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Araştırma Makalesi / Research Article

Deresinek (Afyonkarahisar) Basın Flora

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Abstract

Keywords

Flora;
Deresinek Basını;
Sultan Mountains;
Afyonkarahisar

In this research, The flora of Deresinek Basin and its surroundings on the northern slope of the Sultan Mountains was investigated. As a result of the research, 458 vascular plant taxa belonging to 77 families and 270 genera were determined. Nine of the taxa are new to Afyonkarahisar flora. 58 taxa are endemic, and the rate of endemism is 12.66 %. Distribution of species in the research area according to plant geography; Mediterranean (67 taxa, 14.62%), Euro-Siberian (50 taxa, 10.98 %), Irano-Turanian (48 taxa, 10.48 %) and unknown (293 taxa, 63.97 %).

Deresinek (Afyonkarahisar) Havzası Florası

Öz

Anahtar kelimeler

Flora;
Deresinek Havzası;
Sultan Dağları;
Afyonkarahisar

Bu araştırmada, Sultan Dağlarının Kuzey yamacında bulunan Deresinek Vadisi ve çevresinin florası araştırılmıştır. Araştırma sonucu 77 familya ve 270 cinsine ait 458 damarlı bitki taksonu tespit edilmiştir. Taksonların 9' u Afyonkarahisar florası için yenidir. 58 takson endemiktir. Endemizm oranı % 12.66' dir. Araştırma alanındaki türlerin bitki coğrafyasına göre dağılımı; Akdeniz (67 taxa, % 14.62), Avrupa-Sibirya (50 taxa, % 10.98), İran-Turan (48 taxa, % 10.48) ve bilinmeyen (293 taxa, % 63.97).

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1. Introduction

As it is known, there are 34 hot spots all over the world in terms of floristics. Türkiye, on the other hand, is located at the intersection of three of the hot spots, namely the Mediterranean, Euro-Siberian and Irano-Turanian flora regions. In addition to these three flora regions, the topographical structure, the location of the mountains, the distance-closeness to the seas, the altitude differences from the sea level, the existence of three different climate types as Mediterranean, Black Sea and continental climate, the existence of wetlands, salty areas and the Anatolian diagonal have enriched the flora of our country. All of the above-

mentioned features have made our country almost like a continent.

In the Sultan Mountains, *Pinus nigra* subsp. *pallasiana* var. *pallasiana*, *Cedrus libani*, *Corylus avellana*, *C. colurna*, *Sorbus torminalis* var. *torminalis*, *Acer hyrcanum* subsp. *hyrcanum*, *Taxus baccata*, *Juniperus oxycedrus*, *J. excelsa*, *J. foetidissima*, *J. communis*, *Quercus vulcanica*, *Q. cerris* and *Q. pubescens* forests have an important place. Due to its unique natural environment characteristics of the Sultan Mountains, it has local climatic conditions. As a result, the plants of the European-Siberian Flora region also had a significant possibility of housing.

For example, two of the three species of *Corylus*, one of the plants representing the European-Siberian Floristic region, are naturally spreading in Turkey, *C. avellana* var. *avellana* and *C. colurna* are spread in Afyonkarahisar. *C. avellana* var. *avellana* is found in Sultan Mountains, including microclimate in the north-facing valley slopes and streams in the 1200-1400 m 's large communities. The other hazelnut type *C. colurna*, on the other hand, consists of sparse communities mixed with *T. baccata* in Kapıkayası location 1500-1700 m and rocky areas. The *C. colurna*, which is more common than *T. baccata*, has a wide range of trunks. Among the *C. colurna* samples, those who reach 380 cm are remarkable. *T. baccata*'s trunk width reaches up to 320 cm.

C. avellana var. *avellana* and *C. colurna* are the elements of the European-Siberian Floristic Zone. They expanded their spreading areas up to Afyonkarahisar during the glacial period and remained on the northern slopes and streams by adapting to the current places they took refuge in the interclacial period.

Q. vulcanica is an Eastern Mediterranean element and is an endemic species for Turkey. In Afyonkarahisar, especially on the mountain floor, especially on the northern slopes of the Sultan Mountains and Kumalar Mountain, it formed frequent and large communities. *Q. vulcanica* is also rarely mixed with *Q. cerris* var. *cerris* on the Emirdađları and Ahır Mountain.

