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The Flora of Upper Ceyhan Valley (Kahramanmaraş/Turkey)

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Abstract: This investigation was carried out between 1994 and 1995 in order to determine the flora of Upper Ceyhan Valley. The research area is situated in the province of Kahramanmaraş and within C6 of the grid system. In the area, 412 taxa belonging to 68 families and 262 genera were determined. Twenty-eight (6.7%) taxa are endemics for Turkey. In the distribution of the taxa according to the floristic regions, Mediterranean elements with a rate of 23.5% are the most common. Irano-Turanian elements with a rate of 17.2% and Euro-Siberian elements with a rate of 3.4% were found. The families which have the most taxa in the research area are *Fabaceae* (60 spp.), *Asteraceae* (52 spp.), *Poaceae* (31 spp.), *Brassicaceae* (24 spp.) and *Lamiaceae* (20 spp.). Concerning the number of taxa, the major genera in this region are *Trifolium* L. (10 spp.), *Vicia* L. (9 spp.), *Euphorbia* L. (8 spp.), *Papaver* L. (6 spp.), *Galium* L. (6 spp.) and *Astragalus* L. (4 spp.).

Key Words: Flora, Upper Ceyhan Valley, Kahramanmaraş.

Yukarı Ceyhan Vadisi Florası (Kahramanmaraş/Türkiye)

Özet: Bu araştırma, 1994-1995 yılları arasında Yukarı Ceyhan Vadisi florasını tespit etmek üzere yapılmıştır. Araştırma alanı, Kahramanmaraş il sınırları içerisinde ve Grid sistemine göre C6 karesindedir. Araştırma bölgemizde, 68 familya ve 262 cinse ait 412 takson tespit edildi. Bunlardan, 28 (%6,7) takson Türkiye için endemiktir. Bitkilerin fitocoğrafik bölgelere dağılımında; %23,5 oranı ile Akdeniz elementleri ilk sırayı almaktadır. İran-Turan elementleri %17,2 ve Avrupa-Sibirya elementleri ise %3,4 oranlarıyla temsil edilir. Sahada en çok taksona sahip olan familyalar; *Fabaceae* (60 tür), *Asteraceae* (52 tür), *Poaceae* (31 tür), *Brassicaceae* (24 tür) ve *Lamiaceae* (20 tür)'dir. Alanda en çok taksona sahip olan cinslerin sıralanışı ise şöyledir: *Trifolium* L. (10 tür), *Vicia* L. (9 tür), *Euphorbia* L. (8 tür), *Papaver* L. (6 tür), *Galium* L. (6 tür) ve *Astragalus* L. (4 tür)'dur.

Anahtar Sözcükler: Flora, Yukarı Ceyhan Nehir Vadisi, Kahramanmaraş.

Introduction

This research was carried out to determine the flora of Upper Ceyhan Valley in Kahramanmaraş. The vegetation of the area has been extensively destroyed by anthropogenic effects and, therefore, plants can barely survive under the unsuitable agricultural conditions.

Close to our research area, some floristic and vegetation studies were carried out by Akman (1973), Çetik (1981), Duman (1991, 1995), Düzenli (1976), Eyce (1987), Eyce and Ocakverdi (1987), Quezel (1973), Quezel and Pamukçuoğlu (1973), Uslu (1977), Vural et al. (1999) and Yıldız (1984).

Balls, Davis, Guichard, Haradjian, Haussknecht, Post and Sintenis have made some collections around

Kahramanmaraş. Among them, especially Balls, Davis and Haussknecht have some collections from the Ceyhan valley (Davis 1965-1985).

We chose the research area, Upper Ceyhan Valley, for the following reasons:

- 1- It is between the Mediterranean and Irano-Turanian phytogeographic areas.
- 2- It was not studied previously in terms of flora and vegetation.
- 3- It is on the Anatolian Diagonal.
- 4- According to Zohary (1973), endemic plants are concentrated in this region.

In light of this information, our main goals may be summarized as follows:

- 1- to determine the flora of Upper Ceyhan Valley.
- 2- to determine rare and endemic plants of the research area. The research area is between Kılavuzlu Village and Menzelet Dam, which will be permanently under water.
- 3- to determine the main peculiarities of the vegetation types in the region.

Geographical Location

The research area is located between Mediterranean and Irano-Turanian phytogeographic regions and at the south of the Anatolian Diagonal (Zohary, 1973). The research area is situated in the C6 square and completely located within the province of Kahramanmaraş. The altitude of the area is between 500 and 1250 m.

Ceyhan River is fed by Aksu River, Bertiz Creek, Cemrengeç Stream and Tekir Stream. The river originates at Elbistan and flows into the Mediterranean Sea.

There are 13 villages and a town in and around the research area. Generally, settlements are dense close to the river. The villages in and around the research area are Bulutoğlu, Çakırdere, Çavgalar, Demirlik, Ekizler, Elsen, Hacınıoğlu, Kamışlı, Kertel, Kılavuzlu, Koçlar, Payam and Sarıçukur. Baydemirli Village became a new town recently.

To the north of the research area are Berit Mountain, Bezirgan Mountain, Karadiken Mountain and Kışla Mountain; to the east, Engizek Mountain; to the south, Ahır Mountain, and to the west, Ali Hill (Figure 1).

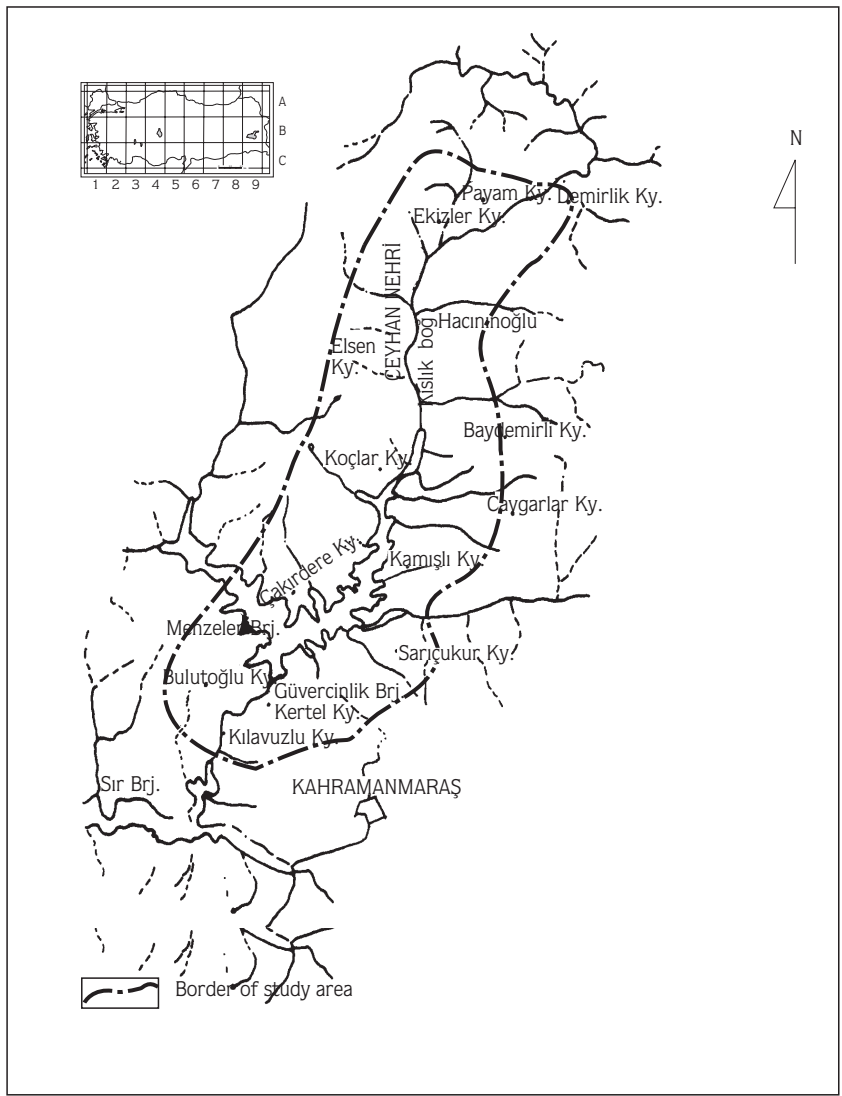


Figure 1. The geographic map of study area

Climate: The natural flora and vegetation types and the meteorological data indicate that the research area is under the influence of the Mediterranean climate, which has rainfall in cold and relatively cold seasons, a dry season in summer and a maximum temperature of more than 25°C (Akman, 1990). Macchie plants such as *Pinus brutia* Ten., *Quercus coccifera* L., and *Arbutus andrachne* L., which show a natural spread in the research area, are indicators of a prevailing Mediterranean climate.

The annual average of temperature is 16.5°C and the total rain amount is 662.2 mm in Kahramanmaraş. The aridity period is between April and May. The precipitation regime is winter-spring-autumn-summer in Kahramanmaraş and Göksun (Meteoroloji Bülteni, 1994).

Materials and Methods

To constitute research material, c. 700 plant specimens were gathered from Upper Ceyhan Valley by Cemil Kara between 1994 and 1995 during different vegetation seasons. A collector number was given and the specimens were dried according to herbarium methods. The plant samples collected from the region were kept in the herbarium of Dumlupınar University, Kütahya, and of Kahramanmaraş Sütçü İmam University. "Flora of Turkey and the East Aegean Islands" [(Davis, 1965-1985, Davis et al., 1988)] was used to identify plant samples.

The list of plants is set out according to the order in the *Flora of Turkey*. In the floristic list of this article, the following details are given: family name, species name and author(s), the name of district, habitat of plant, altitude, collection date, collector number given by C. Kara, endemism and the phytogeographic element.

After checking the *Flora of Turkey*, the taxa that we were unable to collect during this study but had been collected by Davis, Balls and Haussknecht were added to the floristic list.

