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The Geophytic Flora of Şanlıurfa Province, Turkey

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Abstract: This study was carried out between 2001 and 2004 to determine the geophytic flora of Şanlıurfa, located within C6, C7, and C8 of the grid system in Turkey. In all, 789 plant specimens that consisted of 104 taxa belonging to 13 families and 30 genera were gathered from the investigation area. Of all the collected specimens, 19 taxa were new records for C6, C7, and C8, and 11 taxa were endemic to Turkey.

Scilla mesopotamica Speta, which was first collected from Şanlıurfa-Halfeti in 1888 by Sintenis and was considered a missing species, was rediscovered after 116 years during this study. *Colchicum crocifolium* Boiss. was also determined as a new record for Turkey.

According to floristic regions, Irano-Turanian elements ranked first among the specimens, accounting for 47.12%, followed by Mediterranean elements (25.00%) and Euro-Siberian elements (0.96%). Some of the identified species (26.92%) were widespread and of unknown phytogeographic origin. In addition, 86.54% of the collected taxa were determined to be monocotyledons and the remaining (13.46%) were dicotyledons.

The families with the most taxa in the research area were Liliaceae (59) and Iridaceae (14). Concerning the number of species, the major genera in this region were as follows: *Allium* L. (17), *Ornithogalum* L. (10), *Gagea* Salisb. (9), *Bellevalia* Lapeyr. (6), and *Iris* L. (6). Moreover, of all collected taxa, 57.69% were bulbous, 21.15% were tuberous, 17.31% were cormous, and 3.85% were rhizomous. Concerning flowering time, 93.27% of the taxa bloomed in early-spring and spring, while 6.73% bloomed in autumn.

Key Words: Geophyte, Şanlıurfa, Flora, Turkey

Şanlıurfa İlinin (Türkiye) Geofitik Florası

Özet: Bu çalışma, 2001-2004 yılları arasında Şanlıurfa ilinin geofit florasını tespit etmek amacıyla yapılmıştır. Şanlıurfa il sınırları Türkiye'nin grid sistemine göre C6, C7 ve C8 karelerinde yer almaktadır. Araştırma alanından toplanan 789 bitki örneğinden 13 familyaya ait 30 cins ve 104 takson tespit edilmiştir. Bunlardan 11 takson Türkiye için endemik olup, 19 takson C6, C7 ve C8 kareleri için yenidir.

İlk kez 1888 yılında Sintenis tarafından Şanlıurfa-Halfeti'den toplanan ve kayıp bir tür olan *Scilla mesopotamica* Speta 116 yıl sonra tekrar bu çalışmayla keşfedilmiştir. Yine *Colchicum crocifolium* Boiss. türü Türkiye için yeni bir takson kaydı olarak tespit edilmiştir.

Araştırma alanından toplanan bitki örneklerinin fitocoğrafik bölgelere dağılımlarında %47,12 oranı ile İran-Turan elementleri ilk sırayı almaktadır. Akdeniz elementleri %25,00 ve Avrupa-Sibirya elementleri ise %0,96 oranlarıyla takip etmektedir. Teşhisi yapılan taksonların %26,92'sinin ise hangi fitocoğrafik bölge elementi olduğu bilinmemektedir. Toplanan bitkilerin %86,54'ü monokotil, %13,46'sı ise dikotildir.

Araştırma alanında en fazla taksona sahip familyalar; Liliaceae (59) ve Iridaceae (14) familyalarıdır. Alanda en çok türe sahip cinsler; *Allium* L. (17), *Ornithogalum* L. (10), *Gagea* Salisb. (9), *Bellevalia* Lapeyr. (6) ve *Iris* L. (6) cinsleridir. Taksonların %57,69'u soğanlı, %21,15'i yumruolu, %17,31'i kormlu ve %3,85'i rizomludur. Mevsimsel çiçeklenme periyoduna bakıldığında, bitkilerin % 93,27'si erken ilkbahar ve ilkbahar dönemlerinde çiçeklenirken, % 6,73'ü sonbahar aylarında çiçeklenir.

Anahtar Sözcükler: Geofit, Şanlıurfa, Flora, Türkiye

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Introduction

This study was carried out to determine the geophytic flora of Şanlıurfa province, Turkey, and to observe the conditions of the endemic and/or rare geophyte populations. Şanlıurfa province, with its 11 towns (city centre, Akçakale, Birecik, Bozova, Ceylanpınar, Halfeti, Harran, Hilvan, Siverek, Suruç, and Viranşehir) is located between 36°41.28'-37°57.50' N and 37°49.12'-40°10.00' E in south-east Anatolia (Figure 1). The research area is situated in the Irano-Turanian phytogeographic region and is completely within C6, C7, and C8. Altitude in the region varies between 350 and 1957 m, from south to north. The highest point in the area is Karacadağ Mountain, with an altitude of 1957 m, which is located in the north, while Harran Plain has the lowest altitude (375 m).

The study area is under the influence of a semi-arid Mediterranean climate. According to Emberger's Mediterranean bioclimate layers classification, the precipitation-temperature coefficient (Q) is 42.94 (Akman, 1990). Annual mean temperature is 18.7 °C and maximum mean temperature (M) is 46.8 °C in July, while the minimum mean temperature (m) is -6.8 °C in February. Annual rainfall is about 457.8 mm (Meteoroloji Bülteni, 1994) and this rainfall regime fits into the "East Mediterranean Rain Regime, Type I". The ombrothermic diagram shows the dry and rainy periods (Figure 2).

Some foreign researchers, including Kotschy, Sintenis, Davis, and Zohary, have visited and gathered plant specimens from Şanlıurfa (Davis, 1965-1985; Zohary, 1973; Davis et al., 1988; Güner et al., 2000; Baytop, 2003). Some floristic investigations were recently conducted in south-east Anatolia, such as "Flora of Ceylanpınar State Farm" (Adigüzel & Aytaç, 2001), "The Flora of Kaşmer Mountain" (Akan et al., 2005b), "The Flora of Kalecik Mountain" (Aydoğdu & Akan, 2005), "The Flora of the Osmanbey Campus of Harran University" (Parmaksız et al., 2006), "Contribution to the Flora of Fatik Mountain" (Atamov et al., 2007a), and "Flora of Mezra City" (Atamov et al., 2007b). In addition, some taxonomic studies have been performed near the research area (Kaynak & Ketenöglü, 1986; Kaynak, 1987, 1989; Ertekin, 2002; Akan & Eker, 2004, 2005a, 2005b; Akan et al., 2005a), but there have been no regular floristic studies on the geophytes of Şanlıurfa, except those of the Liliaceae and Iridaceae families of Karacadağ by Malyer (1981, 1983).

The study area is located in the centre of the South-East Anatolia Project (GAP), a giant hydropower and irrigation project on the Fırat and Dicle rivers. Natural habitats have been destroyed by the construction of dams and tunnels for land irrigation. Furthermore, biological diversity has been influenced by excessive grazing, industrialisation, and urbanisation. Moreover, with regard

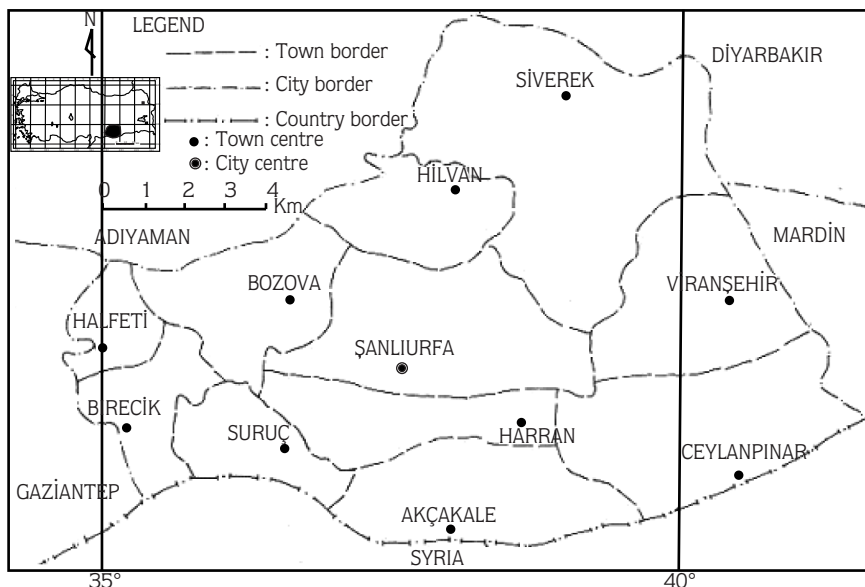


Figure 1. Map of the research area.