The number of taxa, which was 11707 in the resource named "Vascular Plants of Türkiye", increased to 12345 with the studies carried out in the following years (Güner vd. 2012, Özhatay *et al.* 2013, 2015, 2017, 2019).

With this number of taxa, Türkiye is quite rich in terms of species in its climate zone. Considering that the number of vascular plants in the European continent, which is 15 times the size of Türkiye, is 12 500, Türkiye's floristic richness can be understood (Bilz *et al.* 2011). In addition to its floristic richness,

Türkiye also draws attention with its 3464 endemic plant species.

In Europe, the number of endemic plant species is only 3500 (Bilz *et al.* 2011, Güner vd. 2012, Özhatay *et al.* 2013, 2015, 2017, 2019).

The first researches in Anatolia were realized with the observations of various botanists. Published in 1553 by the French naturalist Pierre Belon, travelogue is the first work that gives information about the flora of Türkiye. But the botanist Tournefort collected plants from Türkiye. Between 1700 and 1702, Tournefort entered Anatolia from the Trakya region and traveled all over Anatolia up to Ağrı Mount (Baytop 2003).

The botanical expedition of the Swiss botanist Boissier to Anatolia in 1842 was an important beginning for the research of the flora of Türkiye (Karamanođlu 1976). Boissier published one of the most important works in the field of plant systematics and geography with his work named "*Flora Orientalis*", which was published in 5 volumes between 1867-1888 (Boissier 1867,1888). This work pioneered the recognition of the flora of Türkiye. In the following years, Koch (1836-1848), Heldreich (1845-1851), Tchihatcheff (1847-1858), Noé (1849-1854), Balansae (1854-1866), Bourgeau (1860), Haussknect (1865), Barbey (1873) and Bornmueller (1889-1890) came to study the flora of Türkiye (Karamanođlu 1976).

However, in the Sultan Mountains, where there search area is located, many local and foreign researchers have collected plant samples. Among them, Bormüller (1899) is the researcher who has collected the largest number of plant specimens belonging to different families. Researchers who collected plant samples from Sultan Mountains on different dates, except Bormüller, are as follows: St. Lager (1907), Balls, Reese, Wall (1935), Heilbronn and Bařarman (1942), Huber-Morath (1948), Birand and M. Zohary (1953), Sorger (1966 and 1968), Crawford, Karamanođlu (1954), Yaltırık (1958), Baytop and Dökmeci (1978), Çakırer (1984).

The fact that the Deresinek Basin has not been studied in terms of plant biodiversity before has been an important factor in choosing this region as a research area. This is because research in previously unstudied areas has allowed new species or new records to emerge.

2. Material and Method

Deresinek Valley, chosen as the research area, is within the borders of Afyonkarahisar province, Sultandağı district, Deresinek and Yakasinek villages. To describe it in another way, it is the region located between the Dort Stream Basin and the Eber Stream Basin and on the northern slope of the Sultan Mountains. Eber Lake and Akşehir Lake are located in the North and Northeast of the research area. According to the grid system used by Davis in his work "Flora of Türkiye and the East Aegan Islands", the research area in the B3 square is included in the Irano-Turanian flora region in terms of plant geography (Figure 1). In the research area, the altitude starts from 980 meters on the plain and reaches 2610 meters on the Gelincikana hill.

The Sultan Mountains are composed of Paleozoic epimetamorphic schists (chloritic sericite schists, phyllites, quartzites and schists etc.) and quartzites and limestones that exist in the form of lenses and

wedges between them and extend parallel to the mountain structure axis in places (Atalay 1977).

The plants that make up the material of the research consist of 963 plant samples collected in the vegetation period between 2016-2019 and March-November. These plant samples were collected from the habitats where the floristic situation varies between 1000 and 2610 m in the Deresinek Basin. After the collected plant samples were turned into herbarium material, they were identified. In the identification of plant species, especially Davis's "Flora of Türkiye and The East Aegean Islands", Boissier's "Flora orientalis" and Güner's studies on Checklist of Vascular Plants of Türkiyewere used (Boissier 1899- 1899, Davis 1965,1985, Davis *et al.* 1988, Güner *et al.* 2000, Güner vd. 2012). Afyon Kocatepe University Herbarium was also used during the identification. Identified plant samples are kept in Afyon Kocatepe University Herbarium.