The following abbreviations are used in the text:

| | |
|------------|------------------------------|
| Brj.: | Barajı |
| Boğ.: | Boğazi |
| E: | East |
| Euro-Sib.: | Euro-Siberian |
| HES: | Hydro Electric Power Station |

| | |
|-----------|----------------|
| Ir.-Tur : | Irano-Turanian |
| K.: | C. Kara |
| Ky: | Köyü |
| m: | meter |
| Medit: | Mediterranean |
| S: | South |
| subsp.: | subspecies |
| var.: | variety |
| W: | West |

Vegetation

The vegetational characteristics of the research area are generally as follows: at 500-600 m between Kılavuzlu village and the Menzelet dam, there are *Tamarix parviflora* DC., *Platanus orientalis* L., *Juniperus oxycedrus* L. subsp. *oxycedrus*, *Quercus cerris* L. var. *cerris* and *Quercus coccifera*. There are *Pinus brutia* forests around the Menzelet dam.

Under the forest, *Juniperus oxycedrus* subsp. *oxycedrus* and *Arbutus andrachne* which are Mediterranean elements, are spread at intervals.

In the fields, along the river *Adonis flammea* Jacq., *Anemone coronaria* L., *Anemone blanda* Schott & Kotschy and *Papaver rhoeas* L. can occasionally be found.

At the shallow parts of the river, there are *Juncus inflexus* L., *Juncus articulatus* L., *Plantago major* L., *Plantago lanceolata* L., *Rumex pulcher* L., *Sambucus nigra* L., *Equisetum hyemale* L., *E. arvensis* L. and *Adiantum capillus-veneris* L.

Along the riverside, *Salix pentandra* L. and *Populus nigra* L. subsp. *nigra* are vanguard trees. Around the erosion area of Kılavuzlu village, near the river, *Rhus coriaria* L. is a dominant group. In addition, with *Styrax officinalis* L. also *Capparis spinosa* L., which are adapted to the river's rocky parts, can be observed.

Between Çakırdere village and Kısık channel, along the riverside, *Rheum ribes* L. is spread at intervals.

In the *Pinus brutia* forests, near the river, *Onobrychis tournefortii* (Willd.) Desv., *Moluccella leavis* L., *Astragalus vaginans* DC., *A. gummifer* Labill. and *A. hamosus* L. are spread between Kılavuzlu village and the Güvercinlik dam.

In fields and roadsides, *Paliurus spina-christi* Mill., *Cerasus avium* (L.) Moench, *C. microcarpa* (C.A. Meyer) Boiss., *Reseda lutea* L., *Tribulus terrestris* L., *Centeurea iberica* Trevir. ex Sprengel, *Buglossoides arvensis* (L.) Johnston, *Verbena officinalis* L., *Poa bulbosa* L., *Veronica anagallis-aquatica* L., *Crupina crupinastrum* (Moris) Vis., *Stachys cretica* L., *Plantago major* L., *P. lanseolata* L.,

Ononis natrix L., *Trifolium campestre* Schreb., *Cardaria draba* (L.) Desv., *Medicago x varia* Martyn and *Vicia sericocarpa* Fenzl are observed.

In the regions appropriate for agriculture, some fruits and vegetables are grown, such as *Junglans regia* L., *Cerasus avium* (L.) Moench, *Vitis vinifera* L., *Morus nigra* L. and *Ficus carica* L.

THE FLORISTIC LIST

DIVISIO: PTERIDOPHYTA

1- EQUISETACEAE

Equisetum hyemale L.

Kılavuzlu, roadsides, 500-600 m, 25.02.1995, K. 781.

E. arvense L.

Ceyhan HES, 500-600 m, 20.05.1995, K. 780.

E. ramosissimum Desf.

Kertel, streamside, 500-600 m, 08.08.1995, K. 607.

2- ADIANTACEAE

Adiantum capillus-veneris L.

Ceyhan HES, 500-550 m, 08.04.1995, K. 782.

DIVISIO: SPERMATOPHYTA

SUBDIVISIO: GYMNOSPERMAE

3- PINACEAE

Pinus brutia Ten.

Kertel to Menzelet, 600-800 m, 03.05.1995, K. 783.

Medit. element.

4- CUPRESSACEAE

Cupressus sempervirens L.

Ceyhan HES, 500-600 m, 20.05.1995, K. 785.

Juniperus oxycedrus L. subsp. *oxycedrus*

Çakırdere, forest clearings, 800-900 m, 03.09.1995, K. 633.

5- EPHEDRACEAE

Ephedra campylopoda C.A.Mey.

Güvercinlik, 500-600 m, 07.11.1995, K. 791.

Medit. element.

SUBDIVISIO: ANGIOSPERMAE

Classis: DICOTYLEDONES

6- RANUNCULACEAE

Delphinium peregrinum L.

Kertel to Güvercinlik, 500-600 m, 27.04.1995, K. 326.

Medit. element.

D. virgatum Poir.

Kertel to Ceyhan HES, fields, 500-600 m, 20.08.1995, K. 609.

Anemone blanda Schott & Kotschy

Bulutoğlu, fields, c. 600 m, 11.03.1995, K. 324.

A. coronaria L.

Çaldere, fields, 800-900 m, 18.03.1995, K. 322.

Medit. element.

Clematis orientalis L.

Kertel, 500-600 m, 08.08.1995, K. 622.

Adonis flammea Jacq.

Kılavuzlu, 500-600 m, 20.04.1995, K. 320.

A. annua L.

Kılavuzlu to Bulutoğlu, fields, 500-600 m, 20.04.1995, K. 341.

Ranunculus arvensis L.

Kertel to Güvercinlik, fields, 500-600 m, 27.04.1995, K. 332.

R. pinardii (Stev.) Boiss.

Kertel to Güvercinlik, fields, 500-600 m, 27.04.1995, K. 327.

Ir.-Tur. element.

Ceratocephalus falcatus (L.) Pers.

Ceyhan HES, fields, c. 600 m, 08.04.1995, K. 323.

Thalictrum orientale Boiss.

Kertel, forest clearings, 500-600 m, 27.04.1995, K. 344.

Medit. element.

7- PAPAVERACEAE

Glaucium corniculatum (L.) Rudolph subsp. *refractum* (Nábélek) Cullen

Güvercinlik, fields, 500-600 m, 20.05.1995, K. 440.

Endemic, Ir.-Tur. element.

Glaucium acutidentatum Hausskn. & Bornm.

Ceyhan HES, sandy fields, 500-600 m, 20.04.1995, K. 437.

Endemic, Ir.-Tur. element.

Papaver glaucum Boiss. & Hausskn.

Çakırdere to Kısıq, 900-1000 m, 03.05.1995, K. 447.

Ir.-Tur element.

P. rhoeas L.

Ceyhan HES, fields, 500-600 m, 20.04.1995, K. 438.

P. syriacum Boiss. & Blanche

Güvercinlik, sandy places, 500-600 m, 20.05.1995, K. 442.

Medit. element.

P. dubium L.

S of Kertel, fields, 500-600 m, 20.05.1995, K. 450.

P. clavatum Boiss. & Hausskn.

S of Kertel, fields, 500-600 m, 20.04.1995, K. 439.

Medit. element.

P. argemone L.

Bulutoğlu, fields, 500-600 m, 20.04.1995, K. 439.

Medit. element.

Fumaria asepalata Boiss.

Bulutoğlu, fields, 08.04.1995, K. 564.

Ir.-Tur. element.

8-BRASSICACEAE

Sinapis arvensis L.

S of Kertel, landslide places, 500-600 m, 08.04.1995, K. 253/a.

Raphanus raphanistrum L.

S of Kertel, landslide places, c. 600 m, 08.04.1995, K. 253/b.

Crambe orientalis L. var. *orientalis*

W of Kertel, c. 600 m, 27.04.1995, K. 224.

Ir.-Tur. element.

Lepidium perfoliatum L.

Çakırdere, field clearings, 900-1000 m, 18.03.1995, K. 240.

Cardaria draba (L.) Desv. subsp. *draba*

Kılavuzlu, meadow, 500-600 m, 05.04.1995, K. 206.

Iberis taurica DC.

Koçlar, fields, 900-1000 m, 03.04.1995, K. 219.

Aethionema arabicum (L.) Andrzej.

Kısık, fields, 1000 m, 18.03.1995, K. 223.

Thlaspi perfoliatum L.

S of Kertel, under *Quercus coccifera*, 500-600 m, 25.02.1995, K. 209.

Capsella rubella Reut.

Güvercinlik, roadside, 500-600 m, 13.03.1995, K. 208.

Medit. element.

Myagrum perfoliatum L.

Çakırdere, spaces of *Quercus* sp., 900 m, 3.05.1995, K. 213.

Neslia apiculata M.A.Fisch., C.A.Mey. & Avé-Lall.

S of Kertel, landslide places, 500-600 m, 08.04.1995, K. 250.

Pelteria angustifolia DC.

S of Kertel, under forest, 500-600 m, 13.03.1995, K. 207.

Medit. element.

Alyssum linifolium Steph. ex Willd.

Baydemirli, fields, 900-1000 m,

18.03.1995, K. 242.

Alyssum huetii Boiss.

Ceyhan HES, roadside, 500-600 m, 11.03.1995, K. 235.

Endemic, Ir.-Tur. element.

Alyssum minus (L.) Rothm. var. *minus*

Koçlar to Kamlıklar, fields, c. 1000 m, K. 231.

Clypeola jonthlaspi L.

S of Kertel, landslide places, 500-600 m, 08.05.1995, K. 251.

Erophila minima C.A.Mey.

S of Kertel, under forest, 500-600 m, 25.02.1995, K. 205.

Medit. element.

Arabis aucheri Boiss.

