2461.

#### CAPRIFOLIACEAE

*Sambucus ebulus* L. 22, 22.06.2006, Ç 2681. Euro-Sib.

#### RUBIACEAE

*Crucianella angustifolia* L. 11, 27.05.2006, Ç 2162. Medit.

*Asperula glomerata* (Bieb.) Griseb. subsp. *condensata* (Ehrend.) Ehrend. var. *condensata* 11, 05.08.2006, Ç 2885. Ir-Tur.

*A. stricta* Boiss. subsp. *latibracteata* (Boiss.) Ehrend. 19, 17.06.2006, Ç 2458. End. Ir-Tur. LR (lc)

*A. xylorrhiza* Nab. 12, 29.06.2005, Ç 23; 20, 01.07.2005, Ç 459; 8, 14.05.2006, Ç 1735; 11, 27.05.2006, Ç 2152; 25, 02.06.2006, Ç 2335. Ir-Tur.

*A. arvensis* L. 12, 29.06.2005, Ç 81; 20, 01.07.2005, Ç 457; 26, 14.05.2006, Ç 1619; 9, 27.05.2006, Ç 2267; 8, 15.07.2006, Ç 2761. Medit.

*Galium verum* L. subsp. *verum* 21, 22.06.2006, Ç 2637. Euro-Sib.

*G. mite* Boiss. & Hohen. 8, 15.07.2006, Ç 2760. Ir-Tur.

*G. incanum* Sm. subsp. *elatius* (Boiss.) Ehrend. 22, 22.06.2006, Ç 2681. Ir-Tur.

*G. spurium* L. subsp. *spurium* 1, 07.05.2006, Ç 1359. Euro-Sib.

*G. aparine* L. 12, 29.06.2005, Ç 49.

*G. nigricans* Boiss. 26, 14.05.2006, Ç 1618. Ir-Tur.

*G. runcinatum* Ehrend. & Schönb.-Tem. 8, 15.07.2006, Ç 2784. End. Ir-Tur. VU

*Callipeltis cucullaria* (L.) Steven 12, 21.05.2006, Ç 1849. Ir-Tur.

*Cruciata taurica* (Pallas ex Willd.) Ehrend. 21, 30.06.2005, Ç 369; 14, 24.04.2006, Ç 830; 21, 29.04.2006, Ç 1059; 26, 14.05.2006, Ç 1639; 25, 02.06.2006, Ç 2349. Ir-Tur.

*C. articulata* (L.) Ehrend. 14, 18.06.2006, Ç 2556. Ir-Tur.

*Rubia tinctorum* L. 25, 02.06.2006, Ç 2360; 16, 14.07.2007, Ç 3168. Ir-Tur.

#### VALERIANACEAE

*Valeriana isymbriifolia* Vahl. 26, 14.05.2006, Ç 1604. Ir-Tur.

*V. dioscoridis* Sm. 1, 07.05.2006, Ç 1309. E.Medit.

*Valerianella carinata* Lois. 30, 02.04.2006, Ç 783.

*V. pumila* (L.) DC. 5, 07.05.2006, Ç 1246; 12, 14.05.2006, Ç 1603.

*V. ves icaria* (L.) Moench 5, 07.05.2006, Ç 1210; 8, 14.05.2006, Ç 1713; 3, 21.05.2006, Ç 2559.

#### DIPSACACEAE

*Dipsacus laciniatus* L. 4, 02.08.2005, Ç 508.

*Cephalaria syriaca* (L.) Schrader 11, 05.08.2006, Ç 2886.

*Scabiosa argentea* L. 24, 27.05.2006, Ç 2304.

*S. micrantha* Desf. 8, 15.07.2006, Ç 2704.

*S. persica* Boiss. 14, 29.06.2005, Ç 106; 21, 22.06.2006, Ç 2655. Ir-Tur.

*S. rotata* Bieb. 12, 21.05.2006, Ç 1806. Ir-Tur.

*Pterocephalus plumosus* (L.) Coulter 11, 27.05.2006, Ç 2144; 9, 27.05.2006, Ç 2233.

#### ASTERACEAE (COMPOSITAE)

*Helichrysum plicatum* DC. subsp. *plicatum* 12, 29.06.2005, Ç 28; 21, 30.06.2005, Ç 350; 25, 02.06.2006, Ç 2334; 19, 17.06.2006, Ç 2425; 21, 22.06.2006, Ç 2604; 11, 05.08.2006, Ç 2858.

*Cymbolaena griffithii* (A. Gray) Wagenitz 9, 27.05.2006, Ç 2247. Ir-Tur.

*Conyza canadensis* (L.) Cronquist 11, 05.08.2006, Ç 2817.

*Bellis perennis* L. 6, 12.03.2006, Ç 767. Euro-Sib.

*Senecio mollis* Willd. 11, 05.08.2006, Ç 2847. Ir-Tur.

*S. eriospermus* DC. var. *eriospermus* 21, 22.06.2006, Ç 2654. Ir-Tur.

*S. vernalis* Waldst. & Kit. 20, 01.07.2005, Ç 464; 19, 23.04.2006, Ç 810; 23, 28.04.2006, Ç 896; 21, 29.04.2006, Ç 1057; 11, 27.05.2006, Ç 2101.

*Tussilago farfara* L. 9, 27.05.2006, Ç 2261. Euro-Sib.

*Anthemis cretica* L. subsp. *pontica* (Willd.) Grierson 11, 05.08.2006, Ç 2888.

*A. kotschyana* Boiss. var. *kotschyana* 8, 14.05.2006, Ç 1743; 11, 27.05.2006, Ç 2138; 9, 27.05.2006, Ç 2227; 24, 27.05.2006, Ç 2331; 22, 10.06.2007, Ç 3094.

*A. cotula* L. 21, 22.06.2006, Ç 2651.