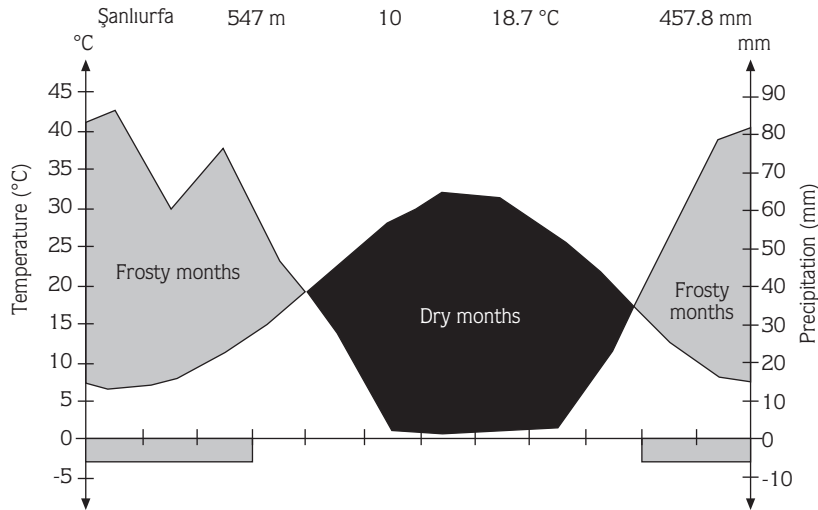


Figure 2. Ombrothermic diagram of Şanlıurfa, Turkey.

to floristic studies (Davis, 1975b; Çirpıcı, 1987), south-east Anatolia is a “little known” or “unknown” region of Turkey. Due to the above-mentioned reasons, population conditions of the endemic and rare plants should be determined, and new reports should be prepared to ensure the conservation of plant species.

Materials and Methods

Plant specimens were gathered from Şanlıurfa province between the 2001 and 2004 vegetation seasons. Each collected specimen was marked with the researcher’s number and dried according to standard herbarium methods. *Flora of Turkey and the East Aegean Islands* (Davis, 1965, 1967, 1972, 1975a, 1984, 1985; Davis et al., 1988; Güner et al., 2000), *Flora of Iraq* (Townsend & Guest, 1985), *Flora of Iran* (Rechinger, 1990), and *Flora of Syria, Palestine, and Sinai* (Post & Dinsmore, 1933) were used to identify the plant samples. The collected plant specimens are kept in HARRAN, AIBU, GAZI, and AEF.

The complete flora list, set out according to the order in *Flora of Turkey*, is given in the appendix. In the list, the following details are provided: family and species names and the author(s), square and name of the district, habitat of the plant, altitude, collection date, name and number of the collector, endemism, and the phytogeographic region element. Endemic and rare species were categorized according to new IUCN Red Data categories (Ekim et al., 2000; IUCN Survival Commission, 2001). The following

category abbreviations are used in the text: CR (critically endangered), EN (endangered), VU (vulnerable), NT (near threatened), LC (least concern), and DD (data deficient). The word “Şanlıurfa” was omitted from the citations. Other abbreviations used in the text are as follows:

AEF: Herbarium of Ankara University, Pharmacy Faculty, Ankara, Turkey

AIBU: Herbarium of Abant İzzet Baysal University, Bolu, Turkey

CITES: The Convention on International Trade in Endangered Species of Wild Fauna and Flora

D.: Dağ (mountain in Turkish)

De.: Dere (stream in Turkish)

Euro.-Sib. el.: Euro-Siberian element

GAZI: Herbarium of Gazi University, Ankara, Turkey

HARRAN: Herbarium of Harran University, Şanlıurfa, Turkey

İ. Eker: İsmail Eker

Ir.-Tur. el.: Irano-Turanian element

K.: Köy (village in Turkish)

m: metre

Medit. el.: Mediterranean element

N.: Nehir (river in Turkish)

Orm.: Orman (forest in Turkish)

subsp.: subspecies

T.: Tepe (hill in Turkish)

var.: variety

Results and Discussion

In the investigation area, 104 taxa were collected during this floristic study. Six endemic plants (*Scorzonera semicana* DC., *Asphodeline damascena* (Boiss.) Baker subsp. *gigantea* E. Tuzlaci, *Allium variegatum* Boiss., *Scilla mesopotamica* Speta, *Crocus leichtlinii* (Dewey) Bowles, and *Gladiolus humilis* Stapf) were localised primarily in south-east Anatolia and all were Irano-Turanian elements; however, 3 of the endemic plants (*Ornithogalum alpigenum* Stapf, *Ornithogalum nivale* Boiss., and *Gladiolus micranthus* Stapf) were East Mediterranean elements.

Scilla mesopotamica was first collected from Halfeti, Şanlıurfa, in 1888 and has since been known only from the type specimen. Moreover, it had not been recollected from this region for many years. For these reasons, it was evaluated as DD according to the *Red Data Book of Turkish Plants* (Ekim et al., 2000). During this study the species was rediscovered after 116 years by Eker and Akan (2006), and was evaluated as CR (IUCN, 2001).

Asphodeline damascena subsp. *gigantea*, which is distributed only in south-east Anatolia, might be threatened due to the cultivation of wild areas, stubble pasturage, and excessive grazing. For this reason, the threatened category of this species should be NT.

Crocus leichtlinii is a local endemic of south-east Anatolia, which might be threatened due to excessive grazing, and should be evaluated as VU. All of the endemic taxa are listed with suggested threatened categories in Table 1.

In terms of endemism, south-east Anatolia is the poorest region of Turkey due to its climatic, topographic, and ecological features, which are homogenous, and most plants in the research area grow in the northern parts of Syria and Iraq; therefore, the endemism rate in the area was low.

Some non-endemic or rare plants have restricted distribution ranges, namely *Allium schubertii* Zucc., *Bellevalia dubia* (Guss.) M.Roem. & Schult., *Fritillaria persica* L., *Tulipa aleppensis* Boiss ex Regel, *Ixiolirion tataricum* (Pall.) Herb. subsp. *tataricum*, *Iris aucheri* (Baker) Sealy, *Iris gatesii* Foster, and *Iris masia* Stapf ex Foster, which are categorized as VU. Furthermore, *Sternbergia fischeriana* (Herb.) Rupr. is placed in the EN category. Some of the non-endemic plants are distributed only in south-east Anatolia and include *Eminium spiculatum* (Blume) Schott var. *spiculatum*, *Allium noëanum* Reut. ex Regel, *Bellevalia longipes* Post, *Hyacinthella nervosa* (Bertol.) Chouard, *Gagea chlorantha* (M.Bieb.) Schult., *Colchicum crocifolium* Boiss., *Iris masia*, *Crocus cancellatus* Herb. subsp. *damascenus* (Herb.) B.Mathew, *Ophrys umbilicata* Desf. subsp. *khuzestanica* Renz & Taub., and *Geranium tuberosum* L. subsp. *deserti-syriacum* P.H.Davis (Ekim et al., 2000).

Colchicum crocifolium was first identified in Şanlıurfa as a new record for Turkey by Akan & Eker (2005b). The IUCN category of this species has been suggested as LR in this study because there is no risk of extinction. It is distributed on a vast scale in the region and in

Table 1. Threatened categories of endemic plants collected from the research area.