S of Kertel, forest clearings, 500-600 m, 22.03.1995, K. 218.

Cardamine hirsuta L.

S of Kertel, forest clearings, 500-600 m, 22.03.1995, K. 215.

Matthiola longipetala (C.A.Venturi) DC. subsp. *longipetala*

Baydemirli, hill slopes, 900-1000 m, 18.03.1995, K. 723.

Ir.-Tur. element.

Erysimum goniocaulon Boiss.

Bulutoğlu to Ceyhan HES, roadside, 500-600 m, 12.06.1995, K. 256.

Medit. element.

Erysimum repandum L.

Koçlar, fields, 800-1000 m, 18.03.1995, K. 225.

Camelina laxa C.A.Mey.

Kılavuzlu, landslide places, 500-600 m, 27.04.1995, K. 225.

Camelina rumelica Velen

Kılavuzlu, landslide places, 500-600 m, 27.04.1995, K. 212.

9-CAPPARACEAE

Capparis spinosa L. var. *spinosa*

Bulutoğlu, roadside, 500-600 m, 20.06.1995, K. 666.

Medit. element.

10-RESEDACEAE

Reseda lutea L. var. *lutea*

Sarıçukur to Kamlıklar, fields, c. 700 m, 17.06.1995, K. 776.

11-CISTACEAE

Helianthemum salicifolium (L.) Mill.

Kertel to Güvercinlik, riverside, 500-600 m, 11.03.1995, K. 734.

12-VIOLACEAE

Viola modesta Fenzl

Baydemirli, hills, 800-1000 m, 18.03.1995, K. 650.

13-PORTULACACEAE

Portulaca oleracea L.

Ceyhan HES, fields, 500-600 m, 20.05.1995, K. 779.

14-CARYOPHYLLACEAE

Minuartia hirsuta (M.Bieb.) Hand.-Mazz. subsp. *falcata* (Gris.) Mattf.

Güvercinlik to Menzelet, fields, 500-600 m, 20.04.1995, K. 483.

M. scleranthera (C.E.C.Fisch. & C.A.Mey.) Thell.

Çakırdere to Aliyakası, fields, 800-1000 m, 03.05.1995, K. 760.

Ir.-Tur. element.

Stellaria media (L.) Vill. subsp. *postii* Holmboe

S of Kılavuzlu and Kertel, hills, 500-600 m, 27.04.1995, K. 472.

Cerastium perfoliatum L.

Kılavuzlu, sandy places, 500-600 m, 27.04.1995, K. 475.

C. brachypetalum Pers. subsp. *roeseri* (Boiss. & Heldr.) Nyman

Kılavuzlu, sandy places, 500-600 m, 27.04.1995, K. 481.

Holosteum umbellatum L. var. *umbellatum*

Kılavuzlu, forest clearings, 500-600 m, 11.03.1995, K. 471.

Sagina apetala André

Kılavuzlu, roadside, 500-600 m, 11.03.1995, K. 473.

Loeflingia hispanica L.

Kılavuzlu, riverside, 500-600 m, 08.04.1995, K. 487.

Petrorhagia velutina (Guss.) P.W.Ball & Heywood

Sarıçukur, fields, 700-800 m, 17.06.1995, K. 478.

Velezia rigida L.

Kamışlı, riverside, 700-800 m, 03.05.1995, K. 760.

Saponaria glutinosa M.Bieb.

Kılavuzlu, sandy places, 500-600 m, 25.02.1995, K. 475.

Gypsophila hispida Boiss.

Ceyhan HES to Güvercinlik, roadside, 500-600 m, 08.08.1995, K. 594.

Ir.-Tur. element.

Vaccaria pyramidata Medik. var. **grandiflora** (C.E.C.Fisch. ex DC.) Cullen

Ceyhan HES, fields, 500-600 m, 20.04.1995, K. 476.

Silene nuncupanda Coode & Cullen

Sarıçukur to Kamışlı, hills, 800-1000 m, 17.06.1995, K. 477.

Endemic.

S. crassipes Fenzl

Kılavuzlu, forest, 500-600 m, 22.03.1995, K. 470.

S. dichotoma Ehrh. subsp. **dichotoma**

Kısık, hills, 900-1000 m, 03.05.1995, K. 480.

15-ILLECEBRACEAE

Paronychia kurdica Boiss. subsp. **kurdica** var. **kurdica**

Kılavuzlu, landslide places, 500-600 m, 22.03.1995, K. 726.

16-POLYGONACEAE

Atraphaxis billardieri Jaub. & Spach var. **billardieri**

Kertel to Güvercinlik, hills, 500-600 m, 05.06.1995, K. 765.

Ir.-Tur. element.

Rheum ribes L.

Çakırdere, riverside, 700-900 m, 03.05.1995, K. 533.

Ir.-Tur. element.

Polygonum salicifolium Brouss. ex Willd.

Kertel, rocky places, 500-600 m, 03.11.1995, K. 668.

Rumex pulcher L.

Kertel to Güvercinlik, riverside, 500-600 m, 05.06.1995, K. 668.

17-CHENOPODIACEAE

Chenopodium botrys L.

Kertel to Güvercinlik, riverside, 500-600 m, 05.06.1995, K. 767.

18-TAMARICACEAE

Tamarix parviflora DC.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 05.06.1995, K. 674.

19-HYPERICACEAE

Hypericum lyidium Boiss.

Menzelet to Sarıcak, hills, 600-800 m, 17.06.1995, K. 751.

20-MALVACEAE

Malva nicaeensis All.

Bulutoğlu, 500-600 m, 20.04.1995, K. 663.

M. parviflora L.

Bulutoğlu, roadside, 500-600 m, 20.05.1995, K. 660.

Alcea striata (DC.) Alef. subsp. **rufescens** (Boiss.) Cullen

Güvercinlik to Kertel, roadside, 500-600 m, 05.06.1995, K. 662.

A. apterocarpa (Fenzl) Boiss.

Sarıçukur to Koçlar, fields, 600-900 m, 17.06.1995, K. 661.

Endemic, Ir.-Tur. element.

21-LINACEAE

Linum flavum L. subsp. **scabrinerve** (P.H. Davis) P.H. Davis

S of Kertel, forest, 500-600 m, 05.06.1995, K. 781.

Endemic, Ir.-Tur. element.

L. olympicum Boiss.

Ceyhan HES to Güvercinlik dam, 500-600 m, 20.05.1995, K. 778.

Endemic.

L. virgultorum Boiss. & Heldr.

S of Kertel, forest, 500-600 m, 05.06.1995, K. 545.

Medit. element.

22-GERANIACEAE

Geranium lucidum L.

S of Kertel, riverside, 500-600 m, 22.03.1995, K. 489.

G. rotundifolium L.

Ceyhan HES to Güvercinlik, riverside, 500-600 m, 11.03.1995, K. 491.

G. molle L. subsp. **molle**

Hacınoğlu to Demirlik, riverside, 900-1100 m, 11.03.1995, K. 500.

G. columbinum L.

Bulutoğlu, riverside, 500-600 m, 08.04.1995, K. 497.

G. stepporum P.H.Davis

Kertel, riverside, 500-600 m, 22.03.1995, K. 490.

Erodium botrys (Cav.) Bertol.

Ceyhan HES, riverside, 500-600 m, 20.04.1995, K. 499.

Medit. element.

E. malacoides (L.) L'Hér.

Kılavuzlu, roadside, 500-600 m, 11.03.1995, K. 491.

Medit. element.

E. acaule (L.) Bech. & Thell.

Kılavuzlu, riverside, 500-600 m, 31.11.1994, K. 493.

Medit. element.

23-ZYGOPHYLLACEAE

Tribulus terrestris L.

Ceyhan HES to Bulutoğlu, roadside, 500-600 m, 05.06.1995, K. 547.

24- VITACEAE

Vitis sylvestris C.C.Gmel.

Kılavuzlu to Kertel, riverside, 500-600 m, 10.04.1995, K. 664.

25-RHAMNACEAE

Paliurus spina-christi Mill.

Kertel to Güvercinlik, 500-600 m, 20.05.1995, K. 714.

26-ANACARDIACEAE**Rhus coriaria** L.

Kılavuzlu to Güvercinlik, 500-600 m, 20.05.1995, K. 659.

Medit. element.

Pistacia vera L.

Bulutoğlu to Güvercinlik, 500-600 m, 05.06.1995, K. 657.

Ir.-Tur. element.

P. terebinthus L. subsp. **palaestina** (Boiss.) Engl.

Kılavuzlu to Kertel, 500-600 m, 20.06.1995, K. 658.

Medit. element.

27-FABACEAE**Astragalus hamosus** L.

Kılavuzlu to Ceyhan HES, 500-600 m, 20.05.1995, K. 102.

A. gummifer Labill.

Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 06.07.1995, K. 71.

Ir.-Tur. element.

A. andrachneifolius Fenzl

Kamışlı to Baydemirli, riverside, 900-1000 m, 03.05.1995, K. 32.

A. vaginans DC.

Sarıçukur, forest clearings, 800-900 m, 17.06.1995, K. 5.

Endemic.

Glycyrrhiza aspera Pal.

Jehan (Ceyhan) valley, 730 m, Balls 1107.

Psoralea bituminosa L.

Bulutoğlu to Ceyhan HES, roadside, 500-600 m, 20.04.1995, K. 93.

Medit. element.

Cicer pinnatifidum Jaub. & Spach

Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 20.05.1995, K. 3, 15 km N of Maraş, 500 m, D. 27464.

Vicia villosa Rothm. subsp. **villosa**

Kertel to Güvercinlik, riverside, 500-600 m, 27.04.1995, K. 48.

V. cypria Kotschy ex Unger & Kotschy

Kılavuzlu, landslide places, 500-600 m, 25.02.1995, K. 115.

V. hirsuta (L.) Gray

Kertel to Güvercinlik, riverside, 500-600 m, 27.04.1995, K. 46.