*A. pseudocotula* Boiss. 23, 28.04.2006, Ç 887; 5, 07.05.2006, Ç 1255; 8, 14.05.2006, Ç 1702.

*A. tinctoria* L. var. *tinctoria* 21, 30.06.2005, Ç 403; 25, 02.06.2006, Ç 2340.

*A. austriaca* Jacq. 12, 29.06.2005, Ç 87; 14, 29.06.2005, Ç 146; 21, 30.06.2005, Ç 360; 12, 21.05.2006, Ç 1842; 11, 27.05.2006, Ç 2125; 9, 27.05.2006, Ç 2259; 24, 27.05.2006, Ç 2323.

*A. wiedemanniana* Fisch. & Mey. 25, 02.06.2006, Ç 2348; 21, 22.06.2006, Ç 2649. End. LR (lc)

*Achillea schischkinii* Sosn. 12, 29.06.2005, Ç 57; 21, 30.06.2005, Ç 411; 8, 14.05.2006, Ç 1733; 19, 17.06.2006, Ç 2444. End. Ir-Tur. LR (lc)

*A. aleppica* DC. subsp. *aleppica* 21, 30.06.2005, Ç 381. Ir-Tur.

*A. millefolium* L. subsp. *millefolium* 21, 30.06.2005, Ç 345; 19, 17.06.2006, Ç 2427. Euro-Sib.

*A. biebersteinii* Afan. 21, 30.06.2005, Ç 431. Ir-Tur.

*Tanacetum c admeum* (Boiss.) Heywood subsp. *orientale* Grierson 3, 21.05.2006, Ç 2587. End. Ir-Tur. LR (lc)

*T. argyrophyllum* (C. Koch) Tzvel. var. *argyrophyllum* 12, 29.06.2005, Ç 26; 14, 29.06.2005, Ç 130; 21, 30.06.2005, Ç 404; 20, 01.07.2005, Ç 447; 19, 17.06.2006, Ç 2442; 3, 21.05.2006, Ç 2560. Ir-Tur.

*Tripleurospermum sevanense* (Manden.) Pobed. 24, 27.05.2006, Ç 2313; 8, 15.07.2006, Ç 2774.

*T. transcausicum* (Manden.) Pobed. 3, 21.05.2006, Ç 2596.

*Artemisia vulgaris* L. 16, 14.07.2007, Ç 3159.

*Gundelia tournefortii* L. var. *tenuisecta* Boiss. 8, 14.05.2006, Ç 1745; 11, 27.05.2006, Ç 2135; 25, 02.06.2006, Ç 2334.

*Onopordum candidum* Nab. 11, 05.08.2006, Ç 2850. Ir-Tur.

*O. arduchorum* Bornm. & Beauverd 11, 27.05.2006, Ç 2131. Ir-Tur.