Names of endemic plants	Threatened categories	
	Ekim et al., 2000	Present study, 2008
<i>Scorzonera semicana</i>	LR (lc)	LC
<i>Asphodeline damascena</i> subsp. <i>gigantea</i>	LR (lc)	NT
<i>Allium variegatum</i>	VU	VU
<i>Scilla mesopotamica</i>	DD	CR
<i>Ornithogalum alpigenum</i>	LR (nt)	NT
<i>Ornithogalum nivale</i>	LR (lc)	LC
<i>Bellevalia tauri</i>	LR (lc)	LC
<i>Bellevalia gracilis</i>	LR (lc)	LC
<i>Crocus leichtlinii</i>	LR (cd)	VU
<i>Gladiolus humilis</i>	EN	EN
<i>Gladiolus micranthus</i>	VU	VU

Table 2. Threatened categories of rare plants collected from the research area.

Names of rare plants	Threatened categories	
	Ekim et al., 2000	Present study, 2008
<i>Colchicum crocifolium</i>	Not indicated	LR
<i>Allium schubertii</i>	VU	VU
<i>Bellevalia dubia</i>	VU	VU
<i>Fritillaria persica</i>	VU	VU
<i>Tulipa aleppensis</i>	VU	VU
<i>Ixiolirion tataricum</i> subsp. <i>tataricum</i>	VU	VU
<i>Sternbergia fischeriana</i>	EN	EN
<i>Iris gatesii</i>	VU	VU
<i>Iris masia</i>	VU	VU
<i>Iris aucheri</i>	VU	VU

neighbouring regions, such as north-east Syria, western Iran, and Iraq. Threatened categories of rare plants collected from the research area are given in Table 2.

During this study *Sternbergia fischeriana* and *Sternbergia clusiana* (Ker Gawl.) Ker Gawl. ex Spreng. were collected from narrowly distributed areas. The bulbs of *Fritillaria persica* have been collected and sold in large quantities by those living in settlements around Karacadağ, the only habitat of the species in the region. Thus, it is likely to face the risk of population reduction in the research area. Furthermore, the populations of *Tulipa aleppensis* in Birecik and Halfeti have decreased dramatically, and *Iris gatesii* and *Iris masia*, which are known from Karacadağ and surrounding areas, have extremely restricted ranges.

Of all the collected specimens, 19 taxa are new records for C6, C7, and C8 (Malyer, 1981, 1983; Davis, 1984; Kaynak & Ketenoğlu, 1986; Davis et al., 1988; Kaynak, 1989; Yıldırım & Güner, 1989; Donner, 1990; Yıldırım, 1992; Aytaç, 1994; Aytaç & Duman, 1995; Türkmen & Düzenli, 1995; Yıldırım & Akan, 1995; Yıldız & Aktoklu, 1996; Varol et al., 1998; Güner et al., 2000; Adigüzel & Aytaç, 2001; Aslan & Türkmen, 2001; Ertekin, 2002; Türkmen et al., 2002; Aslan & Türkmen, 2003; Aydoğdu & Akan, 2005; Akan et al., 2005b; Parmaksız et al., 2006; Atamov et al., 2007a, 2007b) (Table 3).

Of all the collected specimens, 86.54% of the taxa were monocotyledons, while 13.46% of them were dicotyledons. Of all the collected taxa, 57.69% were

Table 3. New floristic records from the research area (C6, C7, and C8).

Names of new plant records	Grid square
<i>Anemone coronaria</i> L. var. <i>coccinea</i> (Jord.) Burn.	C7
<i>Anemone coronaria</i> L. var. <i>rosea</i> (Hanry) Batt.	C7
<i>Anemone coronaria</i> L. var. <i>cyanea</i>	C7
<i>Anemone coronaria</i> L. var. <i>alba</i> Goaty & Pens.	C7
<i>Allium calypttratum</i> Boiss.	C7
<i>Allium schubertii</i> Zucc.	C7
<i>Ornithogalum wiedemannii</i> Boiss.	C7
<i>Ornithogalum comosum</i> L.	C7
<i>Ornithogalum nivale</i> Boiss.	C7
<i>Muscari longipes</i> Boiss.	C7
<i>Bellevalia dubia</i> (Guss.) M.Roem. & Schult.	C7
<i>Bellevalia longistyla</i> (Misch.) Grossh.	C7
<i>Bellevalia sarmatica</i> (Pall. ex Georgi) Woronow	C6
<i>Gagea chrysantha</i> (Jan) Schult. & Schult. f.	C7
<i>Colchicum cilicicum</i> (Boiss.) Dammer	C7
<i>Colchicum crocifolium</i> Boiss.	C6
<i>Merendera trigyna</i> (Steven ex Adam) Stapf	C8
<i>Iris pseudacorus</i> L.	C7
<i>Orchis collina</i> Banks & Sol.	C7

bulbous, 21.15% were tuberous, 17.31% were cormous, and 3.85% were rhizomous (Table 4). Regarding flowering time, 93.27% of the taxa bloomed in early-spring and spring, while 6.73% of the taxa bloomed in autumn.

Table 4. Distribution of phytogeographic elements and underground stem metamorphosis of plant samples collected from the research area.

Distribution of phytogeographic elements		Distribution of underground stem metamorphosis	
Phytogeographic region	Percent of total taxa (%)	Stem metamorphosis	Percent of total taxa (%)
Irano-Turanian elements	47.12	bulb	57.69
Mediterranean elements	25.00	tuber	21.15
Euro-Siberian elements	0.96	corm	17.31
Unknown phytogeographic region	26.92	rhizome	3.85

Distribution of the species according to floristic region was as follows: Irano-Turanian elements ranked first, accounting for 47.12% of the specimens, followed by Mediterranean elements (25.00%) and Euro-Siberian elements (0.96%) (only 1 species: *Butomus umbellatus* L.). The phytogeographic region of 26.92% of the identified taxa remains unknown (Table 4).

The families with the most taxa in the research area were Liliaceae (59) and Iridaceae (14). The family Liliaceae accounted for 56.73% of the collected taxa, forming the most common family in the research area. The second most common family was Iridaceae, accounting for 13.46% of the collected taxa. The other families combined accounted for 29.81% of the taxa collected from the research area (Table 5). In terms of species number, the major genera in the region were as follows: *Allium* (17), *Ornithogalum* (10), *Gagea* (9), *Bellevalia* (6), and *Iris* (6). These 5 genera represented 46.12% of the taxa, while 53.88% of the taxa belonged to other genera (Table 5).

The present study was focused on a specific group, while previous studies were generally based on floristic investigations of all vascular plants in the region. For the 5 most common families in the present study, 87 taxa were identified. The number of taxa in other studies ranged between 8 and 26. In *Flora of Turkey and the East Aegean Islands*, the number of geophytes identified from the research area is 46. The data of the present study was compared to the results of some previous studies in the investigation area (Table 6).

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Table 5. The distribution of families and genera collected from the research area.

Distribution of families		Distribution of genera	
Names of Families	Percent of total taxa (%)	Names of Genera	Percent of total taxa (%)
Liliaceae	56.73	<i>Allium</i>	16.34
Iridaceae	13.46	<i>Ornithogalum</i>	9.61
Ranunculaceae	5.76	<i>Gagea</i>	8.65
Araceae	4.80	<i>Bellevalia</i>	5.76
Amaryllidaceae	4.80	<i>Iris</i>	5.76
Orchidaceae	3.84	The other genera	53.88
The other families	12.61		

Table 6. A comparison of widespread geophyte families in the area, as reported by the present study and previous studies.

Previous studies and the present study	The number of taxa belonging to families					
	Liliaceae	Iridaceae	Araceae	Amaryllidaceae	Orchidaceae	Total
Malyer, 1983	18	8	0	0	0	26
Turkish Flora (Davis, 1984; 1988 and Güner et al., 2000)	26	11	2	2	5	46
Kaynak, 1989	12	4	0	1	1	18
Adigüzel & Aytaç, 2001	8	3	1	1	0	13
Ertekin, 2002	16	7	1	1	1	26
Aydoğdu & Akan, 2005	5	4	2	1	0	12
Akan et al., 2005b	11	5	1	2	0	19
Parmaksız et al., 2006	11	5	2	0	0	18
Atamov et al., 2007a	7	0	1	0	0	8
Atamov et al., 2007b	12	0	1	1	2	16
Present study, 2008	59	14	5	5	4	87

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APPENDIX

ANGIOSPERMAE

DICOTYLEDONAE

RANUNCULACEAE

Anemone coronaria L. var. *coccinea* (Jord.) Burn.