Since the climatic characteristics of the research area and the climate data of Sultandağı district, which is one of the existing meteorology stations, are missing, the closest districts, Akşehir and Çay, were evaluated instead. Average precipitation and temperature values of Akşehir and Çay districts are given in Table 1. The climate diagrams of Akşehir and Çay districts, which were prepared based on these data, are shown in figure 2 and figure 3.

Table 1. Average temperature and precipitation data of Akşehir and Çay districts.

Stations	Meteorological elements	MONTHS												Annual
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
AKŞEHİR	Average Temp (°C)	1.0	2.1	6.2	11.3	15.7	19.8	23.0	22.8	18.7	13.1	6.8	2.7	11.9
	Average precipitation (mm)	55.1	52.5	56.8	59.6	46.6	37.3	17.4	10.9	14.9	44.2	57.1	65.0	517.4
ÇAY	Average Temp (°C)	0.9	1.8	5.4	11.4	16.0	19.9	23.0	22.9	18.5	12.9	6.4	2.5	11.8
	Average precipitation (mm)	27.6	33.8	36.0	47.0	29.1	18.2	11.6	4.1	2.5	24.9	37.7	39.8	305.7

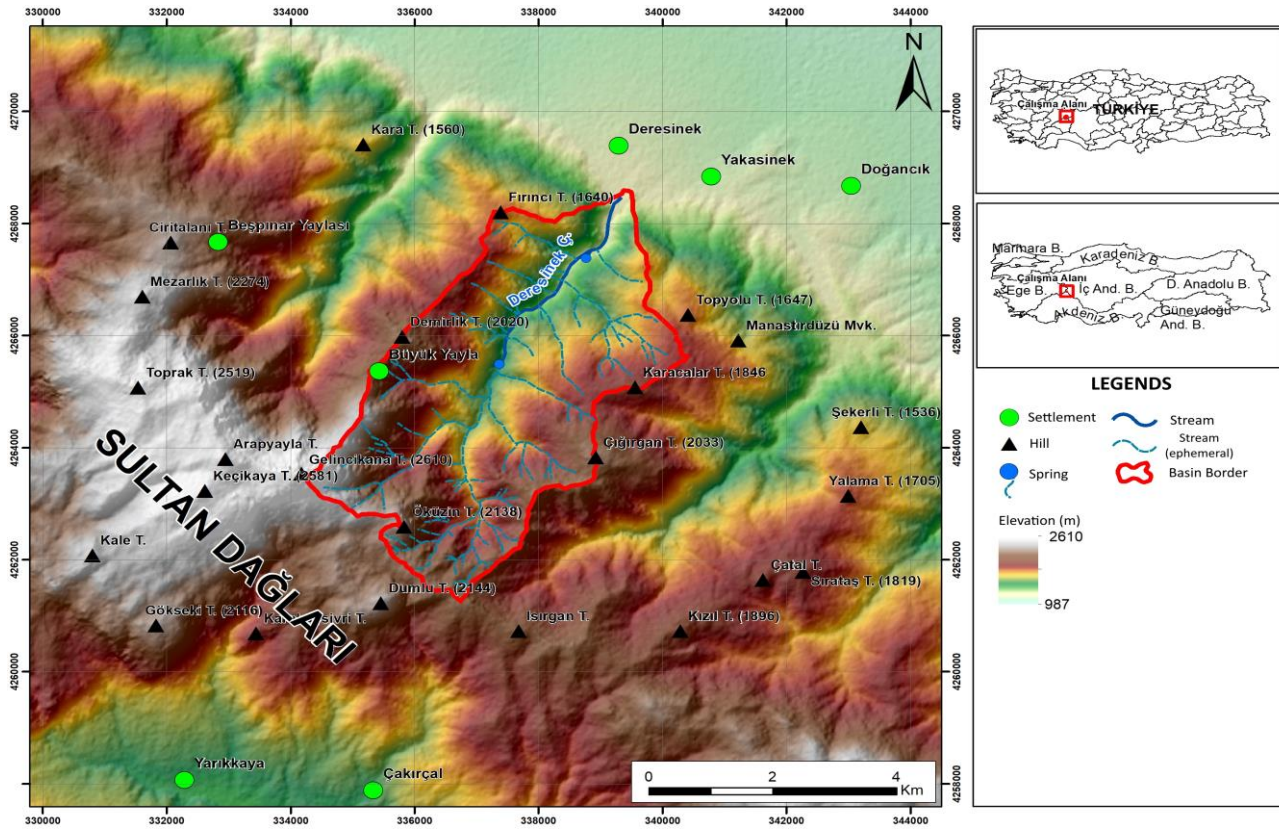


Figure 1. Location Map of the Research Region.