- Cirsium creticum* (Lam.) d'Urv. subsp. *creticum* 4, 02.08.2005, Ç 509. E.Medit.
- C. arvense* (L.) Scop. subsp. *vestitum* (Wimmer & Grab.) Petrak 16, 14.07.2007, Ç 3153.
- Picnomon acarna* (L.) Cass. 11, 05.08.2006, Ç 2828. Medit.
- Carduus nutans* L. subsp. *nutans* 21, 30.06.2005, Ç 429; 21, 22.06.2006, Ç 2647; 22, 10.06.2007, Ç 3105.
- C. pycnocephalus* L. subsp. *albidus* (Bieb.) Kazmi 12, 29.06.2005, Ç 70; 5, 07.05.2006, Ç 1216; 8, 14.05.2006, Ç 1704.
- Jurinea ancyrensis* Bornm. 16, 14.07.2007, Ç 3159. End. Ir-Tur. LR (lc)
- Serratula cernitifolia* (Sm.) Boiss. 12, 29.06.2005, Ç 121; 21, 22.06.2006, Ç 2642.
- Centaurea aggregata* Fisch. & Mey. ex DC. subsp. *aggregata* 14, 18.06.2006, Ç 2539; 8, 15.07.2006, Ç 2775.
- C. saligna* (C. Koch) Wagenitz 21, 22.06.2006, Ç 2602. End. Ir-Tur. LR (lc)
- C. kurdica* Reichardt 9, 27.05.2006, Ç 2203. End. Ir-Tur. LR (nt)
- C. solstitialis* L. subsp. *solstitialis* 21, 22.06.2006, Ç 2612; 11, 05.08.2006, Ç 2808; 16, 14.07.2007, Ç 3170.
- C. iberica* Trev. ex Sprengel 14, 29.06.2005, Ç 137; 9, 27.05.2006, Ç 2261; 21, 22.06.2006, Ç 2635; 8, 15.07.2006, Ç 2736.
- C. urvillei* DC. subsp. *armata* Wagenitz 12, 21.05.2006, Ç 1821. 14, 18.06.2006, Ç 2552. E.Medit.
- C. urvillei* DC. subsp. *hayekiana* Wagenitz 20, 01.07.2005, Ç 484. Ir-Tur.
- C. pichleri* Boiss. subsp. *pichleri* 12, 14.05.2006, Ç 1643; 22, 10.06.2007, Ç 3090.
- C. depressa* Bieb. 12, 29.06.2005, Ç 99; 20, 01.07.2005, Ç 450.
- Crupina crupinastrum* (Moris) Vis. 12, 29.06.2005, Ç 65; 5, 07.05.2006, Ç 1223; 11, 27.05.2006, Ç 2107; 9, 27.05.2006, Ç 2248; 19, 17.06.2006, Ç 2456; 11, 05.08.2006, Ç 2831.
- Chnicus benedictus* L. var. *kotschyi* Boiss. 12, 29.06.2005, Ç 46; 23, 28.04.2006, Ç 897; 6, 30.04.2006, Ç 1091; 12, 14.05.2006, Ç 1614.
- Carthamus dentatus* Vahl. 16, 14.07.2007, Ç 3172.
- Carlina oligocephala* Boiss. & Kotschy. subsp. *oligocephala* 8, 15.07.2006, Ç 2724.
- Xeranthemum annuum* L. 4, 02.08.2005, Ç 510.
- Siebera nana* (DC.) Bornm. 11, 05.08.2006, Ç 2887. Ir-Tur.
- Chardinia orientalis* (L.) O. Kuntze 12, 29.06.2005, Ç 42; 5, 07.05.2006, Ç 1244; 3, 21.05.2006, Ç 2561; 8, 15.07.2006, Ç 2737. Ir-Tur.
- Echinops orientalis* Trautv. 14, 29.06.2005, Ç 147; 9, 27.05.2006, Ç 2223; 8, 15.07.2006, Ç 2720; 11, 05.08.2006, Ç 2816; 22, 10.06.2007, Ç 3098; 16, 14.07.2007, Ç 3169. Ir-Tur.
- Cichorium intybus* L. 8, 15.07.2006, Ç 2773; 11, 05.08.2006, Ç 2801.
- Scorzonera mollis* Bieb. subsp. *mollis* 19, 23.04.2006, Ç 817.
- S. semicana* DC. 12, 29.06.2005, Ç 86. 8, 14.05.2006, Ç 1715. End. Ir-Tur. LR (lc)
- Tragopogon longirostris* Bisch. ex Schultz Bip. var. *longirostris* 12, 29.06.2005, Ç 77.
- T. pterocarpus* DC. 12, 29.06.2005, Ç 85; 5, 07.05.2006, Ç 1202. Ir-Tur.
- T. latifolius* Boiss. var. *angustifolius* Boiss. 21, 30.06.2005, Ç 391. Ir-Tur.
- Leontodon asperimus* (Willd.) J. Ball. 22, 10.06.2007, Ç 3109. Ir-Tur.
- Rhagadiolus angulosus* (Jaub. & Spach) Kupicha 11, 27.05.2006, Ç 2175. Ir-Tur.
- Sonchus asper* (L.) Hill subsp. *glaucescens* (Jordan) Ball. 6, 30.04.2006, Ç 1099.
- Pilosella x fallax* (Willd.) Arvet-Touvet. 19, 17.06.2006, Ç 2426; 27, 10.06.2007, Ç 3119.
- P. xm acrotricha* (Boiss.) C.H. & F.W. Schultz 11, 05.08.2006, Ç 2833.
- Lactuca serriola* L. 8, 15.07.2006, Ç 2712. Euro-Sib.
- Scariola orientalis* (Boiss.) Sojak 11, 05.08.2006, Ç 2835. Ir-Tur.
- Taraxacum montanum* (C.A. Meyer) DC. 11, 05.08.2006, Ç 2837. Ir-Tur.
- T. hybernum* Stev. 21, 29.04.2006, Ç 1056.
- T. b ellidiforme* van Soest 6, 12.03.2006, Ç 768; 12, 14.05.2006, Ç 1640; 8, 15.07.2006, Ç 2717. End. Ir-Tur. LR (lc)
- Chondrilla juncea* L. var. *juncea* 4, 02.08.2005, Ç 511.
- Crepis alpina* L. 12, 29.06.2005, Ç 97; 11, 27.05.2006, Ç 2119; 9, 27.05.2006, Ç 2258; 24, 27.05.2006, Ç 2324.
- C. foetida* L. subsp. *rhoeadifolia* (Bieb.) Celak. 21, 22.06.2006, Ç 2672.
- C. sancta* (L.) Babcock 12, 29.06.2005, Ç 62; 6, 30.04.2006, Ç 1087; 5, 07.05.2006, Ç 1251; 12, 14.05.2006, Ç 1626; 21, 22.06.2006, Ç 2673.
- CAMPANULACEAE**
- Campanula conferta* A. DC. 27, 10.06.2007, Ç 3114. Ir-Tur.
- C. propinqua* Fisch. & Mey. 11, 05.08.2006, Ç 2880. Ir-Tur.
- Asyneuma amplexicaule* (Willd.) Hand.-Mazz. subsp. *amplexicaule* var. *amplexicaule* 4, 02.08.2005, Ç 512.
- A. l imonifolium* (L.) Janchen subsp. *limonifolium* 21, 22.06.2006, Ç 2618.
- Legousia pentagonia* (L.) Thellung. 12, 29.06.2005, Ç 31; 14, 29.06.2005, Ç 120; 20, 01.07.2005, Ç 465; 11, 27.05.2006, Ç 2149; 9, 27.05.2006, Ç 2229; 24, 27.05.2006, Ç 2329; 19, 17.06.2006, Ç 2441; 11, 05.08.2006, Ç 2877. E.Medit.
- PRIMULACEAE**
- Androsace maxima* L. 28, 30.04.2006, Ç 1103; 11, 27.05.2006, Ç 2169.
- Anagallis arvensis* L. var. *caerulea* (L.) Gouan 3, 21.05.2006, Ç 2597.
- ASCLEPIADACEAE**
- Vincetoxicum canescens* (Willd.) Decne. subsp. *canescens* 21, 30.06.2005, Ç 354; 20, 01.07.2005, Ç 477; 14, 18.06.2006, Ç 2542; 3, 21.05.2006, Ç 2562. E.Medit.
- CONVOLVULACEAE**
- Convolvulus arvensis* L. 11, 27.05.2006, Ç 2116; 24, 27.05.2006, Ç 2341; 21, 22.06.2006, Ç 2656; 8, 15.07.2006, Ç 2713; 16, 14.07.2007, Ç 3173.
- C. betonicifolius* Miller subsp. *peduncularis* (Boiss.) Paris 14, 29.06.2005, Ç 116; 20, 01.07.2005, Ç 468; 24, 27.05.2006, Ç 2346; 19, 17.06.2006, Ç 2401. Ir-Tur.
- BORAGINACEAE**
- Heliotropium dosum* De Not. 3, 21.05.2006, Ç 2563; 21, 22.06.2006, Ç 2633.
- Rochelia disperma* (L. fil.) C. Koch var. *disperma* 5, 07.05.2006, Ç 1242; 12, 14.05.2006, Ç 1652.
- Asperugo procumbens* L. 23, 28.04.2006, Ç 891; 6, 30.04.2006, Ç 1092. Euro-Sib.
- Myosotis heteropoda* Trautv. 11, 27.05.2006, Ç 2174. Ir-Tur.
- M. alpestris* F.W. Schmidt subsp. *alpestris* 11, 27.05.2006, Ç 2168.
- Paracaryum strictum* (C. Koch) Boiss. 1, 07.05.2006, Ç 1308. End. Ir-Tur.
- Solenanthes circinnatus* Ledeb. 4, 02.08.2005, Ç 504; 27, 10.06.2007, Ç 3122. Ir-Tur.
- Cynoglossum montanum* L. 11, 27.05.2006, Ç 2173. Euro-Sib.