C6: Birecik, Çiftlik K., steppe, 550-600 m, 23.03.2002, İ.Eker 68; C7: 15 km from Şanlıurfa to Suruç, Akabe M., steppe, 650 m, 10.03.2002, İ.Eker 48.

Medit. el.

Anemone coronaria L. var. *rosea* (Henry) Batt.

C6: Birecik, Çiftlik K., steppe, 550-600 m, 23.03.2002, İ.Eker 69; C7: 15 km from Şanlıurfa to Suruç, Akabe M., steppe, 650 m, 10.03.2002, İ.Eker 49.

Medit. el.

Anemone coronaria L. var. *cyanea*

C6: Birecik, Çiftlik K., steppe, 550-600 m, 23.03.2002, İ.Eker 70; Halfeti, Rumkale, rocky slopes near Fırat N., 500 m, 27.03.2004, İ.Eker 703 & Akan; C7: 15 km from Şanlıurfa to Suruç, Akabe M., steppe, 650 m, 10.03.2002, İ.Eker 50.

Medit. el.

Anemone coronaria L. var. *alba* Goaty & Pens.

C6: Birecik, Çiftlik K., steppe, 550-600 m, 23.03.2002, İ.Eker 71; Birecik, near Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 92; C7: 15 km from Şanlıurfa to Suruç, Akabe M., steppe, 650 m, 10.03.2002, İ.Eker 51; Susuz D., on the hills in south Üçkonak K., rocky places, 500-550 m, 25.04.2004, İ.Eker 542 & Balos.

Medit. el.

Ranunculus asiaticus L.

C6: Halfeti, Old Halfeti, on the hills near Fırat N., 400 m, 04.04.2004, İ.Eker 426, Akan, Balos.

Ranunculus kochii Ledeb.

C7: Siverek, Karacadağ, Ekşitepe, stony steppe, 37°44.740'N, 39°49.825'E, 1791 m, 29.03.2003, İ.Eker 377 & Aydoğdu; Karacadağ, south slopes of TRT transmitting station, rocky places, 1900 m, 19.05.2004, İ.Eker 761. Ir.-Tur. el.

BERBERIDACEAE

Leontice leontopetalum L. subsp. *leontopetalum*

C7: Siverek, Karacadağ, Karabahçe K., 2 km from Karabahçe to Diyarbakır, in fields, 10.05.2003, İ.Eker 609.

Bongardia chrysogonum (L.) Spach

C7: Siverek, Karacadağ, Karabahçe K., near graveyard, in fields, 1300 m, 28.04.2002, İ.Eker 158-b & Akan.

Ir.-Tur. el.

PAPAVERACEAE

Corydalis oppositifolia DC. subsp. *oppositifolia*

C7: Siverek, Karacadağ, Kızılkuyu T., stony steppe, 1730 m, 28.04.2002, İ.Eker 175 & Akan.

GERANIACEAE

Geranium tuberosum L. subsp. *tuberosum*

C7: Siverek, Karacadağ, Karabahçe K., near graveyard, in fields, 1300 m, 28.04.2002, İ.Eker 156 & Akan.

Geranium tuberosum L. subsp. *deserti-syriacum* P.H.Davis

C7: Şanlıurfa-Bozova highway, Tülmen K., in fields, 550 m, 30.04.2002, İ.Eker 189. Ir.-Tur. el.

CRASSULACEAE

Umbilicus horizontalis (Guss.) DC. var. *intermedius* (Boiss.) Chamb.

C7: Tektek D., rocky places, 625 m, 15.04.2003, İ.Eker 474; Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., rocky places, 1350 m, 26.06.2003, İ.Eker 691.

ASTERACEAE (COMPOSITAE)

Scorzonera pseudolanata Grossh.

C6: Şanlıurfa-Birecik highway, 15 km from Birecik-Halfeti turnout to Halfeti, in forest, 37°08.658'N, 37°58.406'E, 450 m, 04.04.2003, İ.Eker 716. Ir.-Tur. el.

Scorzonera semicana DC.

C7: Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 37°46.575'N, 39°46.713'E, 1350 m, 19.05.2004, İ.Eker 739. Endemic, Ir.-Tur. el.

MONOCOTYLEDONAE

BUTOMACEAE

Butomus umbellatus L.

C7: 15 km from Karabahçe to Siverek, near Damlıca, in stream, 37°046.955'N, 39°45.299'E, 1270 m, 26.06.2003, İ.Eker 687. Euro.-Sib. el.

ARACEAE

Arum detruncatum C.A. Mey. ex Schott var. *detruncatum*

C7: Siverek, Old Siverek-Diyarbakır highway, Şeytan De., 37°51.437'N, 39°49.193'E, 1126 m, 26.06.2003, İ.Eker 690 & Aydoğdu; Siverek, 21 km from Siverek to Karacadağ, near stream, 37°42.908'N, 39°35.770'E, 1037 m, 19.05.2004, İ.Eker 730; Siverek, Karacadağ, 1 km from Karabahçe to ridgeway, Sino De., 1400 m, 03.07.2004, İ.Eker 788.

Arum dioscoridis Sm. var. *dioscoridis*

C7: 2 km from Şanlıurfa to Suruç, Akabe M., 600 m, 23.04.2003, İ.Eker 539; Birecik, Çiftlik K., near stream, shady places, 400-500 m, 24.05.2003, İ.Eker 654 & Balos.

Biarum carduchorum (Schott) Engl.

C7: Şanlıurfa-Viraneşir highway, Tektek D., north of Karakuş K., rocky places, 630 m, 20.09.2002, İ.Eker 220; 21 km from Şanlıurfa to Viraneşir, Osmanbey Campus, steppe, 520 m, 05.11.2002, İ.Eker 243 & Akan; Suruç-Birecik highway, 30 km from Birecik to Onbirnisan, 550-600 m, 25.11.2002, İ.Eker 257 & Akan.

Ir.-Tur. el.

Eminium spiculatum (Blume) Schott var. *spiculatum*

C6: Birecik, Çiftlik K., hills, 800-900 m, 23.03.2002, İ.Eker 72; C7: 15 km from Şanlıurfa to Suruç, Akabe M., steppe, 650 m, 10.03.2002, İ.Eker 39; Viraneşir, Germen K. civarı, rocky places, 500 m, 06.05.2002, İ.Eker 292; 21 km from Şanlıurfa to Viraneşir, Osmanbey Campus, 600 m, 29.03.2002, İ.Eker 117; 30 km from Harran to Şanlıurfa, Yardımcı K., field margins, 400-450 m, 13.04.2002, İ.Eker 130; 15 km from Şanlıurfa to Bozova, Kaşmer D., 800-850 m, 04.05.2002, İ.Eker 208; 10 km from Şanlıurfa to Akçakale, field margins, 450 m, 07.04.2003, İ.Eker 438; Ceylanpınar, Sorkah, Tigem, rocky places, 450 m, 10.04.2003, İ.Eker 465.

Ir.-Tur. el.

Eminium rauwolffii (Blume) Schott var. *rauwolffii*

C6: Birecik, near Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 82; C7: north of Direkli T., stony and rocky places, 650 m, 03.02.2002, İ.Eker 11; 2 km from Şanlıurfa to Suruç, Akabe M., 600 m, 10.03.2002, İ.Eker 41; 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, in fields, 600 m, 12.03.2002, İ.Eker 53; Tektek D., north of Başaklı K., rocky places, 600 m, 27.02.2003, İ.Eker 324; Ceylanpınar, Sorkah, Tigem, rocky places, 450 m, 10.04.2003, İ.Eker 464; Şanlıurfa-Viranşehir highway, Susuz D., south of Üçkonak K., in fields, 550 m, 25.04.2003, İ.Eker 548; Direkli T., stony and rocky places, 600-800 m, 23.04.2003, İ.Eker 526; Topdağı, rocky places, 650 m, 04.04.2003, İ.Eker 635; Birecik, 68 km from Şanlıurfa to Birecik, Arat D., 650 m, 23.03.2002, İ.Eker 709.

Ir.-Tur. el.

LILIACEAE

Asphodelus aestivus Brot.