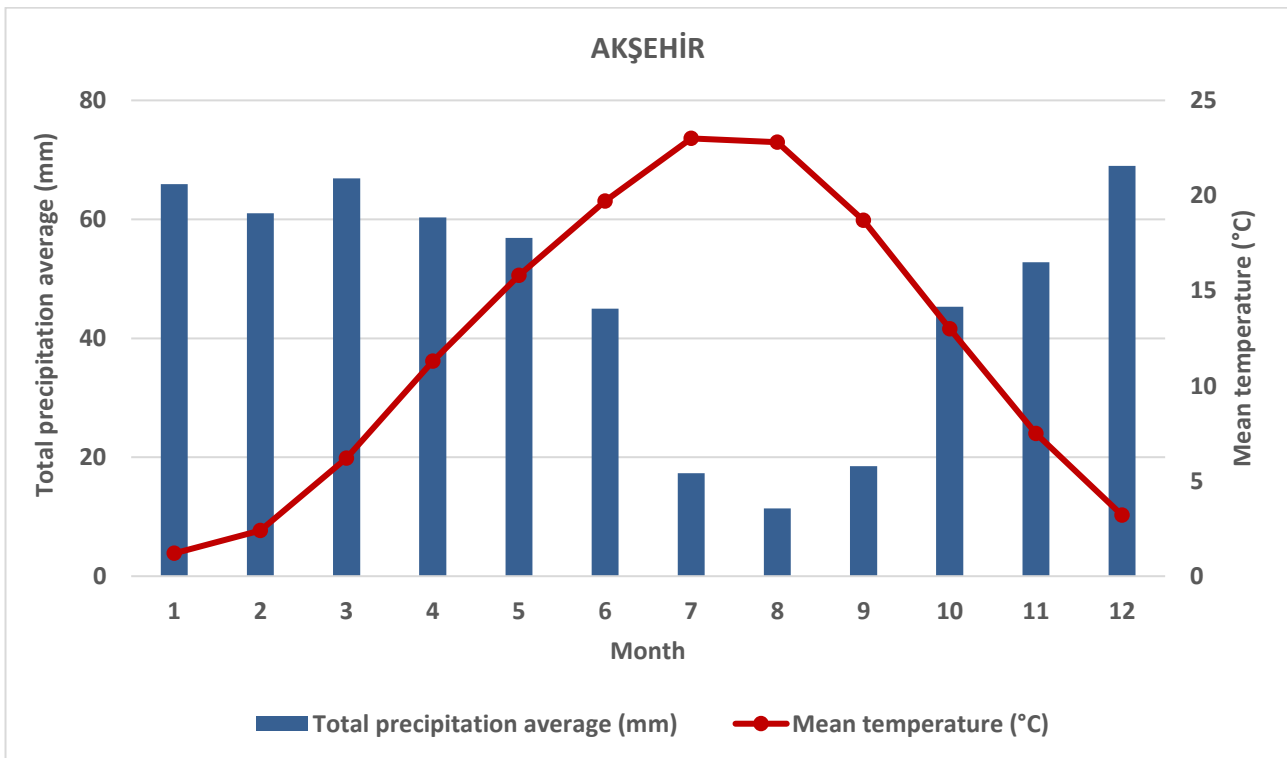


Figure 2. Akşehir climate diagram.