*Buglossoides tenuiflora* (L. fil.) Johnston 30, 02.04.2006, Ç 774.

*B. a rvensis* (L.) Johnston 19, 23.04.2006, Ç 814; 16, 29.04.2006, Ç 1041; 6, 30.04.2006, Ç 1090; 12, 14.05.2006, Ç 1628; 11, 27.05.2006, Ç 2157.

*Echium italicum* L. 14, 29.06.2005, Ç 126; 21, 22.06.2006, Ç 2615. Medit.

*Onosma se riceum* Willd. 12, 29.06.2005, Ç 76; 21, 30.06.2005, Ç 352; 5, 07.05.2006, Ç 1229; 12, 21.05.2006, Ç 1809; 25, 02.06.2006, Ç 2337. Ir-Tur.

*O. albo-roseum* Fisch. & Mey. subsp. *albo-roseum* var. *albo-roseum* 16, 14.07.2007, Ç 3152. Ir-Tur.

*O. rascheyanum* Boiss. 12, 29.06.2005, Ç 78; 12, 21.05.2006, Ç 1822. Ir-Tur.

*O. roussaei* DC. 14, 29.06.2005, Ç 100. Ir-Tur.

*Cerintho minor* L. subsp. *auriculata* 21, 22.06.2006, Ç 2675.

*Brunnera orientalis* (Schenk) Johnston 4, 02.04.2006, Ç 773. Euxine.

*Anchusa leptophylla* Roemer & Schultes subsp. *tomentosa* (Boiss.) Chamb. 14, 18.06.2006, Ç 2559. End. Ir-Tur. LR (lc)

*A. a zurea* Miller var. *azurea* 14, 29.06.2005, Ç 132; 12, 14.05.2006, Ç 1647.

*A. strigosa* Labill. 21, 30.06.2005, Ç 427; 8, 15.07.2006, Ç 2721.

*A. aucheri* DC. 12, 14.05.2006, Ç 1617.

*Nonea melanocarpa* Boiss. 21, 29.04.2006, Ç 1074. Ir-Tur.

*N. s tenosolen* Boiss. & Bal. 1, 07.05.2006, Ç 1358; 8, 14.05.2006, Ç 1747. End. Ir-Tur. LR (lc)

#### SOLANACEAE

*Solanum nigrum* L. subsp. *nigrum* 11, 05.08.2006, Ç 2818.

*S. dul camara* L. 11, 27.05.2006, Ç 2102; 9, 27.05.2006, Ç 2260; 21, 22.06.2006, Ç 2624; 8, 15.07.2006, Ç 2700; 11, 05.08.2006, Ç 2806. Euro-Sib.

#### SCROPHULARIACEAE

*Verbascum diversifolium* Hochst. 11, 27.05.2006, Ç 2137; 14, 18.06.2006, Ç 2520; 11, 05.08.2006, Ç 2829. End. Ir-Tur. VU

*V. glomeratum* Boiss. 16, 15.07.2006, Ç 2728. Ir-Tur.

*Scrophularia pulverulenta* Boiss. & Noe. 24, 27.05.2006, Ç 2328. End. Ir-Tur. LR (lc)

*S. rimarum* Bornm. 21, 30.06.2005, Ç 356; 8, 14.05.2006, Ç 1741.

*S. x anthoglossa* Boiss. var. *decipiens* (Boiss. & Kotschy) Boiss. 5, 07.05.2006, Ç 1204; 8, 14.05.2006, Ç 1736; 11, 27.05.2006, Ç 2117; 19, 17.06.2006, Ç 2433. Ir-Tur.

*Anarrhinum orientale* Benth. 11, 27.05.2006, Ç 2108; 14, 18.06.2006, Ç 2533. Ir-Tur.

*Linaria genistifolia* (L.) Miller subsp. *genistifolia* 20, 01.07.2005, Ç 451; 8, 14.05.2006, Ç 1739; 11, 27.05.2006, Ç 2104; 9, 27.05.2006, Ç 2206; 25, 02.06.2006, Ç 2352; 19, 17.06.2006, Ç 2437; 21, 22.06.2006, Ç 2663. Euro-Sib.

*L. antilibanotica* Rech. fil. 11, 05.08.2006, Ç 2843. Ir-Tur.

*L. corifolia* Desf. 21, 22.06.2006, Ç 2630; 11, 05.08.2006, Ç 2830. End. Ir-Tur. LR (lc)

*Veronica cinerea* Boiss. & Bal. 11, 27.05.2006, Ç 2167. End. LR (lc)

*V. triphyllus* L. 30, 02.04.2006, Ç 775.

*V. triloba* (Opiz) Kerner 11, 27.05.2006, Ç 2172.

*V. anagallis-aquatica* L. 16, 15.07.2006, Ç 2751.