V. noeana Reut. ex Boiss. var. **noeana**

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 20.05.1995, K. 96.

Ir.-Tur. element.

V. peregrina L.

S of Kertel, riverside, 500-600 m, 22.03.1995, K. 83.

V. sericocarpa Fenzl var. **sericocarpa**

S of Kertel, riverside, 500-600 m, 22.03.1995, K. 81.

V. hybrida L.

S of Kertel, forest clearings, 500-600 m, 22.03.1995, K. 81.

V. grandiflora Scop. var. **grandiflora**

Güvercinlik, 500-600 m, 08.04.1995, K. 76.

Medit. & Euro.-Sib. element.

V. sativa L. subsp. **sativa**

Bulutoğlu to Güvercinlik, fields, 500-600 m, 20.04.1995, K. 18.

Lens orientalis (Boiss.) Hand.-Mazz.

Güvercinlik, riverside, 500-600 m, 20.04.1995, K. 21.

Lathyrus cicera L.

Koçlar to Kamışlı, hills, 900-1000 m, 03.05.1995, K. 33.

L. sativus L.

Kertel to Güvercinlik, landslide places, 500-600 m, 20.04.1995, K. 27.

L. lycicus Boiss.

Kertel to Güvercinlik, 500-600 m, 27.04.1995, K. 51.

Endemic, Medit. element.

L. aphaca L. var. **biflorus** Post

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 20.04.1995, K. 119.

Ononis natrix L. subsp. **natrix**

Kılavuzlu to Güvercinlik, 500-600 m, 03.11.1994, K. 117.

Medit. element.

O. spinosa L. subsp. **leiosperma** (Boiss.) Sirj.

Kılavuzlu, landslide places, 500-600 m, 05.06.1995, K. 3.

Trifolium boissieri Guss. ex Boiss.

Kılavuzlu, landslide places, 500-600 m, 25.02.1995, K. 114.

Medit. element.

T. erubescens Fenzl

N of Kertel, riverside, 500-600 m, 20.04.1995, K. 4.

Medit. element.

T. campestre Schreb.

Kılavuzlu, 500-600 m, 20.04.1995, K. 108.

T. spumosum L.

Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 27.04.1995, K. 40.

Medit. element.

T. stellatum L. var. **stellatum**

Bulutoğlu, 500-600 m, riverside, 20.04.1995, K. 75.

T. lucanium Gasp.

Güvercinlik, 500-600 m, 20.05.1995, K. 99.

T. lappaceum L.

Kertel to Güvercinlik, 500-600 m, 7.04.1995, K. 39.

Medit. element.

T. purpureum Lois. var. **purpureum**

Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 20.05.1995, K. 103.

T. scutatum Boiss.

Kılavuzlu, 500-600 m, 08.04.1994, K. 74.

Medit. element.

T. pauciflorum d'Urv.

Güvercinlik, 500-600 m, 20.05.1995, K. 101.

Medit. element.

Melilotus officinalis (L.) Desr.

Kılavuzlu to Bulutoğlu, 500-600 m, 20.05.1995, K. 94.

M. alba Desr.

Ceyhan HES, riverside, 500-600 m, 03.11.1994, K. 116.

Trigonella plicata (Boiss. & P.W.Ball) Boiss.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 11.03.1995, K. 104.

Endemic, Medit. element.

T. mesopotamica Hub.-Mor.

Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 20.04.1995, K. 15/a.

Ir.-Tur. element.

T. kotschyi Fenzl

Kertel, landslide places, 500-600 m, 27.04.1995, K.42.

Endemic, Ir.-Tur. element.

T. filipes Boiss.

Bulutoğlu, riverside, 500-600 m, 20.04.1995, K. 13.

Ir.-Tur. element.

T. crassipes Boiss.

Ceyhan HES, 500-600 m, 20.04.1995, K. 15/b.

Ir.-Tur. element.

T. spicata Sibth. & Sm.

Kısıp, riverside, 1300-1400 m, 03.05.1995, K. 15.

Medit. element.

Medicago x varia Martyn

Güvercinlik, riverside, 500-600 m, 12.06.1995, K. 2.

M. minima (L.) Bartal. var. *minima*

S of Kertel, riverside, 500-600 m, 08.04.1995, K. 58.

M. rigidula (L.) All. var. *cinerascens* (Jord.) Rouy

Kertel, riverside, 500-600 m, 27.04.1995, K. 47.

M. turbinata (L.) All. var. *chiotica* Urb.

Güvercinlik, riverside, 500-600 m, 27.04.1995, K. 49.

Dorycnium pentaphyllum Scop. subsp. *haussknechtii* (Boiss.) Gams

Menzelet to Kamlı, riverside, 800-1000 m, 17.06.1995, K. 120.

Endemic, Ir.-Tur. element.

Lotus angustissimus L.

Ceyhan HES to Güvercinlik, riverside, 500-600 m, 20.07.1995, K. 687.

Hymenocarpus circinnatus (L.) Savi

Ceyhan HES, roadside, 500-600 m, 08.04.1995, K. 60.

Anthyllis tetraphylla L.

S of Kertel, riverside, 500-600 m, 06.04.1995, K. 110.

Medit. element.

Coronilla emerus L. subsp. *emeroides* (Boiss. & Spruner) Hrabětova

Kılavuzlu, landslide places, 500-600 m, 08.04.1995, K. 91.

Coronilla scorpioides (L.) K.Koch

Güvercinlik, roadside, 500-600 m, 20.04.1995, K. 30.

C. cretica L.

Kılavuzlu, riverside, 500-600 m, 08.04.1995, K. 73.

Medit. element.

C. parviflora Willd.

Kertel to Güvercinlik, riverside, 500-600 m, 27.04.1995, K. 53.

Medit. element.

C. grandiflora Boiss.

Kertel to Güvercinlik, riverside, 500-600 m, 27.04.1995, K. 44.

Endemic, Medit. element.

Scorpiurus muricatus L. var. *subvillosus* (L.) Fiori

Ceyhan HES to Güvercinlik, 500-600 m, 20.05.1995, K. 100.

Medit. element.

Onobrychis aequidentata (Sibth. & Sm.) d'Urv.

Hacınoğlu, riverside, 500-600 m, 03.05.1995, K. 35.

Medit. element.

O. armena Boiss. & A.Huet

Kılavuzlu, fields, 500-600 m, 27.04.1995, K. 92.

O. tournefortii (Willd.) Desv.

Sarıçukur, 600-700 m, 17.06.1995, K. 123.

Endemic.

Alhagi pseudalhagi (M.Bieb.) Desv.

S of Kertel, riverside, 500-600 m, 17.06.1995, K. 121.

Ir.-Tur. element.

28-ROSACEAE

Cerasus microcarpa (C.A.Mey.) Boiss. subsp. *tortuosa* (Boiss. & Hausskn.) Browicz Sarıçukur, roadside, 600-700 m, 17.06.1995, K. 528.

Ir.-Tur. element.

C. avium (L.) Moench

S of Kertel, fields, 500-600 m, 17.06.1995, K. 528.

Amygdalus orientalis Mill.

Kılavuzlu, riverside, 500-600 m, 1994, K. 522.

Potentilla reptans L.

S of Bulutoğlu, riverside, 500-600 m, 20.04.1995, K. 520.

Sanguisorba minor Scop. subsp. *muricata* (Spach) Briq.

Kılavuzlu, riverside, 500-600 m, 20.04.1995, K. 530.

Rosa foetida Herrm.

Kılavuzlu, 500-600 m, 27.04.1995, K. 529.

Ir.-Tur. element.

R. canina L.

Ceyhan HES, riverside, 500-600 m, 03.11.1994, K. 521.

Crataegus orientalis Pal. ex M.Bieb. var. *orientalis*

Kertel, riverside, 500-600 m, 22.03.1995, K. 526.

Pyrus syriaca Boiss. var. *syriaca*

Kertel, streamside, 500-600 m, 22.03.1995, K. 526.

29-LYTHRACEAE

Lythrum salicaria L.

Ceyhan HES, riverside, 500-600 m, 06.07.1995, K. 703.

30-CUCURBITACEAE

Cucumis melo L.

Kertel, fields, 500-600 m, 05.06.1995, K. 761.

31-CRASSULACEAE

Sedum caespitosum (Cav.) DC.

Kılavuzlu to Güvercinlik, rocky places, 500-600 m, 20.04.1995, K. 531.

Medit. element.