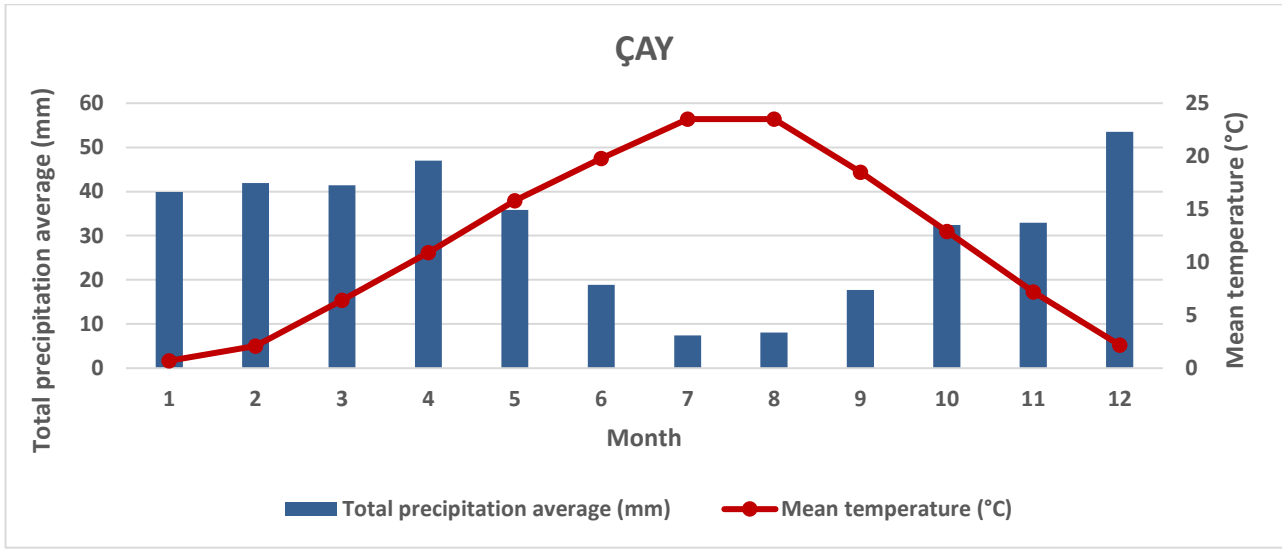


Figure 3. Çay climate diagram.

3. Results

3.1 Plant collected stations

1. B3 Afyonkarahisar: Sultan Mountains, Demirlik Hill,
2. B3 Afyonkarahisar: Sultan Mountains, Deresinek Valley,
3. B3 Afyonkarahisar: Sultan Mountains, Öküzin Hill,
4. B3 Afyonkarahisar: Sultan Mountains, Karacalar Hill,
5. B3 Afyonkarahisar: Çay, Upstream,
6. B3 Afyonkarahisar: Sultan Mountains, Fırıncı Hill,
7. B3 Afyonkarahisar: Çay, Deresinek village,
8. B3 Afyonkarahisar: Sultan Mountains, Dumlu Hill,
9. B3 Afyonkarahisar: Yakasinek village-Deresinek village,
10. B3 Afyonkarahisar: Sultan Mountains, Çığırhan Hill,
11. B3 Afyonkarahisar: Sultan Mountains, Gelincikana Hill,
12. B3 Afyonkarahisar: Sultan Mountains, Topyolu Hill,
13. B3 Afyonkarahisar: Sultan Mountains, Deresinek Stream,
14. B3 Afyonkarahisar: Sultan Mountains, Büyük Yayla,
15. B3 Afyonkarahisar: Sultandağı, Yakasinek village,

3.2 Deresinek Basin Flora

In this study, the families to which the identified plant species belong and the Latin scientific names of the plant species are given below in alphabetical order.

PTERIDOPHYTA

EQUISETIDAE

EQUISETACEAE

Equisetum arvense L.

2, around the gutter, wet places, 1400 m, 30.07.2019, Kargioğlu 8971.

ASPLENIACEAE

Asplenium ceterach L.

1, rock cavities, 1900 m, 10.07.2019, Kargioğlu 8850.

Asplenium trichomanes L.

2, valley slopes, rocky areas, 1300 m, 02.08.2018, Kargioğlu 8637.

CYSTOPTERIDACEAE

Cystopteris fragilis (L.) Bernh.

3, rocky northern slopes, 1900 m, 06.07.2017, Kargioğlu 8385.

DRYOPTERIDACEAE

Dryopteris filix-mas (L.) Schott

1, rocky northern slopes, 1800 m, 10.07.2019, Kargioğlu 8901.

Dryopteris pallida (Bory) Fomin subsp. *pallida*

4, rock cavities, 1550 m, 06.07.2017, Kargioğlu 8386.