*V. oxycarpa* Boiss. 1, 07.05.2006, Ç 1307. Ir-Tur.

*V. orientalis* Miller subsp. *orientalis* 12, 29.06.2005, Ç 66; 20, 01.07.2005, Ç 466; 12, 14.05.2006, Ç 1638; 11, 27.05.2006, Ç 2139.

*V. orientalis* Miller subsp. *nimrodi* (Richter ex Stapf) M.A. Fischer 12, 29.06.2005, Ç 35. End. LR (lc)

#### OROBANCHACEAE

*Orobanche nana* Noe ex G. Beck 21, 22.06.2006, Ç 2613.

*O. aegyptiaca* Pers. 9, 27.05.2006, Ç 2253; 14, 18.06.2006, Ç 2537.

*O. oxyloba* (Reuter) G. Beck. 1, 07.05.2006, Ç 1357.

*O. minor* Sm. 16, 29.04.2006, Ç 1049.

*O. anatolica* Boiss. & Reuter 11, 27.05.2006, Ç 2171.

#### GLOBULARIACEAE

*Globularia trichosanthes* Fisch. & Mey. 27, 10.06.2007, Ç 3120. Ir-Tur.

#### VERBENACEAE

*Verbena officinalis* L. 9, 18.06.2006, Ç 2561.

#### LAMIACEAE (LABIATAE)

*Teucrium chamaedrys* L. subsp. *sinuatum* (Celak.) Rech. fil. 8, 15.07.2006, Ç 2744. Ir-Tur.

*T. polium* L. 14, 29.06.2005, Ç 141; 24, 27.05.2006, Ç 2303; 21, 22.06.2006, Ç 2620.

*Scutellaria orientalis* L. subsp. *orientalis* 21, 22.06.2006, Ç 2658. Ir-Tur.

*Eremostachys moluccelloides* Bunge 20, 01.07.2005, Ç 475. Ir-Tur.

*Phlomis sieheana* Rech. fil. 14, 18.06.2006, Ç 2540. End. Ir-Tur. LR (lc)

*P. kurdica* Rech. fil. 8, 15.07.2006, Ç 2719; 11, 05.08.2006, Ç 2865. Ir-Tur.

*Lamium garganicum* (L.) subsp. *lasioclades* (Stapf) R. Mill. 20, 01.07.2005, Ç 481. Ir-Tur.

*L. amplexicaule* L. 19, 23.04.2006, Ç 818; 21, 29.04.2006, Ç 1076. Euro-Sib.

*L. macrodon* Boiss. & Huet 24, 27.05.2006, Ç 2330. Ir-Tur.

*Wiedemannia orientalis* Fisch. & Mey. 5, 07.05.2006, Ç 1221. End. Ir-Tur. LR (lc)

*W. multifida* (L.) Benth. 11, 27.05.2006, Ç 2195. Ir-Tur.

*Marrubium cuneatum* Russell 8, 15.07.2006, Ç 27. Ir-Tur.

*M. astracanicum* Jacq. subsp. *astracanicum* 22, 10.06.2007, Ç 3101.

*Sideritis vulcanica* Hub.-Mor. 22, 22.06.2006, Ç 2686. End. Ir-Tur. VU

*Stachys ramosissima* Montbret & Aucher ex Benth. var. *ramosissima* 11, 05.08.2006, Ç 2804. End. Ir-Tur. LR (cd)

*S. cr etica* L. subsp. *anatolica* Rech. fil. 9, 27.05.2006, Ç 2270; 24, 27.05.2006, Ç 2305. End. Ir-Tur. LR (lc)

*S. lavandulifolia* Vahl. var. *lavandulifolia* 14, 29.06.2005, Ç 133. Ir-Tur.

*S. annua* (L.) L. subsp. *annua* var. *annua* 14, 29.06.2005, Ç 105; 19, 17.06.2006, Ç 2443.

*Melissa officinalis* L. subsp. *officinalis* 21, 22.06.2006, Ç 2631.

*Nepeta nuda* L. subsp. *nuda* 22, 22.06.2006, Ç 2687.

*N. jissa* C.A. Meyer 11, 05.08.2006, Ç 2805. Ir-Tur.

*Lallemantia iberica* (Bieb.) Fisch. & Mey. 12, 29.06.2005, Ç 43; 20, 01.07.2005, Ç 461; 12, 14.05.2006, Ç 1649; 16, 14.07.2007, Ç 3151. Ir-Tur.

*Prunella vulgaris* L. 8, 15.07.2006, Ç 2770. Euro-Sib.

*Origanum acutidens* (Hand.-Mazz.) Ietswaart 14, 29.06.2005, Ç 101; 19, 17.06.2006, Ç 2454. End. Ir-Tur. LR (lc)

*Satureja hortensis* L. 3, 21.05.2006, Ç 2575.

*Acinos rotundifolius* Pers. 5, 07.05.2006, Ç 1213.

*Thymus haus sknechtii* Velen. 3, 21.05.2006, Ç 2574; 11, 05.08.2006, Ç 2860; 16, 14.07.2007, Ç 3154. End. Ir-Tur. LR (nt)

*T. kotschyanus* Boiss. & Hohen. var. *glabrescens* Boiss. 21, 22.06.2006, Ç 2657. Ir-Tur.

*T. kotschyanus* Boiss. & Hohen. var. *kotschyanus* 14, 29.06.2005, Ç 145. Ir-Tur.

*Mentha longifolia* (L.) Hudson subsp. *typhoides* (Briq.) Harley var. *typhoides* 21, 22.06.2006, Ç 2627; 8, 15.07.2006, Ç 2738.

*M. s picata* L. subsp. *spicata* 11, 27.05.2006, Ç 2115; 9, 27.05.2006, Ç 2201.

*Lycopus europaeus* L. 21, 30.06.2005, Ç 410. Euro-Sib.