C6: Birecik, on the hills around Çiftlik K., 800-900 m, 23.03.2002, İ.Eker 74; Şanlıurfa-Birecik highway, 6 km from Birecik-Halfeti turnout to Halfeti, 450 m, 04.04.2003, İ.Eker 715; C7: Birecik, 68 km from Şanlıurfa to Birecik, Arat D., 750 m, 23.03.2002, İ.Eker 98 & Korkut; 2 km from Şanlıurfa to Suruç, Akabe M., 600 m, 23.04.2003, İ.Eker 532; north and south slopes of Direkli T., stony and rocky places, 600-800 m, 06.05.2003, İ.Eker 576.

Medit. el.

Eremurus spectabilis M.Bieb.

C7: Siverek, Karacadağ, Kollubaba T., stony and rocky slopes under the TRT transmitting station, 1950 m, 19.05.2004, İ.Eker 755, Akan, Balos.

Ir.-Tur. el.

Asphodeline brevicaulis (Bertol.) J.Gay ex Baker subsp. *brevicaulis* var. *brevicaulis*

C7: Tektek D., north of Başaklı K., rocky places, 600 m, 02.05.2003, İ.Eker 561 & Balos; ibid., 14.05.2003, İ.Eker 632 & Balos.

Medit. el.

Asphodeline damascena (Boiss.) Baker subsp. *gigantea* E.Tuzlaci

C7: 13 km from Hilvan to Şanlıurfa, steppe, 730 m, 37°29.565'N, 38°52.100'E, 30.03.2003, İ.Eker 397.

Endemic, Ir.-Tur. el.

Allium callidictyon C.A. Mey. ex Kunth

C7: Siverek, 23 km from Siverek to Kara-

cadağ, 1140 m, 03.07.2004, İ.Eker 773 & Balos; Siverek, Karacadağ, 1 km from Karabahçe to ridgeway, Sino De., 1400 m, 03.07.2004, İ.Eker 785 & Balos.

Ir.-Tur. el.

Allium pallens L. subsp. *pallens*

C7: 15 km from Hilvan to Siverek, roadsides, 03.07.2004, İ.Eker 770 & Balos; Siverek, 23 km from Siverek-Karacadağ turnout to Karacadağ, 1140 m, 03.07.2004, İ.Eker 771.

Medit. el.

Allium flavum L. subsp. *tauricum* (Besser ex Reichb.) Stearn var. *tauricum*

C7: Tektek D., Karakuş K., rocky places, 620 m, 14.05.2003, İ.Eker 628; ibid., 29.05.2003, İ.Eker 669 & Balos; Tektek D., between Başaklı K. and Çiçekli K., steppe, 600 m, 14.05.2003, İ.Eker 636.

Medit. el.

Allium stamineum Boiss.

C7: 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 700 m, 20.05.2002, İ.Eker 104 & Akan; Direkli T., stony and rocky slopes, 600-800 m, 28.06.2002, İ.Eker 209; Bozova, Atatürk Orm., under *Pinus* sp., 500-600 m, 21.05.2002, İ.Eker 362; Tektek D., near Karahisar Kalesi, 700m, 14.05.2003, İ.Eker 634; Susuz D., on the hills south of Üçkonak K., rocky places, 500-550 m, 26.05.2003, İ.Eker 659.

Medit. el.

Allium variegatum Boiss.

C7: Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 37°46.515'N, 39°46.797'E, 1390 m, 19.05.2004, İ.Eker 743 & Akan; Siverek, Karacadağ, under the TRT transmitting station, rocky places, 1900 m, 19.05.2004, İ.Eker 757.

Endemic, Ir.-Tur. el.

Allium ampeloprasum L.

C6: Birecik, Çiftlik K. near stream, shady places, 500 m, 08.06.2003, İ.Eker 682 & Balos; C7: Siverek, Karacadağ, Karabahçe, in fields, 1200 m, 19.05.2004, İ.Eker 737.

Medit. el.

Allium trachycoleum Wendelbo

C7: Siverek, Karacadağ, 2 km from Atlıca K. to Avurtepe K., field margins, 1100 m, 03.07.2004, İ.Eker 781 & Balos.

Ir.-Tur. el.

Allium scorodoprasum L. subsp. *rotundum* (L.) Stearn

C6: Birecik, near Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 94; C7: east and north slopes of Direkli T., stony and rocky places, 700 m, 03.02.2002, İ.Eker 13; 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, on hills, 700 m, 29.03.2002, İ.Eker 104; Hilvan, Atatürk Orm., 800-900 m, 11.05.2002, İ.Eker 269; Bozova, Atatürk Orm., under *Pinus* sp., 500-600 m, 21.05.2002, İ.Eker 364 & Akan; Tektek D., Karakuş K., steppe and rocky places, 600 m, 22.04.2003, İ.Eker 525 & Balos; ibid., 14.05.2003, İ.Eker 627.

Medit. el.

Allium calypttratum Boiss.

C7: Bozova, Atatürk Orm., under *Pinus* sp., 500-600 m, 21.05.2002, İ.Eker 366.

Medit. el.

Allium dictyoprasum C.A. Mey. ex Kunth

C6: Şanlıurfa-Birecik highway, 15 km from Birecik-Halfeti turnout to Halfeti, in forest, 37°08.658'N, 37°58.406'E, 450 m, 04.04.2003, İ.Eker 719.

Ir.-Tur. el.

Allium chrysantherum Boiss. & Reut.

C7: Bozova, Atatürk Orm., under *Pinus* sp., 500-600 m, 21.05.2002, İ.Eker 365.

Ir.-Tur. el.

Allium cardiostemon Fisch. & C.A. Mey.

C7: Tektek D., Karakuş K., rocky places, 600 m, 29.05.2003, İ.Eker 667; Siverek, Karacadağ, Karabahçe, in fields, 1200 m, 20.06.2003, İ.Eker 683; Siverek, Old Siverek-Diyarbakır highway, Şeytan De., 37°51.437'N, 39°49.193'E, 1126 m, İ.Eker 688.

Ir.-Tur. el.

Allium orientale Boiss.

C7: Siverek, 21 km from Siverek to Karacadağ, 1000 m, 10.05.2003, İ.Eker 594 & Balos.

Medit. el.

Allium kharputense Freyn & Sint.

C7: Siverek, 21 km from Siverek to Karacadağ, 1000 m, 10.05.2003, İ.Eker 593 & Balos; Siverek, Karacadağ, Karabahçe, meadow, 1100 m, 10.05.2003, İ.Eker 598; Siverek, 36 km from Siverek to Karacadağ, 37°46.664'N, 39°44.737'E, 1235 m, 19.05.2004, İ.Eker 731 & Akan.

Ir.-Tur. el.

Allium asclepiadeum Bornm.

C7: Siverek, Karacadağ, Karabahçe K., near graveyard, in fields, 1300 m, 28.04.2002, İ.Eker 157 & Akan.

Ir.-Tur. el.

Allium noëanum Reut. ex Regel

C7: Siverek, 7 km from Siverek to Karacadağ, 800 m, 10.05.2003, İ.Eker 587 & Balos; Siverek, 21 km from Siverek to Karacadağ, 1000 m, 10.05.2003, İ.Eker 592 & Balos.

Ir.-Tur. el.

Allium schubertii Zucc.

C7: 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, in fields, 550-600 m, 12.03.2002, İ.Eker 59; Hilvan, Atatürk Orm., 800-900 m, 28.04.2002, İ.Eker 266; Viranşehir, Germen K. civarı, in fields, 500 m, 01.06.2002, İ.Eker 363; Eyyübiye Campus, in fields, 450 m, 24.03.2004, İ.Eker 512; Tektek D., near Karakuş K., field margins, 640 m, 02.05.2003, İ.Eker 563 & Balos.

Medit. el.

Scilla mesopotamica Speta

C6: Halfeti, 1 km from Old Halfeti to New Halfeti, rocky places, 37°14.331'N, 37°52.598'E, 525 m, 27.03.2004, İ.Eker 699 & Akan.

Endemic, Ir.-Tur. el.

Puschkinia scilloides Adams

C7: Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 37°46.575'N, 39°46.713'E, 1350 m, 19.05.2004, İ.Eker 738.