MAGNOLIOPHYTA

PINOPHYTINA

GNETIDAE

EPHEDRACEAE

Ephedra major Host subsp. *major*

5, rocky slopes, 1180 m, 10.07.2019, Kargiođlu 8902.

PINIDAE

CUPRESSACEAE

Juniperus communis L. var. *saxatilis* Pall.

1, high mountain range, 2200 m, 10.07.2019, Kargiođlu 8903.

Juniperus excelsa M. Bieb. subsp. *excelsa*

2, valley slopes, *Cistus laurifolius* community, 1370 m, 02.08.2018, Kargiođlu 8651.

Juniperus foetidissima Willd.

1, *Quercus vulcanica* community clearing, 1650 m, 06.07.2017, Kargiođlu 8375.

Juniperus oxycedrus L. subsp. *oxycedrus* var. *oxycedrus* f. *oxycedrus*

2, rocky-stony slopes, 1370 m, 02.08.2018, Kargiođlu 8640.

PINACEAE

Cedrus libani A.Rich. var. *libani*

2, valley slopes, 1350 m, 15.09.2018, Kargiođlu 8665. Mediterranean (mountain) element.

Pinus nigra J.F.Arnold. subsp. *pallasiana* (Lamb.) Holmboe var. *pallasiana*

2, valley slopes, 1350 m, 15.09.2018, Kargiođlu 8676.

Pinus sylvestris L. var. *hamata* Steven

2, valley slopes, 1350 m, 15.09.2018, Kargiođlu 8672. Euro-Siberian element.

TAXACEAE

Taxus baccata L.

2, valley slopes, *Pinus nigra*-*Pinus sylvestris*-*Cedrus libani* clearing, 1600 m, 10.07.2019, Kargiođlu 8963.

MAGNOLIOPHYTINA

MAGNOLIDAE

Monocotyledonous plants and dicotyledonous plants included (Güner vd. 2012).

ACANTHACEAE

Acanthus hirsutus Boiss. subsp. *hirsutus*

6, Northern slope, forest road edges, 1200 m, 07.06.2018, Kargiođlu 8517.

ADOXACEAE

Sambucus nigra L.

2, stream edges 1350 m, 02.08.2018, Kargiođlu 8656.

Viburnum lantana L.

2, valley slopes, 1200 m, 01.05.2016, Kargiođlu 8290.

AMARANTHACEAE

Chenopodium foliosum Asch.

3, steppe, 1880 m, 15.09.2018, Kargiođlu 8666.

Noaea mucronata (Forssk.) Aschers. & Schweinf. subsp. *mucronata*

5, rocky-stony places, 1170 m, 16.06.2019, Kargiođlu 8729.

AMARYLLIDACEAE

Allium paniculatum L. subsp. *paniculatum*

4, *Cedrus libani*-*Pinus sylvestris* forest clearing, stony-rocky, 1500 m, 02.08.2018, Kargiođlu 8622.

Mediterranean element.

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

7, steppe, 1000 m, 02.08.2018, Kargiođlu 8639.

Galanthus gracilis Celak.

4, *Quercus cerris* clearing, 1400 m, 23.03.2017, Kargiođlu 8365.

ANACARDIACEAE

9. *Pistacia palaestina* Boiss.

5, rocky slopes, 1180 m, 04.07.2019, Kargiođlu 8822. E. Mediterranean element.

APIACEAE

Angelica sylvestris L. var. *sylvestris*

2, stream edges, 1330 m, 07.06.2017, Kargiođlu 8403. Euro-Siberian element.

Astrantia maxima Pall. subsp. *haradjianii* (Grintz.) Rech.f.

1, *Quercus vulcanica* clearings, 1800 m, 30.07.2019, Kargiođlu 8972.

Bunium microcarpum (Boiss.) Freyn & Bornm. ex Freyn subsp. *microcarpum*

6, *Pinus nigra* clearings, 1400 m, 30.07.2019, Kargioğlu 8975. E. Mediterranean element.

Echinophora tenuifolia L. subsp. *sibthorpiana* (Guss.) Tutin

7, steppe, 1000 m, 02.08.2018, Kargioğlu 8632. Irano-Turanian element.

Echinophora tournefortii Jaub. & Spach

7, steppe, 1000 m, 02.08.2018, Kargioğlu 8633. Irano-Turanian element.