*Ziziphora capitata* L. 12, 29.06.2005, Ç 74; 21, 30.06.2005, Ç 177; 8, 14.05.2006, Ç 1749; 9, 27.05.2006, Ç 2219. Ir-Tur.

*Z. persica* Bunge 22, 22.06.2006, Ç 2687. Ir-Tur.

*Salvia trichoclada* Benth 22, 22.06.2006, Ç 2685. Ir-Tur.

*S. multicaulis* Vahl. 12, 29.06.2005, Ç 75; 21, 30.06.2005, Ç 426; 20, 01.07.2005, Ç 469; 5, 07.05.2006, Ç 1238; 11, 27.05.2006, Ç 2122; 3, 21.05.2006, Ç 2573. Ir-Tur.

*S. syriaca* L. 11, 05.08.2006, Ç 2832. Ir-Tur.

*S. palaestina* Benth 21, 22.06.2006, Ç 2606. Ir-Tur.

*S. sclarea* L. 11, 27.05.2006, Ç 2166.

*S. candidissima* Vahl. subsp. *candidissima* 12, 21.05.2006, Ç 1841. Ir-Tur.

*S. verticillata* L. subsp. *verticillata* 14, 29.06.2005, Ç 134; 21, 30.06.2005, Ç 388; 14, 18.06.2006, Ç 2534; 21, 22.06.2006, Ç 2661; 8, 15.07.2006, Ç 2743. Euro-Sib.

*S. russellii* Benth 9, 27.05.2006, Ç 2215. Ir-Tur.

#### PLUMBAGINACEAE

*Plumbago europaea* L. 11, 27.05.2006, Ç 2170. Euro-Sib.

*Acantholimon acerosum* (Willd.) Boiss. subsp. *acerosum* 21, 22.06.2006, Ç 2613; 11, 05.08.2006, Ç 2859. Ir-Tur.

*A. s axifragiforme* (Hauskn. & Sint. ex) Bokhari 9, 27.05.2006, Ç 2255. End. Ir-Tur. VU

#### PLANTAGINACEAE

*Plantago major* L. subsp. *major* 4, 02.08.2005, Ç 505.

*P. lanceolata* L. 11, 27.05.2006, Ç 2112; 9, 27.05.2006, Ç 2264; 21, 22.06.2006, Ç 2661.

#### ELAEAGNACEAE

*Elaeagnus angustifolia* L. 9, 27.05.2006, Ç 2203.

#### SANTALACEAE

*Thesium impressum* Steudel ex A. DC. 12, 29.06.2005, Ç 51. Ir-Tur.

#### EUPHORBIACEAE

*Andrachne telephioides* L. 9, 27.05.2006, Ç 2268.

*Euphorbia chamaesyce* L. 8, 15.07.2006, Ç 2782.

*E. petiolata* Banks & Sol. 22, 22.06.2006, Ç 2684. Ir-Tur.

*E. altissima* Boiss. var. *altissima* 8, 15.07.2006, Ç 2750. Ir-Tur.

*E. aleppica* L. 21, 22.06.2006, Ç 2675.

*E. szovitsii* Fisch. & Mey. var. *kharputensis* Aznav. ex M.S. Khan 1, 07.05.2006, Ç 1306. Ir-Tur.

*E. denticulata* Lam. 11, 05.08.2006, Ç 2819; 22, 10.06.2007, Ç 3110. Ir-Tur.

*E. macroclada* Boiss. 8, 15.07.2006, Ç 2730; 11, 05.08.2006, Ç 2861. Ir-Tur.

*E. cheiradenia* Boiss. & Hohen. 14, 29.06.2005, Ç 111; 12, 21.05.2006, Ç 1807; 11, 05.08.2006, Ç 2852. Ir-Tur.

*E. v irgata* Waldst. & Kit. 1, 07.05.2006, Ç 1356; 11, 05.08.2006, Ç 2853.

#### URTICACEAE

*Urtica dioica* L. 12, 14.05.2006, Ç 1622. Euro-Sib.

*Parietaria judaica* L. 22, 22.06.2006, Ç 2683.

#### MORACEAE

*Ficus carica* L. subsp. *rupestris* (Hauskn.) Browicz 16, 14.07.2007, Ç 3156. Ir-Tur.

#### JUGLANDACEAE

*Juglans regia* L. 6, 30.04.2006, Ç 1093.

#### FAGACEAE

*Quercus infectoria* Olivier subsp. *boissieri* (Reuter) O. Schwarz 16, 29.04.2006, Ç 1050; 1, 07.05.2006, Ç 1304; 11, 05.08.2006, Ç 2812.

*Q. brantii* Lindley 11, 27.05.2006, Ç 2143; 9, 27.05.2006, Ç 2213; 24, 27.05.2006, Ç 2317; 3, 21.05.2006, Ç 2571. Ir-Tur.

#### SALICACEAE

*Salix triandra* L. subsp. *triandra* 24, 27.05.2006, Ç 2332; 3, 21.05.2006, Ç 2570. Euro-Sib.

*Populus tremula* L. 28, 30.04.2006, Ç 1105. Euro-Sib.

#### MONOCOTYLEDONES

#### ARACEAE

*Arum maculatum* L. 22, 10.06.2007, Ç 3089.

#### LILIACEAE

*Allium szovitsii* Regel 21, 22.06.2006, Ç 2610. Euxine.

*A. ampeloprasum* L. 14, 29.06.2005, Ç 102; 8, 15.07.2006, Ç 2745. Medit.

*A. sintenisii* Freyn 21, 22.06.2006, Ç 2644. End. Ir-Tur. LR (nt)

*Ornithogalum narbonense* L. 22, 22.06.2006, Ç 2682. Medit.

*O. oligophyllum* E.D. Clarke. 16, 29.04.2006, Ç 1046.

*O. orthophyllum* Ten. 12, 14.05.2006, Ç 1602.