- Telmisssa microcarpa* (Sm.) Boiss.
Sarıçukur, riverside, 600-700 m,
27.04.1995, K. 593.
- 32-APIACEAE**
- Eryngium campestre* L. var. *virens* Link
Ceyhan HES, riverside, 06.07.1995, K. 705.
- Scandix stellata* Banks & Sol.
Güvercinlik, stony place, 500-600 m,
08.04.1995, K. 293.
- S. pecten-veneris* L.
S of Kertel, riverside, 500-600 m,
08.04.1995, K. 294.
- Bifora testiculata* (L.) Spreng. ex Schult.
Bulutoğlu, riverside, 500-600 m,
12.06.1995, K. 281.
- Bunium paucifolium* DC. var. *paucifolium*
Kertel, riverside, 500-600 m, 27.04.1995,
K. 278.
Ir.-Tur. element.
- Pimpinella corymbosa* Boiss.
Ceyhan HES, fields, 500-600 m,
12.06.1995, K. 285.
Ir.-Tur. element.
- Heptaptera anisoptera* (DC.) Tutin
Ceyhan HES to Güvercinlik, fields, 500-600
m, 12.06.1995, K. 280.
- Bupleurum rotundifolium* L.
Sarıçukur, 800-1000 m, fields, 17.06.1995,
K. 772.
- B. gracile* d'Urv.
Kılavuzlu, landslide places, 500-600 m,
05.06.1995, K. 269.
Medit. element.
- B. lycanicum* Snogerup
Kılavuzlu, landslide places, 500-600 m,
05.06.1995, K. 268.
Endemic, Medit. element.
- Ferulago cassia* Boiss.
Ceyhan köprüsü, nr. Maraş, Hausskn.
Medit. element
- Tordylium syriacum* L.
Güvercinlik, riverside, 500-600 m,
08.04.1995, K. 291.
Medit. element.
- Torilis arvensis* (Huds.) Link subsp. *arvensis*
Ceyhan HES, riverside, 500-600 m,
12.06.1995, K. 284.
- Caucalis platycarpos* L.
Koçlar to Kısık, fields, 1000-1100 m,
03.05.1995, K. 271.
- Daucus carota* L.
Güvercinlik, riverside, 500-600 m,
08.08.1995, K. 601.
- Artemisia squamata* L.
Kılavuzlu to Güvercinlik, riverside, 500-600
m, K. 288.
- 33-CAPRIFOLIACEAE**
- Sambucus nigra* L.
Ceyhan HES, riverside, 500-600 m,
12.06.1995, K. 747.
Euro.-Sib. element.
- 34-VALERIANACEAE**
- Valerianella vesicaria* (L.) Moench
Kılavuzlu, landslide places, 500-600 m,
05.06.1995, K. 580.
- 35-DIPSACACEAE**
- Cephalaria syriaca* (L.) Schrad.
Kılavuzlu, landslide places, 500-600 m,
05.06.1995, K. 764.
- Scabiosa calocephala* Boiss.
Kılavuzlu to Güvercinlik, riverside, 500-600
m, 20.05.1995, K. 719.
Ir.-Tur. element.
- Pteroccephalus plumosus* (L.) Coult.
Kılavuzlu, landslide places, 500-600 m,
27.04.1995, K. 732.
- 36-ASTERACEAE**
- Helianthus annuus* L.
Kılavuzlu to Güvercinlik, roadside, 500-600
m, 03.11.1995, K. 134.
- Xanthium spinosum* L.
Ceyhan HES, riverside, 500-600 m,
17.06.1995, K. 139.
- X. strumarium* L. subsp. *cavanillesii*
(Schouw) D.Löve & Dans.
Ceyhan HES, fields, 500-600 m,
18.06.1995, K. 140.
- Inula graveolens* (L.) Desf.
Sarıçukur, riverside, 800-900 m,
17.06.1995, K.202.
Medit. element.
- Helichrysum sanguineum* (L.) Kostel.
Kılavuzlu, riverside, 500-600 m,
20.05.1995, K. 172.
Medit. element.
- H. plicatum* DC. subsp. *plicatum*
Kılavuzlu, landslide places, 500-600 m,
10.06.1995, K. 200.
- Filago eriocephala* Guss.
Kamışlı, riverside, 900-1000 m,
03.05.1995, K. 158.
Medit. element.
- Logfia arvensis* (L.) Holub
Çakırdere, riverside, 800-900 m,
18.03.1995, K. 722.
- Aster alpinus* L.
Kılavuzlu to Güvercinlik, riverside, 500-600
m, 05.06.1995, K. 127.
- Erigeron acer* L. subsp. *acer*
Kılavuzlu to Güvercinlik, roadside, 500-600
m, 11.03.1994, K. 142.
- Bellis perennis* L.
Kılavuzlu to Güvercinlik, riverside, 500-600
m, 11.03.1995, K. 168.
Euro.-Sib. element.
- B. sylvestris* Cirillo
Kılavuzlu to Güvercinlik, riverside, 500-600
m, 11.03.1994, K. 141.
Medit. element.
- Doronicum haussknechtii* Cavill.
Kılavuzlu to Güvercinlik, riverside, 500-600
m, 20.05.1995, K. 162.
Endemic.
- Senecio vulgaris* L.
S of Kertel, riverside, 500-600 m,
22.03.1995, K. 153.
- Senecio vernalis* Waldst. & Kit Tan
Güvercinlik, streamside, 500-600 m,
25.02.1995, K. 132.
- Calendula officinalis* L.
Güvercinlik, riverside, 500-600 m,
25.02.1995, K. 130.

- Anthemis hyalina** DC.
Kılavuzlu to Güvercinlik, landslide places, 500-600 m, 22.03.1995, K. 149.
- A. tricornis** Eig
Ceyhan HES, riverside, 500-600 m, 08.04.1995, K. 188.
Endemic, Medit. element.
- A. haussknechtii** Boiss. & Reut.
Çakırdere, riverside, 900-950 m, 02.05.1995, K. 164.
- A. pungens** Yavin
Ceyhan river, 15 km W of Maraş, 500 m, D. 27459.
Endemic.
- A. halophila** Boiss. & P.W.Ball
Çakırdere to Koçlar, riverside, 900-1000 m, 03.05.1995, K. 157.
Endemic, Medit. element.
- Achillea aleppica** DC. subsp. **aleppica**
Sarıçukur, riverside, 600-700 m, 17.06.1995, K. 144.
Ir.-Tur. element.
- Gundelia tournefortii** L. var. **tournefortii**
Hacınoğlu, riverside, 1400-1500 m, 03.05.1995, K. 159.
- Cynara syriaca** Boiss.
Güvercinlik, riverside, 500-600 m, 20.07.1995, K. 684.
- Onopordum carduchorum** Bornm. & Beauverd
Güvercinlik, riverside, 500-600 m, 05.06.1995, K. 170.
Ir.-Tur. element.
- Cirsium pubigerum** (Desf.) DC. var. **spinosum** Petr.
Sarıçukur to Menzelet, riverside, 600-700 m, 17.06.1995, K. 145/b.
Ir.-Tur. element.
- C. elodes** M.Bieb.
Bulutoğlu to Güvercinlik, riverside, 500-600 m, 20.04.1995, K. 129.
Ir.-Tur. element.
- Centaurea aggregata** M.A.Fisch. & C.A.Mey. ex DC. subsp. **aggregata**
Ceyhan HES, riverside, 500-600 m, 12.06.1995, K. 197.
- C. virgata** Lam.
S of Kertel, landslide places, 500-600 m, 05.06.1995, K. 146.
- C. solstitialis** L. subsp. **solstitialis**
Kılavuzlu, 500-600 m, 12.06.1995, K.196.
C. iberica Trevir. ex Sprengel
Ceyhan HES, riverside, 500-600 m, 12.06.01995, K. 199.
- C. urvillei** DC. subsp. **urvillei**
Çukurçam, 1450-1500 m, 25.07.1995, K. 201.
Medit. element.
- Crupina crupinastrum** (Moris) Vis.
Kılavuzlu to Güvercinlik, riverside, 500-600 m, 20.05.1995, K. 154.
- Cnicus benedictus** L. var. **kotschyi** Boiss.
Kılavuzlu, 500-600 m, 20.04.1995, K. 128.
- Xeranthemum longipapposum** M.A.Fisch. & C.A.Mey.
Ceyhan HES, riverside, 500-600 m, 12.06.1995, K. 198.
Ir.-Tur. element.
- Chardinia orientalis** (L.) Kuntze
Çakırdere, riverside, 900-1000 m, 03.05.1995, K. 155.
Ir.-Tur. element.
- Scolymus hispanicus** L.
Koçlar, riverside, 1100-1200 m, 03.05.1995, K. 182.
Medit. element.
- Cichorium endivia** L.
Kılavuzlu, riverside, 500-600 m, 03.11.1995, K. 136.
- Scorzonera mollis** M.Bieb. subsp. **szowitzii** (DC.) D.F. Chamb.
Baydemirli, riverside, 1400-1500 m, 18.03.1995, K. 173.
Ir.-Tur. element.
- S. kotschyi** Boiss.
Ceyhan HES, roadside, 500-600 m, 22.03.1995, K. 17.
Ir.-Tur. element.
- Tragopogon longirostris** Bisch. ex Sch. Bip. var. **longirostris**
Çakırdere, fields, 1100-1200 m, 03.05.1995, K. 173.
- Leontodon hispidus** L. var. **glabratus** (W.Koch.) Bisch.
Ceyhan HES to Güvercinlik, roadside, 500-600 m, 01.12.1994, K. 137.
Euro-Sib. element.
- Hedypnois cretica** (L.) Dum.-Cours.
Koçlar, riverside, 750-850 m, 03.05.1995, K. 180.
Medit. element.
- Rhagadiolus stellatus** (L.) Gaertn. var. **edulis** (Gaertn.) DC.
Çakırdere, riverside, 700-800 m, K. 191.
- Sonchus asper** (L.) Hill. subsp. **glaucescens** (Jord.) P.W. Ball
Ceyhan HES, riverside, 500-600 m, 08.04.1995, K. 184.
- S. oleraceus** L.
S of Kertel district, landslide places, 500-600 m, 22.05.1995, K. 176.
- Taraxacum scaturiginosum** G. E. Haglund
Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 08.04.1995, K. 186.
- Chondrilla juncea** L. var. **juncea**
Ceyhan HES to Güvercinlik, riverside, 500-600 m, 20.07.1995, K. 680.
- Crepis reuterana** Boiss. subsp. **reuterana**
Kılavuzlu to Güvercinlik, riverside, 500-600 m, 03.11.1995, K. 135.
Medit. element.
- C. sancta** (L.) Babc.
Kılavuzlu, riverside, 500-600 m, 25.02.1995, K. 131.
- C. aspera** L.
Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 08.04.1995, K. 187.

37-CAMPANULACEAE

- Michauxia campanuloides** L'Hér. ex Aiton
Kılavuzlu, landslide places, 500-600 m, 05.06.1995, K. 646.
Medit. element.
- Legousia speculum-veneris** (L.) Chaix
Ceyhan HES to Bulutoğlu, roadside, 500-600 m, 12.06.1995, K. 645.
Medit. element.