Ferulago trachycarpa Boiss.

8, rocky-stony places, 2000 m, 29.06.2019, Kargioğlu 8751. E. Mediterranean element.

Heracleum platytaenium Boiss.

2, valley slopes, 1300 m, 30.05.2016, Kargioğlu 8347. Euro-Siberian element.

Johrenia dichotoma DC.

5, rocky-stony slopes, 1170 m, 04.07.2019, Kargioğlu 8806. Irano-Turanian element.

Laser trilobum (L.) Borkh.

2, valley slopes, *Corylus avellana* clearing, 1400 m, 30.05.2016, Kargioğlu 8326.

Pastinaca sativa L. subsp. *urens* (Req. ex Gren. & Godr.) Celak.

2, stream edges, 1200 m, 02.08.2018, Kargioğlu 8647.

Scandix macrorhyncha C. A. Mey.

2, valley slopes, rocky-stony places, 1340 m, 26.04.2018, Kargioğlu 8459.

Scandix pecten-veneris L.

2, rocky-stony places, 1400 m, 10.07.2019, Kargioğlu 8851.

Smyrniium connatum Boiss. & Kotschy

2, stream edges, 1300 m, 08.05.2016, Kargioğlu 8293. Mediterranean element.

Torilis leptophylla (L.) Reichb. f.

5, rocky-stony slopes, 1180 m, 10.07.2019, Kargioğlu 8920.

Torilus ucranica Spreng.

5, rocky slopes, 1180 m, 10.07.2019, Kargioğlu 8921.

APOCYNACEAE

Vinca herbacea Waldst. & Kit.

2, valley slopes, rocky-stony places, 1400 m, 30.05.2016, Kargioğlu 8337.

ASPARAGACEAE

Asparagus tenuifolius Lam.

4, forest road edge, *Quercus vulcanica* clearing, 1680 m, 30.05.2016, Kargioğlu 8341.

Euro-Siberian element.

Bellevalia tauri Feinbrun

6, *Pinus nigra* clearing, 1200 m, 17.05.2018, Kargioğlu 8452.

Endemic "LC", Mediterranean element.

Muscari armeniacum Leichtlin ex Baker

2, valley slopes, rocky-stony places, 1550 m, 26.04.2018, Kargioğlu 8462.

Muscari comosum (L.) Mill.

6, *Pinus nigra* clearing, 1400 m, 17.05.2018, Kargioğlu 8451. Mediterranean element.

***Muscari discolor* Boiss. & Hausskn. Ex Boiss.

3, rocky-stony slopes, 1900 m, 30.05.2016, Kargioğlu 8332.

Endemic "NT", Irano-Turanian element.

Muscari neglectum Guss. ex Ten.

4, meadow, 1700 m, 01.05.2016, Kargioğlu 8263.

Muscari tenuiflorum Tausch

3, *Quercus vulcanica* clearings, 1900 m, 19.05.2019, Kargioğlu 8704.

Ornithogalum armeniacum Baker

2, stream edges, meadow, 1300 m, 08.05.2016, Kargioğlu 8296. E.Mediterranean element.

Ornithogalum fimbriatum Willd.

2, valley slopes, rocky-stony places, 1450 m, 25.04.2018, Kargioğlu 8413. E.Mediterranean element.

Ornithogalum nutans L.

2, stream edges, meadow, 1300 m, 08.05.2016, Kargioğlu 8294. E.Mediterranean element.

Ornithogalum oligophyllum E.D. Clarke

4, *Quercus vulcanica* clearing, 1680 m, 01.05.2016, Kargioğlu 8275.

Polygonatum orientale Desf.

4, *Quercus vulcanica* clearing, 1700 m, 01.05.2016, Kargioğlu 8274. Euro-Siberian element.

Scilla bifolia L.

2, meadow, 1300 m, 23.03.2017. Kargioğlu 8366. Mediterranean element.