*Muscari c omosum* (L.) Miller 4, 02.04.2006, Ç 790; 11, 27.05.2006, Ç 2142. Medit.

*M. armeniacum* Leichtlin ex Baker 4, 02.04.2006, Ç 787.

*Tulipa armena* Boiss. var. *armena* 16, 29.04.2006, Ç 1042. Ir-Tur.

#### AMARYLLIDACEAE

*Ixiolirion tataricum* (Pallas) Herbert subsp. *montanum* (Labill.) Takht. 21, 30.06.2005, Ç 415; 20, 01.07.2005, Ç 463; 1, 07.05.2006, Ç 1355; 12, 14.05.2006, Ç 1601; 12, 21.05.2006, Ç 1847; 3, 21.05.2006, Ç 2569. Ir-Tur.

#### IRIDACEAE

*Iris persica* L. 4, 02.04.2006, Ç 776. Ir-Tur.

*Crocus leichtlinii* (D. Dewar) Bowles 4, 02.04.2006, Ç 777. End. Ir-Tur. LR (cd)

*Gladiolus at roviolaceus* Boiss. 1, 07.05.2006, Ç 1303; 8, 14.05.2006, Ç 1732. Ir-Tur.

#### ORCHIDACEAE

*Orchis palustris* Jacq. 19, 17.06.2006, Ç 2432.

*Dactylorhiza iberica* (Bieb. ex Willd.) Soo 11, 27.05.2006, Ç 2165. E.Medit.

*D. osmanica* (Kl.) Soo var. *anatolica* (Nelson) Renz & Taub. 28, 30.04.2006, Ç 1199; 1, 07.05.2006, Ç 1354. End. Ir-Tur. LR (nt)

#### CYPERACEAE

*Eleocharis palustris* (L.) Roemer & Schultes 11, 05.08.2006, Ç 2803.

*Carex ni gra* (L.) Reichard subsp. *dacica* (Heuffel) Soo 1, 07.05.2006, Ç 1302. Euxine.

#### POACEAE (GRAMINEAE)

*Eremopyrum bonaepartis* (Sprengel) Nevski subsp. *hirsutum* (Bertol.) Melderis 21, 30.06.2005, Ç 413; 23, 28.04.2006, Ç 885.

*Aegilops umbellulata* Zhukovsky subsp. *umbellulata* 12, 21.05.2006, Ç 1802. Ir-Tur.

*A. triuncialis* L. subsp. *triuncialis* 12, 29.06.2005, Ç 44; 24, 27.05.2006, Ç 2327.

*A. columnaris* Zhukovsky 25, 02.06.2006, Ç 2354. Ir-Tur.

*Hordeum bulbosum* L. 5, 07.05.2006, Ç 1211.

*Taeniatherum c aput-medusae* (L.) Nevski subsp. *crinitum* (Schreber) Melderis 20, 01.07.2005, Ç 435; 5, 07.05.2006, Ç 1249; 22, 10.06.2007, Ç 3097. Ir-Tur.

*Bromus danthoniae* Trin. 9, 27.05.2006, Ç 2207.

*B. tectorum* L. 6, 30.04.2006, Ç 1094.

*B. sterilis* L. 21, 30.06.2005, Ç 416; 23, 28.04.2006, Ç 893; 5, 07.05.2006, Ç 1227; 12, 14.05.2006, Ç 1624; 3, 21.05.2006, Ç 2568; 11, 05.08.2006, Ç 2876.

*B. tomentellus* Boiss. 12, 29.06.2005, Ç 47; 19, 17.06.2006, Ç 2448. Ir-Tur.

*Arrhenatherum palaestinum* Boiss. 5, 07.05.2006, Ç 1230; 9, 27.05.2006, Ç 2218. E.Medit.

*Gaudiniopsis m acra* (Bieb.) Eig subsp. *macra* 11, 27.05.2006, Ç 2148. Ir-Tur.

*Koeleria cristata* (L.) Pers. 2, 21.05.2006, Ç 1973.  
*Calamagrostis pseudophragmites* (Haller fil.) Koeler 9, 29.06.2005, Ç 166; 3, 21.05.2006, Ç 2567; 16, 15.07.2006, Ç 2719. Euro-Sib.  
*Alopecurus myosuroides* Hudson var. *myosuroides* 12, 14.05.2006, Ç 1629. Euro-Sib.  
*Phleum exaratum* Hochst. ex Griseb. subsp. *exaratum* 11, 05.08.2006, Ç 2846.  
*Lolium perenne* L. 5, 07.05.2006, Ç 1203. Euro-Sib.  
*Poa bulbosa* L. 23, 28.04.2006, Ç 898; 21, 29.04.2006, Ç 1054; 5, 07.05.2006, Ç 1263; 26, 14.05.2006, Ç 1645; 9, 27.05.2006, Ç 2236.  
*Eremopoa persica* (Trin.) Roshev. 11, 27.05.2006, Ç 2113. Ir-Tur.  
*Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman 3, 21.05.2006, Ç 2566; 22, 10.06.2007.

*Melica persica* Kunth subsp. *inaequiglumis* (Boiss.) Bor. 14, 29.06.2005, Ç 136.  
*Stipa ehrenbergiana* Trin. & Rupr. 5, 07.05.2006, Ç 1206; 12, 21.05.2006, Ç 1830; 2, 21.05.2006, Ç 1974; 11, 27.05.2006, Ç 2145; 24, 27.05.2006, Ç 2318; 3, 21.05.2006, Ç 2564; 22, 10.06.2007, Ç 3112. Ir-Tur.  
*Eragrostis minor* Host 4, 02.08.2005, Ç 507.  
*Cynodon dactylon* (L.) Pers. var. *villosus* Regel 8, 15.07.2006, Ç 2711.  
*Echinochloa crus-galli* (L.) P. Beauv. 11, 05.08.2006, Ç 2817.  
*Digitaria sanguinalis* (L.) Scop. 4, 02.08.2005, Ç 506.  
*Setaria viridis* (L.) P. Beauv. 2, 21.05.2006, Ç 1992; 8, 15.07.2006, Ç 2759.  
*Sorghum halepense* (L.) Pers. var. *halepense* 9, 27.05.2006, Ç 2240.