38-ERICACEAE**Arbutus andrachne L.**

Bulutoğlu, landslide places, under *Pinus brutia* forest, 500-600 m, 04.06.1995, K. 671.
Medit. element.

39-PRIMULACEAE**Androsace maxima L.**

Baydemirli, roadside, 1000-1200 m, 18.03.1995, K. 757.

Anagallis arvensis L. var. caerulea (L.) Gouan

Kısık, 1500-1600 m, 03.05.1995, K. 740.

40-EBENACEAE**Diospyros kaki L. f.**

Kertel, cultivated places, 500-600 m, 08.08.1995, K. 791.

41-STYRACACEAE**Styrax officinalis L.**

Kılavuzlu to Bulutoğlu, roadside, 500-600 m, 08.08.1995, K. 641.

42-OLEACEAE**Jasminum fruticans L.**

Kılavuzlu, landslide places, 500-600 m, 05.06.1995, K. 647.

Medit. element.

Fontanesia philliraeoides Labill. subsp. philliraeoides

Kılavuzlu, landslide places, 500-600 m, 27.05.1995, K. 730.

Medit. element.

Olea europaea L. var. europaea

Kılavuzlu, fields, 500-600 m, 27.05.1995, K. 729.

Medit. element.

43-GENTIANACEAE**Centaureum erythraea Rafn subsp. erythraea**

S of Kertel and Güvercinlik, riverside, 500-600 m, 03.05.1995, K. 766.

Euro-Sib. element.

C. spicatum (L.) Fritsch

Bulutoğlu, roadside, 500-600 m, 12.06.1995, K. 748.

44-CONVOLVULACEAE**Convolvulus arvensis L.**

Kılavuzlu, roadside, 500-600 m, 20.04.1995, K. 590.

Euro-Sib. element.

C. germanicae Boiss. & Hausskn.

Ceyhan HES, roadside, 500-600 m, 20.05.1995, K. 590.

Endemic, Ir.-Tur. element.

C. scammonia L.

S of Kertel, landslide places, 500-600 m, 24.04.1995, K. 591.

Medit. element.

45-CUSCUTACEAE**Cuscuta planiflora Ten.**

Sarıçukur, field clearings, 700-800 m, 17.06.1995, K. 755.

46-BORAGINACEAE**Heliotropium haussknechtii Bunge**

Kılavuzlu to Kertel, fields, 500-600 m, 08.08.1995, K. 630.

Endemic, Medit. element.

Myosotis minutiflora Boiss. & Reut.

Bulutoğlu, roadside, 500-600 m, 20.04.1995, K. 301.

Medit. element.

Solenanthes stamineus (Desf.) Wettst.

Ceyhan HES, riverside, 500-600 m, 20.04.1995, K. 309.

Buglossoides arvensis (L.) I.M.Johnst.

Kılavuzlu, riverside, 500-600 m, 08.04.1995, K. 727.

Echium glomeratum Poir.

E of Kertel, riverside, 500-600 m, 08.08.1995, K. 621.

Medit. element.

E. italicum L.

Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 12.06.1995, K. 319.

E. angustifolium Mill.

W of Cavgalar, riverside, 1000-1100 m, 17.06.1995, K. 750.

Medit. element.

Onosma frutescens Lam.

Kılavuzlu, roadside, 500-600 m, 20.04.1995, K. 306.

Medit. element.

O. bourgaei Boiss.

Kılavuzlu, landslide places, 500-600 m, 05.06.1995, K. 314.

Ir.-Tur. element.

Anchusa leptophylla Roem. & Schult. subsp. incana (Ledeb.) D.F.Chamb.

Kılavuzlu, riverside, 500-600 m, 11.03.1995, K. 297.

Ir.-Tur. element.

A. azurea Miller var. azurea

S of Kertel, landslide places, 500-600 m, 08.04.1995, K. 315.

A. strigosa Labill.

Kılavuzlu, riverside, 500-600 m, 20.04.1995, K. 312.

Nonea melanocarpa Boiss.

Bulutoğlu, roadside, 500-600 m, 20.04.1995, K. 310.

Ir.-Tur. element.

N. ventricosa (Sm.) Griseb.

Koçlar, riverside, 1200-1300 m, 03.05.1995, K. 304.

Medit. element.

47-SCROPHULARIACEAE**Verbascum tauri Boiss. & Kotschy**

Kılavuzlu, 500-600 m, 20.04.1995, K. 587.

Endemic, Medit. element.

V. tripolitanum Boiss.

S of Kılavuzlu, stony places, 500-600 m, K. 586.

Medit. element.

V. glomeratum Boiss.

Sarıçukur, roadside, 600-800 m, 17.06.1995, K. 583.

Ir.-Tur. element.

V. lasianthum Boiss. ex Benth.

Sarıçukur, roadside, 600-800 m, 17.06.1995, K. 582.

V. anastasi Nábélek

Kılavuzlu, riverside, 500-600 m, 17.06.1995, K. 586.

Endemic, Ir.-Tur. element.

Scrophularia xanthoglossa Boiss. var. **decipiens** (Boiss. & Kotschy) Boiss.

Ceyhan HES, roadside, 500-600 m, K. 540.

Ir.-Tur. element.

Anarrhinum orientale Benth.

Kılavuzlu, riverside, 500-600 m, 20.05.1995, K. 539.

Ir.-Tur. element.

Linaria chalepensis (L.) Mill. var. **chalepensis**

Bulutoğlu, roadside, 500-600 m, 20.05.1995, K. 563.

Medit. element.

Linaria simplex (Willd.) DC.

Ceyhan HES, riverside, 500-600 m, 20.05.1995, K. 544.

Veronica bozakmanii M.A.Fisch.

Kertel, riverside, 500-600 m, 22.03.1995, K. 537.

Veronica anagallis-aquatica L.

Kılavuzlu, riverside, 500-600 m, 20.05.1995, K. 752.

Veronica pectinata L. var. **schizocalyx** (Frey & Sint.) Bornm.

Sarıçukur, riverside, 600-800 m, 17.06.1995, K. 744.

Parentucellia latifolia (L.) Caruel subsp. **latifolia**

Kertel, landslide places, riverside, 500-600 m, 27.05.1995, K. 728.

Medit. element.

48-OROBANCHACEAE

Phelypaea coccinea (M.Bieb.) Poir.

Kılavuzlu to Kertel, landslide places, 500-600 m, 27.04.1995, K. 672.

Ir.-Tur. element.

Orobanche aegyptiaca Pers.

Kılavuzlu to Kertel, roadside, 500-600 m, 27.04.1995, K. 744.

O. heldreichii (Reut.) Beck

Koçlar, fields, 900-1000 m, 27.04.1995, K. 784.

Ir.-Tur. element.

49-ACANTHACEAE

Acanthus dioscoridis L. var. **dioscoridis**

S of Kertel, riverside, 500-600 m, 05.06.1995, K. 507.

50-VERBENACEAE

Verbena officinalis L.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 12.06.1995, K. 749.

Vitex agnus-castus L.

Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 20.07.1995, K. 682.

Medit. element.

51-LAMIACEAE

Ajuga chamaepitys (L.) Schreber. subsp. **laevigata** (Banks & Sol.) P.H.Davis

Çakırdere, riverside, 900-1000 m, 03.05.1995, K. 512.

Ir.-Tur. element.

Teucrium multicaule Montbret & Aucher ex Benth.

Çakırdere to Çobanlı, riverside, 950-1050 m, 03.05.1995, K. 759.

Ir.-Tur. element.

T. polium L.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 12.06.1995, K. 745.

Phlomis pungens Willd. var. **hispida** Hub.-Mor.

Kertel, landslide places, 500-600 m, 05.06.1995, K. 88.

Lamium amplexicaule L.

Ceyhan HES to Güvercinlik, riverside, 500-600 m, 25.02.1995, K. 501.

Molucella laevis L.

Sarıçukur, fields, 600-700 m, 17.06.1995, K. 771.

Ir.-Tur. element.

Stachys cretica L. subsp. **mersinaea** (Boiss.) Rech. fil.

Sarıçukur, fields, 600-700 m, 17.06.1995, K. 506.

Endemic, Medit. element.

Stachys annua (L.) L. subsp. **annua** var. **lycaonica** R.Bhattacharjee

Kılavuzlu, riverside, 500-600 m, 20.05.1995, K. 515.

Ir.-Tur. element.

Lallemantia peltata (L.) M.A.Fisch. & C.A.Mey.

S of Kertel, landslide places, 500-600 m, 22.03.1995, K. 734.

Ir.-Tur. element.

Micromeria myrtifolia Boiss. & Hohen.

Kertel, riverside, 500-600 m, 05.06.1995, K. 509.

Medit. element.

Thymbra spicata L. var. **spicata**

Kertel, forest clearings, 500-600 m, 05.06.1995, K. 508.

Medit. element.

Mentha longifolia (L.) Huds. subsp. **typhoides** (Briq.) Harley var. **typhoides**

Kılavuzlu, riverside, 500-600 m, 20.07.1995, K. 687.

Lycopus europaeus L.

Bulutoğlu, riverside, 500-600 m, 03.11.1995, K. 502.

Euro-Sib. element.

Ziziphora capitata L.

S of Kertel, stony places, 500-600 m, 27.04.1995, K. 513.

Ir.-Tur. element.

Salvia suffruticosa Montbret & Aucher ex Benth.

Valley of Ceyhan river, 15 km W of Maraş, D. 27440.

Ir.-Tur. element

S. multicaulis Vahl

Çakırdere, 800-900 m, 03.05.1995, K. 511.

Ir.-Tur. element.

S. cryptantha Montbret & Aucher ex Benth.

Kılavuzlu to Kertel, riverside, 500-600 m, 27.04.1995, K. 519.

Endemic, Ir.-Tur. element.