Ir.-Tur. el.

Ornithogalum narbonense L.

C6: Halfeti, Old Halfeti, Rumkale, rocky slopes, 400 m, 04.04.2003, İ.Eker 419 & Akan; C7: 15 km from Şanlıurfa to Bozova, Kaşmer D., 800-850 m, 22.05.2002, İ.Eker 214 & Akan; Ceylanpınar, Gürgürbaba, Tigem, near stream, meadow, 450 m, 17.04.2003, İ.Eker 506; Siverek, 2 km from Karabahçe to Diyarbakır, old highway, 1000 m, 10.05.2003, İ.Eker 603.

Medit. el.

Ornithogalum arcuatum Steven

C7: Siverek, Karacadağ, Karabahçe, in fields, 1200 m, 19.05.2004, İ.Eker 736, Akan, Balos; Siverek, 3-4 km from Karabahçe to ridgeway, Rame De., 37°46.515'N, 39°46.797'E, 1390 m, 19.05.2004, İ.Eker 751, Akan, Balos.

Ir.-Tur. el.

Ornithogalum oligophyllum E.D.Clarke

C7: Siverek, Karacadağ, Kızılkuyu T., stony steppe, 1700 m, 28.04.2002, İ.Eker 159 & Akan; Siverek, Karacadağ, Rame De., 1731 m, 10.05.2003, İ.Eker 614; Siverek, Karacadağ, under the TRT transmitting station, rocky slopes, 1900 m, 19.05.2004, İ.Eker 762.

Ornithogalum ulophyllum Hand.-Mazz.

C7: 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 550 m, 04.04.2002, İ.Eker 110.

Ornithogalum wiedemannii Boiss.

C7: Ceylanpınar, Sorkah, Tigem, near stream, meadow, 450 m, 10.04.2003, İ.Eker 466 & Balos; ibid., 17.04.2003, İ.Eker 504.

Ornithogalum comosum L.

C7: 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 550 m, 29.03.2002, İ.Eker 99; Susuz D., south of Üçkonak K., rocky places, 500-550 m, 25.04.2004, İ.Eker 540 & Balos.

Ornithogalum umbellatum L.

C6: Birecik, Mezra, district Zeytinli Bahçe, in fields, 500 m, 27.03.2004, İ.Eker 708; C7: Siverek, Karacadağ, Karabahçe, meadow, 1100 m, 10.05.2003, İ.Eker 600.

Ornithogalum orthophyllum Ten.

C7: Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 1400 m, 28.04.2002, İ.Eker 181-a & Akan; Tektek D., rocky places, 625 m, 15.04.2003, İ.Eker 473.

Ornithogalum alpigenum Stapf

C7: 30 km from Harran to Şanlıurfa, Yardımcı K., field margins, 400-450 m, 13.04.2002, İ.Eker 129.

Endemic, Medit. el.

Ornithogalum nivale Boiss.

C7: Siverek, Karacadağ, Kızılkuyu T., stony steppe, 1750 m, 28.04.2002, İ.Eker 169 & Akan.

Endemic, Medit. el.

Muscari comosum (L.) Mill.

C6: Birecik, Çiftlik K., near stream, shady places, 500 m, 24.05.2003, İ.Eker 657 & Akan; Halfeti, Rumkale, rocky slopes, 500 m, 27.03.2004, İ.Eker 706; C7: Tektek D., near Karakuş K., in fields and field margins, 640 m, 02.05.2003, İ.Eker 562; Siverek, Karacadağ, under the TRT transmitting station, rocky slopes, 1900 m, 19.05.2004, İ.Eker 765 & Akan.

Medit. el.

Muscari longipes Boiss.

C7: Şanlıurfa-Viranşehir highway, Susuz D., south of Üçkonak K., in fields, 550 m, 25.04.2003, İ.Eker 547 & Balos; Ceylanpınar, 3 km from Kepez to Beyazkule, road side, 450 m, 26.04.2003, İ.Eker 552 & Balos.

Ir.-Tur. el.

Muscari neglectum Guss.

C6: Birecik, near Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 83 & Korkut; C7: 15 km from Şanlıurfa to Bozova, Kaşmer D., above Uyuzpınar K., 800-850 m, 02.05.2002, İ.Eker 200-a & Akan; Tektek D., Karakuş K., field margins, rocky places, 640 m, 10.03.2003, İ.Eker 340; Akziyaret, Cülmen, in fields, 673 m, 37°20.897'N, 38°47.763'E, 31.03.2003, İ.Eker 398; Şanlıurfa-Viranşehir highway, Tektek D., between Karakuş K. and Başaklı K., 500 m, in fields, 02.04.2003, İ.Eker 403.

Bellevalia dubia (Guss.) M.Roem. & Schult.

C7: Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 1400 m, 28.04.2002, İ.Eker 180 & Akan; C8: Viranşehir, 26 km from Demirci to Viranşehir, near stream, 923 m, 16.04.2003, İ.Eker 493.

Medit. el.

Bellevalia tauri Feinbrun

C7: Şanlıurfa-Viranşehir highway, Tektek D., between Karakuş K. and Başaklı K., 500 m, in fields, 02.04.2003, İ.Eker 401-b & Balos.

Endemic, Medit. el.

Bellevalia longipes Post

C7: Siverek, Karacadağ, Karabahçe K., near graveyard, in fields, 1300 m, 28.04.2002, İ.Eker 152 & Akan; Siverek, 2 km from Karabahçe to Diyarbakır, old highway, field margins, 10.05.2003, İ.Eker 608.

Ir.-Tur. el.

Bellevalia longistyla (Miscz.) Grossh.

C7: Tektek D., Karakuş K., steppe and rocky slopes, 37°00.116'N, 39°14.521'E, 640 m, 05.04.2003, İ.Eker 427-a.

Ir.-Tur. el.

Bellevalia sarmatica (Pall. ex Georgi) Woronow

C6: Halfeti, Rumkale, rocky slopes near Fırat N., 500 m, 27.03.2004, İ.Eker 702 & Akan; C7: Siverek, Karacadağ, 3-4 km from

Karabahçe to ridgeway, Rame De., 1400 m, 28.04.2002, İ.Eker 179.

Bellevalia gracilis Feinbrun

C6: Halfeti, Rumkale, rocky slopes near Fırat N., 500 m, 27.03.2004, İ.Eker 700 & Akan; C7: 15 km from Şanlıurfa to Suruç, Akabe M., steppe, 650 m, 10.03.2002, İ.Eker 45; 18 km from Siverek to Karacadağ, steppe, 1000-1100 m, 28.04.2002, İ.Eker 146; Tektek D., Karakuş K., steppe and rocky slopes, 37°00.116'N, 39°14.521'E, 640 m, 05.04.2003, İ.Eker 427-b; Viranşehir, Duali De., 500 m, 16.04.2003, İ.Eker 497; 1 km from Şanlıurfa to Suruç, Şahin T., 600 m, 23.04.2003, İ.Eker 529.

Endemic, Ir.-Tur. el.

Hyacinthella nervosa (Bertol.) Chouard

C6: Birecik, on the hills around Çiftlik K., 800-900 m, 23.03.2002, İ.Eker 78; Birecik, near Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 91; C7: Şanlıurfa-Bozova highway, Dolamaç T., 600-650 m, 07.03.2002, İ.Eker 23; Direkli T., stony and rocky slopes, 600-800 m, 07.03.2002, İ.Eker 32; 15 km from Şanlıurfa to Suruç, Akabe M., steppe, 650 m, 10.03.2002, İ.Eker 46; 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 550 m, 12.03.2002, İ.Eker 58; ibid., 29.03.2002, İ.Eker 102; Tektek D., Karakuş K., steppe and rocky slopes, 640 m, 12.03.2003, İ.Eker 345; Topdağı, rocky places, 600 m, 17.03.2003, İ.Eker 355; Şanlıurfa-Birecik highway, 4 km from Birecik-Halfeti turnout to Halfeti, 37°04.197'N, 38°00.686'E, 445 m, 04.04.2003, İ.Eker 416; Birecik, 68 km from Şanlıurfa to Birecik, Arat D., 790-820 m, 23.03.2002, İ.Eker 449; Susuz D., south of Üçkonak K., rocky places, 500-550 m, 25.04.2004, İ.Eker 544.