#### 4. Conclusions and discussion

In this study, a total of 2071 plants samples were collected from the study area in a period of three years. The systematic evaluation of the plant samples revealed 63 families, 284 types and 506 species and subspecies level of taxons. One of 506 taxons belonged to Pteridophyta and the remaining 505 to Spermatophyta division. Two of 505 taxons fell into Coniferophyta (Gymnospermae), and the remaining 503 taxons into Magnoliophyta (Angiospermae) sub-division. 457 of 503 taxons in the sub-division of Magnoliophyta were in Magnoliopsida (Dicotyledones) and 47 of them were in Liliopsida (Monocotyledones) class.

The distribution ratio of plant geography elements was as follows (Table 1): Irano Turanian elements: 173 (34.2 %), Mediterranean elements: 23 (4.5 %), European-Siberian elements: 22 (4.3 %) those with wide and unknown distribution 288 (56.9 %). Three of Europe-Siberian elements (0.6 %) and 11 of Mediterranean elements (2.2 %) were Eastern Mediterranean elements.

Table 1. Comparison between “taxon distribution in plant geography regions” of the present study and of other studies

Research area	Plant geography region-%		
	Ir-Tur.	Euro-Sib.	Medit.
Copper mine- Tekevler vil.	34.2	4.3	4.5
Çitli Low. (Çakılcıoğlu et al., 2008)	31.7	6.1	4.5
Mt. Karga (Türkoğlu and Civelek, 2005)	32.5	3.7	5.1
Gözeli and Kavak Low. (Türkoğlu et al., 2006)	38.5	5.2	4.5
Baskil- Altinkürek vil. (Kurşat et al., 2005)	38.2	3.5	4.5
Baskil (Behçet, 1999)	41.7	7.0	4.1
Islands in Keban Dam Lake (Ayvaz et al., 1993)	30.0	3.4	4.5

Table 1 illustrates the distribution ratio plant geography elements of the flora studies that were carried out in research area and its surrounding. It can be stated that Irano-Turanian plant geography takes the first place in any study. Since the area of the present study was within the Irano-Turanian geography, it is not surprising to see that the Irano-Turanian plant geography elements were in majority.

Table 2 shows the biggest ten plant families in the research area and their proportion to the total number of taxons.

Table 2. Ten biggest families and their proportion to the total number of taxons

Family	Number of taxons	Its proportion to the total number of taxons -%
Asteraceae	72	14.2
Fabaceae	52	10.3
Lamiaceae	42	8.3
Brassicaceae	38	7.5
Poaceae	28	5.5
Apiaceae	27	5.3
Boraginaceae	23	4.5
Caryophyllaceae	21	4.2
Rosaceae	20	4.0
Ranunculaceae	16	3.2

It can be concluded from Table 2 that Asteraceae 72 (14.2 %), Fabaceae 52 (10.3 %), Lamiaceae 42 (8.3 %) took the first three places in terms of their proportions. The proportion of other taxons was as follows: Brassicaceae 38 (7.5 %), Poaceae 28 (5.5 %), Apiaceae 27 (5.3 %), Boraginaceae 23 (4.5 %), Caryophyllaceae 21 (4.2 %), Rosaceae 20 (4.0 %), Ranunculaceae 16 (3.2 %).

Table 3 indicates ten biggest types in the research area and their proportion to the total number of taxons.

Table 3. Ten biggest types and their proportion to the total number of taxons

Type	Number of taxons	Its proportion to the total number of taxon-%
<i>Astragalus</i>	9	1.8
<i>Trifolium</i>	9	1.8
<i>Alyssum</i>	9	1.8
<i>Centaurea</i>	9	1.8
<i>Euphorbia</i>	9	1.8
<i>Silene</i>	8	1.6
<i>Salvia</i>	8	1.6
<i>Veronica</i>	7	1.4
<i>Anthemis</i>	7	1.4
<i>Ranunculus</i>	6	1.2

According to Table 3, the number of taxons was as follows: *Astragalus*, *Trifolium*, *Alyssum*, *Centaurea*, and *Euphorbia* nine (1.8 %) taxon, *Silene*, and *Salvia* eight (1.6 %) taxon, *Veronica*, and *Anthemis* seven (1.4 %) taxon, *Ranunculus* six (1.2 %) taxon.

Table 4 compares the ratio of the endemic plants of the present study to the ratio of the endemic plants in the close research areas.

Table 4. The comparison of the rate of endemic plants in the present study area with the rate of endemic plants in the near areas of research

Research area	Rate of endemism -%
Copper mine- Tekevler vil.	8.9
Çitli Low. (Lowland) (Çakılcıoğlu et al., 2008)	9.2
Mt. Karga (Türkoğlu and Civelek, 2005)	9.0
Gözeli and Kavak Low.(Türkoğlu et al., 2006)	12.2
Baskil- Altınkürek vil. (Kurşat et al., 2005)	13.0
Baskil (Behçet, 1999)	17.2
Islands in Keban Dam Lake (Ayvaz et al., 1993)	10.5

45 (8.9 %) of the 506 taxons identified in the research area were found to be endemic. Rate of endemism detected in the study area was lower than the endemism rate estimated for Turkey (34.4 %) (Özhatay et al., 2003) and than the endemism rate calculated by the floristic studies conducted in the surrounding area.

### Acknowledgements

I would like to thank FUBAP (Firat University Scientific Research Found) for the financial support it provided to this project (Project Code No: 1092).

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*(Received for publication 20 April 2010; The date of publication 01 April 2011)*