S. sclarea L.

Bulutoğlu to Güvercinlik, riverside, 500-600 m, 20.04.1995, K. 503.

S. aethiopsis L.

Baydemirli, riverside, 1000-1100 m, 03.05.1995, K. 518.

S. cassia Sam. ex Rech. fil.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 20.05.1995, K. 514.

Medit. element.

52-PLANTAGINACEAE**Plantago major** L. subsp. *major*

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 05.04.1995, K. 670.

Plantago lanceolata L.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 05.04.1995, K. 669.

53-EUPHORBIACEAE**Chrozophora tinctoria** (L.) Raf.

Kılavuzlu to Kertel, roadside, 500-600 m., 08.08.1995, K. 628.

Mercurialis annua L.

Güvercinlik, roadside, 500-600 m, 11.03.1995, K. 648.

Euphorbia pubescens Vahl

Sarıçukur, fields, 600-800 m, 17.06.1995, K. 454.

E. stricta L.

Kertel, cultivated places, 500-600 m, 20.07.1995, K. 458.

Euro-Sib. element.

E. helioscopia L.

Kılavuzlu to Kertel, riverside, 500-600 m, 27.04.1995, K. 461.

E. aleppica L.

Çakırdere, fields, 800-1000 m, 03.05.1995, K. 455.

E. szovitsii M.A.Fisch. & C.A.Mey. var. *szovitsii*

Kılavuzlu, roadside, 500-600 m, 10.06.1995, K. 465.

Ir.-Tur. element.

E. falcata L. subsp. *falcata* var. *falcata*

Kılavuzlu to Güvercinlik, roadside, 500-600 m, 20.07.1995, K. 675.

E. denticulata Lam.

Sarıçukur, roadside, 800-900 m, 17.06.1995, K. 457.

Ir.-Tur. element.

E. forsskalii (Boiss.) Gay

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 03.11.1995, K. 464.

54-URTICACEAE**Parietaria judaica** L.

Kılavuzlu to Ceyhan HES, rocky fields, 500-600 m, 12.06.1995, K. 741.

55-MORACEAE**Morus nigra** L.

S of Kertel, cultivated places, 500-600 m, 10.06.1995, K. 536.

Ficus carica L. subsp. *carica*

Kılavuzlu to Güvercinlik, rocky fields, 500-600 m, 03.11.1995, K. 535.

56-ULMACEAE**Ulmus minor** Mill. subsp. *canescens* (Melville) Browicz & Ziel.

S of Kertel, 500-600 m, 08.08.1995, K. 788.

Medit. element.

57-JUGLANDACEAE**Juglans regia** L.

S of Kertel, cultivated places, 500-600 m, 08.08.1995, K. 789.

58-PLATANACEAE**Platanus orientalis** L.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 03.11.1995, K. 667.

59-FAGACEAE**Quercus cerris** L. var. *cerris*

Kılavuzlu to Kertel villages, orchards, 500-600 m, 08.08.1995, K. 625.

Q. brantii Lindl.

S of Kertel, cultivated places, 500-600 m, 08.08.1995, K. 616.

Ir.-Tur. element.

Q. coccifera L.

Kılavuzlu, landslide area, 500-600 m, 07.11.1995, K. 616.

Medit. element.

60-SALICACEAE**Salix pentandra** L.

Güvercinlik, riverside, 500-600 m, 08.04.1995, K. 673.

Euro-Sib. element.

Populus nigra L. subsp. *nigra*

S of Kertel, cultivated places, 500-600 m, 27.04.1995, K. 790.

61-RUBIACEAE**Putoria calabrica** (L. f.) DC.

Kılavuzlu, roadside, 500-600 m, 11.03.1995, K. 566.

Medit. element.

Sherardia arvensis L.

Kılavuzlu to Ceyhan HES, roadside, 500-600 m, 11.03.1995, K. 576.

Medit. element.

Crucianella macrostachya Boiss.

Kılavuzlu to Ceyhan HES, riverside, 500-600 m, 20.05.1995, K. 568.

Medit. element.

C. imbricata Boiss.

Kertel, landslide places, 500-600 m, 05.06.1995, K. 736.

Medit. element.

Asperula orientalis Boiss. & Hohen.

S of Kertel, riverside, 500-600 m, 08.04.1995, K. 567.

Ir.-Tur. element.

A. arvensis L.

Çakırdere, riverside, 800-900 m, 03.05.1995, K. 571.

Medit. element.

Galium verum L. subsp. *glabrescens* Ehrend.

Kertel, fields, 500-600 m, 05.06.1995, K. 570.

Ir.-Tur. element.

G. cassium Boiss.

Kertel, fields, 500-600 m, 05.06.1995, K. 263.

Medit. element.

G. spurium L. subsp. *ibicinum* (Boiss. & Hausskn. ex Boiss.) Ehrend.

Baydemirli, field clearings, 900-1000 m, 18.03.1995, K. 575.

Medit. element.

G. tricornutum Dandy

W of Kertel, field clearings, 500-600 m, 08.04.1995, K. 577.

Medit. element.

G. haussknechtii Ehrend.

Kertel, forest clearings, 500-600 m, 27.04.1995, K. 574.

Ir.-Tur. element.

G. floribundum Sm. subsp. *airoides* Hub.-Mor. ex Ehrend. & Schönb.-Tem.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 20.07.1995, K. 695.

Endemic, Medit. element.

Callipeltis cucullaria (L.) Steven

Çakırdere to Koçlar, riverside, 900-1000 m, 03.05.1995, K. 573.

Ir.-Tur. element.

Cruciata taurica (Willd.) Ehrend.

Çakırdere, riverside, 900-1000 m, 03.05.1995, K. 572.

Ir.-Tur. element.

Rubia tenuifolia d'Urv. subsp. *brachypoda* (Boiss.) Ehrend. & Schönb.-Tem.

Kamışlı, riverside, 1000-1100 m, 03.05.1995, K. 569.

Medit. element.

MONOCOTYLEDONES

62-ARACEAE

Arum conophalloides Koschy ex Schott var. *conophalloides*

Çakırdere, riverside, 900-1000 m, 03.05.1995, K. 534.

Biarum carduchorum (Schott) Engl.

Kılavuzlu to Bulutoğlu, roadside, 500-600 m, 07.11.1995, K. 787.

Ir.-Tur. element.

63-LILIACEAE

Smilax aspera L.

S of Kertel, riverside, 500-600 m, 08.08.1995, K. 623.

Asphodelus aestivus Brot.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 11.03.1995, K. 548.

Medit. element.

Asphodeline damascena (Boiss.) Baker subsp. *damascena*

Sarıçukur, riverside, 800-900 m, 17.06.1995, K. 770.

Ir.-Tur. element.

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

Sarıçukur, roadside, 800-900 m, 17.06.1995, K. 551.

Medit. element.

A. atroviolaceum Boiss.

Sarıçukur, fields, 800-900 m, 17.06.1995, K. 550.

A. cardiostemon M.A.Fisch. & C.A.Mey.

Sarıçukur, roadside, 800-900 m, 17.06.1995, K. 549.

Ornithogalum sphaerocarpum A.Kern.

Kılavuzlu, fields, 500-600 m, 20.05.1995, K. 553.

O. narbonense L.

Bulutoğlu, riverside, 500-600 m, 20.04.1995, K. 554.

Medit. element.

Muscari neglectum Guss.

S of Kertel, under *Pinus brutia* forest, 18.03.1995, K. 556.

Bellevalia tauri Feinbrun

Kılavuzlu, fields, 500-600 m, 20.04.1995, K. 555.

Endemic, Medit. element.

B. gracilis Feinbrun

S of Kertel, under *Pinus brutia* forest, 500-600 m, 22.03.1995, K. 552.

Endemic, Ir.-Tur. element.

Gagea glacialis K.Koch

Baydemirli, meadows, 950-1050 m, 18.03.1995, K. 557.

Ir.-Tur. element.

Colchicum stevenii Kunth.

Kılavuzlu, landslide places, 500-00 m, 03.11.1995, K. 559.

Medit. element.

64-IRIDACEAE

Iris histrio Rchb. f.

Çakırdere, riverside, 900-1100 m, 18.03.1995, K. 560.

Medit. element.

Crocus graveolens Boiss. & Reut.

Kertel, under *Pinus brutia* forest, 500-600 m, 25.02.1995, K. 561.

Medit. element.

65-TYPHACEAE

Typha latifolia L.

Kılavuzlu to Güvercinlik, riverside, 500-600 m, 12.06.1995, K. 654.

Typha domingensis Pers.

Güvercinlik, riverside, 500-600 m, 06.07.1995, K. 696.

66-JUNCACEAE

Juncus inflexus L.

Kılavuzlu, riverside, 500-600 m, 03.11.1995, K. 428.

Juncus articulatus L.

Kılavuzlu, riverside, 500-600 m, 03.11.1995, K. 424.

Euro-Sib. element.

67-CYPERACEAE

Cyperus longus L.

Güvercinlik, riverside, 500-600 m, 06.07.1995, K. 694.

Schoenoplectus lacustris (L.) Pal. subsp. *lacustris*

Bulutoğlu to Kılavuzlu, roadside, 500-600 m, 20.05.1995, K. 432.

Bolboschoenus maritimus (L.) Pal. var. *maritimus*

S of Kertel, rocky places, 500-600 m, 08.08.1995, K. 635.