Ir.-Tur. el.

Fritillaria persica L.

C7: Siverek, Karacadağ, Atlıca K., steppe and cultivated in fields, 1100 m, 03.07.2004, İ.Eker 783 & Balos.

Ir.-Tur. el.

Tulipa aleppensis Boiss. ex Regel

C6: Birecik, Çiftlik K., cultivated, 550-600 m, 23.03.2002, İ.Eker 66; Şanlıurfa-Birecik highway, 4 km from Birecik-Halfeti turnout to Halfeti, road side, 37°39.45'N, 38°09.51'E, 437 m, 04.04.2004, İ.Eker 712; C7: Siverek, Karacadağ, Karabahçe K., near graveyard, in

fields, 1300 m, 28.04.2002, İ.Eker 148; Siverek, Karacadağ, Kızılkuyu T., stony steppe, 1750 m, 28.04.2002, İ.Eker 171; 25 km from Şanlıurfa to Bozova, Küçük Tülmen K., rocky slopes, 24.04.2003, İ.Eker 662.

Ir.-Tur. el.

Gagea fibrosa (Desf.) Schult. & Schult. f.

C6: Birecik, on the hills around Çiftlik K., 800-900 m, 23.03.2002, İ.Eker 75; Halfeti, Rumkale, rocky slopes, 500 m, 27.03.2004, İ.Eker 707 & Akan; C7: 15 km from Şanlıurfa to Suruç, Akabe M., steppe, 650 m, 10.03.2002, İ.Eker 37.

Gagea reticulata (Pall.) Schult. & Schult. f.

C6: Birecik, near Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 85 & Korkut; C7: 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, in fields, 600 m, 12.03.2002, İ.Eker 54.

Ir.-Tur. el.

Gagea chlorantha (M. Bieb.) Schult.

C7: 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 550 m, 14.02.2002, İ.Eker 15; Şanlıurfa-Bozova highway, Dolamaç T., 600-650 m, 07.03.2002, İ.Eker 24; Direkli T., stony and rocky slopes, 600-800 m, 07.03.2002, İ.Eker 33.

Ir.-Tur. el.

Gagea chrysantha (Jan) Schult. & Schult. f.

C7: 15 km from Şanlıurfa to Bozova, Kaşmer D., 800-850 m, 07.03.2002, İ.Eker 28.

Medit. el.

Gagea luteoides Stapf

C7: Siverek, Karacadağ, Kızılkuyu T., stony steppe, 1700 m, 28.04.2002, İ.Eker 161 & Akan; Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 1400 m, 28.04.2002, İ.Eker 183 & Akan.

Gagea fistulosa Ker-Gawl.

C7: Siverek, Karacadağ, above Kızılkuyu T., stony steppe, 1730 m, 28.04.2002, İ.Eker 177 & Akan; Siverek, 9 km Karabahçe to Diyarbakır, old highway, Şeytan De., 1100 m, 30.03.2003, İ.Eker 441.

Gagea glacialis C. Koch

C7: Siverek, Karacadağ, Kızılkuyu T., stony steppe, 1650 m, 28.04.2002, İ.Eker 172 & Akan.

Ir.-Tur. el.

Gagea bohémica (Zauschn.) Schult. & Schult. f.

C7: Siverek, 9 km Karabahçe to Diyarbakır, old highway, Şeytan De., 37°51.522'N, 39°49.266'E, 1100 m, 30.03.2003, İ.Eker 399 & Aydoğdu.

Gagea villosa (M. Bieb.) Duby var. *villosa*

C7: Tektek D., Karakuş K., field margins, stony places, 640 m, 05.03.2003, İ.Eker 328.

Medit. el.

Colchicum szovitsii Fisch. & C.A. Mey.

C7: Siverek, Karacadağ, 3 km from Karabahçe to ridgeway, Rame De., 1415 m, 28.03.2003, İ.Eker 370 & Akan.

Ir.-Tur. el.

Colchicum cilicicum (Boiss.) Dammer

C7: Şanlıurfa-Diyarbakır highway, 36 km from Kabahaydar turnout to Kabahaydar K., steppe, 755 m, 29.09.2002, İ.Eker 223 & Balos; Şanlıurfa-Akçakale highway, Gündaş K., yol kenarı, 400 m, 06.10.2002, İ.Eker 225; 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 520 m, 05.11.2002, İ.Eker 245; Siverek, Karacadağ, Karabahçe K., near graveyard, in fields, 1300 m, 28.04.2002, İ.Eker 154.

Medit. el.

Colchicum persicum Baker

C6: Halfeti, Rumkale, rocky slopes, 500 m, 27.03.2004, İ.Eker 705 & Akan.

Ir.-Tur. el.

Colchicum crocifolium Boiss.

C6: Birecik, near Mezra, in graveyard, 600 m, 28.01.2004, İ.Eker 693 & Balos; C7: east of Direkli T., stony places, 726 m, 02.02.2003, İ.Eker 278; north-east of Direkli T., stony places, 640 m, 19.01.2003, İ.Eker 274; 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 520 m, 12.03.2002, İ.Eker 61; 20 km from Şanlıurfa to Bozova, Korukezen K., Kalecik T., steppe, 715 m, 08.03.2003, İ.Eker 336; Tektek D., Karakuş K., steppe, 640 m, 20.03.2003, İ.Eker 356.

Ir.-Tur. el.

Merendera trigyna (Steven ex Adam) Stapf

C7: Siverek, Karacadağ, Kızılkuyu T., stony steppe, 1700 m, 28.04.2002, İ.Eker 163 & Akan; Siverek, Karacadağ, 5 km from Karabahçe to ridgeway, Rame De., 1539 m, 29.03.2003, İ.Eker 374 & Aydoğdu; Siverek,

Karacadağ, Badir T., stony steppe, 1750 m, 29.03.2003, İ.Eker 380 & Aydoğdu; C8: Viranşehir, 38 km from Demirci to Viranşehir, 1000 m, 16.04.2003, İ.Eker 490.

Ir.-Tur. el.

AMARYLLIDACEAE

Sternbergia fischeriana (Herb.) Rupr.

C7: 15 km from Şanlıurfa to Bozova, Maşuk K., Nergiz Tarlaları district, 550 m, 07.03.2002, İ.Eker 31 & Akan.

Sternbergia clusiana (Ker Gawl.) Ker Gawl. ex Spreng.

C7: north of Direkli T., stony slopes, 690 m, 20.10.2001, İ.Eker 2.

Ir.-Tur. el.

Sternbergia colchiciflora Waldst. & Kit.

C7: Siverek, 6 km Karabahçe to Diyarbakır, old highway, Beyaz De., rocky places, 37°50.431'N, 039°47.738'E, 1241 m, 30.03.2003, İ.Eker 391 & Aydoğdu.

Ixiolirion tataricum (Pall.) Herb. subsp. *tataricum*

C7: 30 km from Harran to Şanlıurfa, Yardımcı K., field margins, 400-450 m, 13.04.2002, İ.Eker 127; Şanlıurfa-Hilvan highway, Büyük Salkım K., in fields, 550 m, 28.04.2002, İ.Eker 187; Tektek D., near Karakuş K., in fields and field margins, 640 m, 02.05.2003, İ.Eker 564 & Balos.

Ir.-Tur. el.

Ixiolirion tataricum (Pall.) Herb. subsp. *montanum* (Labill.) Takht.

C7: Direkli T., stony places, 700 m, 21.04.2002, İ.Eker 135; 2 km from Şanlıurfa to Suruç, Akabe M., 600 m, 22.04.2002, İ.Eker 143; 15 km from Şanlıurfa to Bozova, Kaşmer D., above Uyuzpınar K., 800-850 m, 02.05.2002, İ.Eker 199 & Akan; Hilvan, Atatürk Orm., 800-900 m, 11.05.2002, İ.Eker 270; Tektek D., south of Karakuş K., field margins, 685 m, 15.04.2003, İ.Eker 482; Siverek, 8 km from Siverek to Karacadağ, 850 m, 10.05.2003, İ.Eker 589.