- Carex phyllostachys* C.A.Mey.
Kılavuzlu to Güvercinlik, riverside, 500-600 m, 08.04.1995, K. 435.
Euro-Sib. element.
- C. otrubae** Podp.
Kılavuzlu to Güvercinlik, riverside, 500-600 m, 08.04.1995, K. 430.
Euro-Sib. element.
- 68-POACEAE**
- Elymus lazicus* (Boiss.) Melderis. subsp. *divaricatus* (Boiss. & P.W.Ball) Melderis
Kısık, 800-950 m, 06.10.1995, K. 372.
Endemic, Ir.-Tur. element.
- Aegilops umbellulata* Zhuk.
Kamışlı, 700-800 m, 03.05.1995, K. 400.
Ir.-Tur. element.
- A. triuncialis** L.
Çakırdere, 700-800 m, 10.06.1995, K. 75.
- Hordeum murinum* L. subsp. *glaucum* (Steud.) Tzvelev
S of Kertel, riverside, 500-600 m, 08.04.1995, K. 418.
Taeniatherum caput-medusae (L.) Nevski subsp. *crinitum* (Schreber) Melderis
Kertel, landslide places, 500-600 m, 08.04.1995, K. 371.
Ir.-Tur. element.
- Bromus squarrosus** L.
Çakırdere, riverside, 700-800 m, 10.06.1995, K. 376.
- Bromus scoparius** L.
Koçlar, riverside, 750-800 m, 10.06.1995, K. 373.
- B. tectorum** L.
Sarıçukur, riverside, 600-700 m, 17.06.1995, K. 374.
- B. sterilis** L.
Kılavuzlu, riverside, 500-600 m, 12.06.1995, K. 368.
- B. riparius** Rehmman
Demirli, fields, 900-1000 m, 10.06.1995, K. 412.
- Avena sterilis* L. subsp. *ludoviciana* (Durieu) Gillet & Magne
Güvercinlik, roadside, 500-600 m, 08.04.1995, K. 416.
Medit. element.
- Trisetum thospiticum* Chrtek
Kılavuzlu, stony places, 500-600 m, 27.04.1995, K. 353.
Endemic, Ir.-Tur. element.
- T. turcicum** Chrtek
Kılavuzlu, sandy places, 500-600 m, 03.11.1995, K. 354.
Ir.-Tur. element.
- Koeleria cristata** (L.) Pers.
Kılavuzlu to Kertel, field clearings, 500-600 m, 27.04.1995, K. 389.
- Calamagrostis pseudophragmites* (Haller f.) Koeler
Güvercinlik, riverside, 500-600 m, 12.06.1995, K. 367.
- Agrostis stolonifera** L.
Kılavuzlu to Güvercinlik, riverside, 500-600 m, 03.11.1994, K. 352.
- Phalaris arundinacea** L.
Kılavuzlu, streamside, 500-600 m, 03.11.1994, K. 352.
- Alopecurus myosuroides* Huds. var. *myosuroides*
Kılavuzlu, sandy places, 500-600 m, 20.05.1995, K. 406.
Euro-Sib. element.
- Phleum exaratum** Hochst. ex Griseb. subsp. *exaratum*
Cavgalar, riverside, 800-900 m, 10.06.1995, K. 380.
- Vulpia ciliata** Dumort.
Kertel, riverside, 500-600 m, 27.04.1995, K. 384.
- V. unilateralis** (L.) Stace
Koçlar, field clearings, 700-800 m, 03.05.1995, K. 390.
- Poa bulbosa** L.
Kılavuzlu, roadside, 500-600 m, 08.04.1995, K. 419.
- Dactylis glomerata* L. subsp. *glomerata*
Kılavuzlu, roadside, 500-600 m, 03.11.1994, K. 389.
Euro-Sib. element.
- Cynosurus echinatus** L.
Kertel, riverside, 500-600 m, 08.08.1995, K. 607.
Medit. element.
- Briza humilis** M.Bieb.
S of Kertel, landslide places, 500-600 m, 27.04.1995, K. 383.
- Echinaria capitata* (L.) Desf.
Kamışlı, riverside, 800-900 m, 03.05.1995, K. 401.
- Melica persica** Kunth subsp. *inaequiglumis* (Boiss.) Bor
Ceyhan Köprü, 15.7.1865, Hausskn.
- Phragmites australis** (Cav.) Trin. ex Steud.
Kılavuzlu to Güvercinlik, riverside, 500-600 m, 03.11.1995, K. 363.
- Setaria viridis** (L.) P.Beauv.
S of Kertel, field clearings, 500-600 m, 27.04.1995, K. 349.
- Chrysopogon gryllus** (L.) Trin.
Güvercinlik, rocky places, 500-600 m, 08.08.1995, K. 393.
- Hyparrhenia hirta** (L.) Stapf
Kılavuzlu, rocky places, 500-600 m, 20.05.1995, K. 350.

Results and Discussion

As a result of the identification of the c. 700 plant specimens, 412 taxa belonging to 68 families and 262

genera were determined. Four taxa are from the *Pteridophyta* division, while the other 408 taxa belong to the *Spermatophyta*. Three taxa belong to *Gymnospermae*

and the other taxa are in the subdivision of *Angiospermae*. Three hundred and forty-eight taxa belong to the *Dicotyledones* and the remaining taxa belong to the *Monocotyledones*.

The number of endemic taxa in our area is 28 and the endemism rate is 6.7%. The endemism rate is 15.6% for Engizek Mountain (Duman, 1991) and 16.1% for Berit Mountain (Yıldız, 1984), i.e, higher than in our research area. The high altitude of the research area and the existence of local endemics in high places explain the higher endemism on Berit and Engizek mountains.

Among the endemic plants in our research area, *Convolvulus germanicae* and *Doronicum haussknechtii* are only known from Kahramanmaraş and they are local endemics for the B6 and C6 squares. The majority of the endemic plants collected from the research area, such as *Glaucium acutidentatum*, *Silene nuncupanda*, *Trigonella kotschyi*, *Anthemis tricornis*, *A. halophila*, *A. pungens*, *Heliotropium haussknechtii*, *Verbascum anastasioi* and *Belleviala gracilis*, are localized around the Anatolian Diagonal (Ekim & Güner, 1986).

Of all the collected specimens, 54 taxa are new records for the C6 square [Davis (ed), 1965-1985, Davis et al. (eds), 1988; Donner, 1990; Duman & Aytaç, 1995; Duman & Karavelioğulları, 1995; Duman & Vural, 1991; Yıldız, 1984].

Glycyrrhiza aspera Pall., *Ferulago cassia* Boiss., *Anthemis pungens* Yavin, *Salvia suffruticosa* Montbret & Aucher ex Benth. and *Melica persica* Kunth, which we were unable to collect during this study, were collected by P.H. Davis, P.W. Ball and *Hauskn*, and so were added to the floristic list. Among these species, *Anthemis pungens* is an endemic and was gathered from the research area by P.H.Davis (P.H.Davis 1975).

Euphorbia forsskalii was determined to be a new record for the *Flora of Turkey* (Sümbül, 1991). It was known from C4 Antalya: Gazipaşa, c. 10 km along Gazipaşa-Anamur road, macchie shrub, 40-50 m, 27.7.1989, Sümbül 3409. This species was also collected during this study from Kılavuzlu to Güvercinlik, riverside, 500-600 m, 03.11.1995, K. 464. Therefore, the distribution of this species in Turkey is widened with our study.

The taxa, categorized according to phytogeographic region, may be given as follows: Mediterranean elements

with a rate of 23.5%, are most common, followed by Irano-Turanian elements, with a rate of 17.2%, and Euro-Siberian elements, with a rate of 3.4%. The remaining elements, with a rate of 55.9%, are multi-regional or of unknown phytogeographic origin.

The vast number of Mediterranean elements can be explained by the fact that the study area lies wholly within the Mediterranean phytogeographic region and at low altitude (500-1250 m). Moreover, our research area is near an urban area and it shows that the steppic plants belonging to Irano-Turanian elements do not spread at lower altitudes. Irano-Turanian elements are dominant, with rate of 23.4% on Berit Mountain and a rate of 35.5% on Engizek Mountain, which are near our study area. The dominance of the Irano-Turanian elements may be explained by the high altitude (700-3000 m) of these research areas.

Concerning the number of taxa, *Fabaceae* is the largest family in the study area, with 60 taxa. Following *Fabaceae*, *Asteraceae* is represented by 52 taxa, *Poaceae* by 31, *Brassicaceae* by 24 and *Lamiaceae* by 19. *Fabaceae* is also the most common family on Engizek Mountain. The family *Asteraceae* ranks first both in the *Flora of Turkey* and on Berit Mountain. In the research area, since *Fabaceae* is the largest family in terms of the number of taxa, it may be concluded that the area is parallel to the *Flora of Turkey* since *Fabaceae* is the second richest family in Turkey. *Fabaceae* and *Asteraceae* are the two richest families in the *Flora of Turkey*, in most floristic studies. This can be explained by the diversity of vegetation types, soil construction, climatic conditions and topography. Since the altitude is between 700 m and 3000 m for Berit and Engizek mountains, woodland, meadowland, steppe and rocky vegetation types are observed.

Concerning the number of taxa, the major genera in this study are as follows: *Trifolium* with 10, *Vicia* with 9, *Euphorbia* with 8, *Papaver* with 6, *Galium* with 6 and *Astragalus* with 4 taxa. The genera which have the highest number of taxa vary slightly between studies. The genus *Astragalus* ranks first on Berit and Engizek mountains, but in our study the genus *Trifolium* is first. One of the reasons for this is the ecological factors and habitat for *Astragalus*, which is known as a steppic plant of Irano-Turanian phytogeographic regions. Since our

research area is near settlements and the altitude is lower (500-1250 m), the ecological factors are not suitable for *Astragalus* and, therefore, it is in sixth position in this study. This irregularity can be explained by differences in the habitats of the study areas. For instance, although the genus *Astragalus* includes the highest number of species in Turkey and features prominently in steppe regions of Irano-Turanian phytogeographic regions, it is not well represented in agricultural areas or at lower altitudes.

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- Some vegetables and fruits, such as *Juglans regia*, *Cerasus avium*, *Vitis vinifera*, *Morus nigra* and *Ficus carica*, are cultivated in the research area.

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