Ir.-Tur. el.

IRIDACEAE

Iris pseudacorus L.

C7: 26 km from Hilvan to Siverek, stream side, 37°36.395'N, 39°04.055'E, 546 m, 19.05.2004, İ.Eker 728.

Iris masia Stapf ex Foster

C7: Siverek, Karacadağ, 2 km from Atlıca K. to Avurtepe K., field margins, 1100 m, 03.07.2004, İ.Eker 782 & Balos.

Ir.-Tur. el.

Iris gatesii Foster

C7: Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 37°46.515'N, 39°46.797'E, 1390 m, 19.05.2004, İ.Eker 750.

Ir.-Tur. el.

Iris reticulata M. Bieb. var. *reticulata*

C7: Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 37°46.515'N, 39°46.797'E, 1390 m, 19.05.2004, İ.Eker 746.

Ir.-Tur. el.

Iris aucheri (Baker) Sealy

C8: Viranşehir, 30 km from Demirci to Viranşehir, 987 m, 16.04.2003, İ.Eker 487.

Ir.-Tur. el.

Iris persica L.

C6: Birecik, Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 88 & Korkut; Halfeti, Rumkale, rocky slopes near Fırat N., 500 m, 27.03.2004, İ.Eker 704 & Akan; Şanlıurfa-Birecik highway, 15 km from Birecik-Halfeti turnout to Halfeti, in forest, 450 m, 04.04.2003, İ.Eker 718 & Akan; C7: Direkli T., stony places, 700 m, 15.02.2003, İ.Eker 314; 20 km from Şanlıurfa to Bozova, Kalecik T., Korukezen K., steppe, 37°18.032'N, 38°42.749'E, 715 m, 08.03.2003, İ.Eker 337; Tektek D., Karakuş K., steppe and rocky slopes, 640 m, 12.03.2003, İ.Eker 348; 2 km from Şanlıurfa to Suruç, Akabe M., rocky places, 650 m, 08.03.2003, İ.Eker 352.

Ir.-Tur. el.

Gynandrisis sisyrinchium (L.) Parl.

C6: Birecik, near Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 86 & Korkut; C7: Tektek D., Karakuş K., field margins and rocky places, 640 m, 05.03.2003, İ.Eker 330 & Balos; Şanlıurfa-Birecik highway, 4 km from Birecik-Halfeti turnout to Halfeti, 37°04.197'N, 38°00.686'E, 445 m, 04.04.2003, İ.Eker 417; 2 km from Şanlıurfa to Suruç, Akabe M., 600 m, 23.04.2003, İ.Eker 538; Şanlıurfa-Viranşehir highway, Susuz D., on the hills south of Üçkonak K., 550 m, 25.04.2003, İ.Eker 550.

Crocus leichtlinii (Dewey) Bowles

C7: Siverek, Karacadağ, Kızılkuyu T., stony steppe, 1700 m, 28.04.2002, İ.Eker 162; Siverek, Karacadağ, 3 km from Karabahçe to ridgeway, Rame De., 1415 m, 28.03.2003, İ.Eker 369; Siverek, Karacadağ, Ekşitepe, stony steppe, 37°45.574'N, 38°49.654'E, 1882 m, 29.03.2003, İ.Eker 379 & Aydoğdu; Siverek, 9 km from Karabahçe to Diyarbakır, old highway, Şeytan De., 1100 m, 30.03.2003, İ.Eker 395; C8: Viranşehir, 38 km from Demirci to Viranşehir, 987 m, 16.04.2003, İ.Eker 489.

Endemic, Ir.-Tur. el.

Crocus pallasii Goldb. subsp. *turcicus* B. Mathew

C6: Birecik, near Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 87 & Korkut; C7: Şanlıurfa: east slopes of Direkli T., stony and rocky places, 650 m, 20.10.2001, İ.Eker 1; 15 km from Şanlıurfa to Bozova, Kaşmer D., 800 m, 15.11.2001, İ.Eker 10; 2 km from Şanlıurfa to Suruç, Akabe M., 600 m, 10.03.2002, İ.Eker 42-a; 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 600 m, 12.03.2002, İ.Eker 56; 20 km from Şanlıurfa to Bozova, Kalecik T., Korukezen K., steppe, 720 m, 20.10.2002, İ.Eker 231.

Crocus cancellatus Herb. subsp. *damascenus* (Herb.) B. Mathew

C6: Birecik, around Çiftlik K., 800-900 m, 23.03.2002, İ.Eker 81; Birecik, Mezra, steppe, 750-800 m, 23.03.2002, İ.Eker 96; C7: east of Direkli T., stony places, 650 m, 14.11.2001, İ.Eker 5; 15 km from Şanlıurfa to Bozova, Kaşmer D., 600 m, 15.11.2001, İ.Eker 9; 2 km from Şanlıurfa to Suruç, Akabe M., 600 m, 10.03.2002, İ.Eker 42-b; 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, steppe, 550 m, 12.03.2002, İ.Eker 60; Tektek D., north of Karakuş K., rocky places, 600 m, 31.10.2002, İ.Eker 235; Akçakale, Gündaş K., 400-450 m, rocky places, 03.11.2002, İ.Eker 246; Suruç-Birecik highway, 30 km from Birecik to Onbırnisan, 550-600 m, 25.11.2002, İ.Eker 255; Ceylanpınar, Sorkah, Tigem, rocky places, 450 m, 10.04.2003, İ.Eker 463.

Ir.-Tur. el.

Gladiolus italicus Mill.

C7: Şanlıurfa: 15 km from Şanlıurfa to Bozova, Kaşmer D., above Uyuzpınar K., 800-850 m, 02.05.2002, İ.Eker 200-b & Akan.

Gladiolus humilis Stapf

C7: Siverek, Karacadağ, 3-4 km from Karabahçe to ridgeway, Rame De., 37°46.515'N, 39°46.797'E, 1390 m, 19.05.2004, İ.Eker 742 & Akan.

Endemic, Ir.-Tur. el.

Gladiolus atroviolaceus Boiss.

C7: 21 km from Şanlıurfa to Viranşehir, Osmanbey Campus, in fields, 520 m, 04.04.2002, İ.Eker 115; Şanlıurfa- Bozova highway, Tülmen K., 550 m, 30.04.2002, İ.Eker 188.

Ir.-Tur. el.

Gladiolus micranthus Stapf

C7: 2 km from Şanlıurfa to Suruç, Akabe M., 600 m, 22.04.2002, İ.Eker 138.

Endemic, Medit. el.

ORCHIDACEAE

Ophrys umbilicata Desf. subsp. *khuzestanica* Renz & Taub.

C7: Şanlıurfa-Birecik highway, 4 km from Birecik-Halfeti turnout to Halfeti, 37°39.45'N, 38°09.51'E, 437 m, 04.04.2004, İ.Eker 710 & Balos.

Ir.-Tur. el.

Orchis collina Banks & Sol.

C6: Şanlıurfa-Birecik highway, 15 km from Birecik-Halfeti turnout to Halfeti, in forest, 37°08.658'N, 37°58.406'E, 450 m, 04.04.2003, İ.Eker 717 & Akan; C7: Direkli T., stony places, 700 m, 21.04.2002, İ.Eker 136; Atatürk Orm., under *Pinus* sp., 550-600 m, 02.05.2003, İ.Eker 559.

Medit. el.

Orchis palustris Jacq.

C7: 24 km from Hilvan to Siverek, stream side, 550 m, 30.03.2003, İ.Eker 582-a & Balos.

Orchis laxiflora Lam.

C7: 26 km from Hilvan to Siverek, stream sides, 37°36.395'N, 39°04.055'E, 546 m, 19.05.2004, İ.Eker 729 & Akan.

Medit. el.

POACEAE (GRAMINEAE)

Hordeum bulbosum L.

C7: 15 km from Şanlıurfa to Bozova, Kaşmer D., above Uyuzpınar K., 800-850 m, 22.05.2002, İ.Eker 216 & Akan.

Poa bulbosa L.

C7: 15 km from Şanlıurfa to Bozova, Kaşmer D., above Uyuzpınar K., 800 m, 22.05.2002, İ.Eker 213 & Akan.