ASTERACEAE

Achillea arabica Kotschy

- 7, roadsides, 1000 m, 30.05.2016, Kargioğlu 8356. Irano-Turanian element.
Achillea nobilis L. subsp. *neilreichii* (A.Kern.) Velen.
7, village surrounding and roadsides, 1000 m, 30.05.2016, Kargioğlu 8336. Euro-Siberian element.
Achillea teretifolia Willd.
3, steppe, 2000 m, 04.07.2019, Kargioğlu 8801. Endemic"LC", Irano-Turanian element.
Anthemis cretica L. subsp. *albida* (Boiss.) Grierson
2, valley slopes, *Cistus laurifolius* clearings, 1450 m, 30.07.2019, Kargioğlu 8967.
Arctium minus (Hill) Bernh.
9, roadside, 1000 m, 30.07.2019, Kargioğlu 8966. Euro-Siberian element.
Artemisia campestris L. var. *campestris*
2, rocky-stony slopes, 1370 m, 02.08.2018, Kargioğlu 8623.
***Aster alpinus* L.
3, rocky-stony slopes, 2200 m, 29.06.2019, Kargioğlu 8773.
Bellis perennis L.
4, meadow, 1700 m, 01.05.2016, Kargioğlu 8267. Euro-Siberian element.
Carduus olympicus Boiss. subsp. *hypoleucus* (Bornm.) P.H.Davis
3, rocky-stony slopes, 2000 m, 04.07.2019, Kargioğlu 8798. Endemic"LC".
Carlina oligocephala Boiss. & Kotschy subsp. *oligocephala*
3, high mountain range, rocky-stony slopes, 2100 m, 04.07.2019, Kargioğlu 8834.
Carthamus dentatus (Forssk.) Vahl
7, steppe, 1000 m, 02.08.2018, Kargioğlu 8625.
Centaurea cariensis Boiss. subsp. *microlepis* (Boiss.) Wagenitz
3, rocky-stony slopes, 1900 m, 02.08.2018, Kargioğlu 8627.
Centaurea kotschyi (Boiss.) Hayek var. *kotschyi*
10, rocky-stony slopes, 2000 m, 07.10.2019, Kargioğlu 8787. Endemic"LC".
Centaurea solstitialis L. subsp. *solstitialis*
7, steppe, 1000 m, 02.08.2018, Kargioğlu 8626.
Centaurea virgata Lam.
7, steppe, 1000 m, 07.06.2017, Kargioğlu 8401. Irano-Turanian element.
Chondrilla juncea L.
7, village surroundings, steppe, 1000 m, 07.06.2017, Kargioğlu 8402.
Cirsium arvense (L.) Scop.
7, steppe, 1000 m, 02.08.2018, Kargioğlu 8651.
Cota austriaca Jacq. Sch. Bip.
6, *Pinus nigra* clearing, 1400 m, 10.07.2019, Kargioğlu 8922.
Cota tinctoria (L.) J.Gay ex Guss. var. *tinctoria*
2, stony places, 1300 m, 08.06.2018, Kargioğlu 8580.
Crepis foetida L. subsp. *rhoeadifolia* (M. Bieb.) Celak.
5, rocky-stony slopes, 1170 m, 08.05.2016, Kargioğlu 8311.
Crepis sancta (L.) Bornm.
1, *Quercus vulcanica* clearings, 1950 m, 10.07.2019, Kargioğlu 8965.
Crupina crupinastrum (Moris) Vis.
6, forest road edges, 1250 m, 10.07.2019, Kargioğlu 8923.
Cyanus reuterianus (Boiss.) Holub var. *phrygia* Boram.
3, rocky-stony places, 2000 m, 30.05.2016, Kargioğlu 8330. Endemic"LC", E.Mediterranean element.
Cyanus triumfettii (All.) Dostâl ex Â.Löve & D.Löve subsp. *triumfettii*
1, forest border, open spaces, 1880 m, 30.05.2016, Kargioğlu 8338.
Doronicum orientale Hoffm.
4, *Quercus vulcanica* clearing, 1680 m, 01.05.2016, Kargioğlu 8272.
Echinops spinosissimus Turra subsp. *bithynicus* (Boiss.) Greuter
7, steppe, 1000 m, 10.07.2019, Kargioğlu 8924. Irano-Turanian element.
Helichrysum plicatum DC. subsp. *plicatum*
4, *Cistus laurifolius* clearings, 1600 m, 28.06.2018, Kargioğlu 8594.
Inula anatolica Boiss.
5, rocky slopes, 1170 m, 04.07.2019, Kargioğlu 8820. Endemic"LC".
Inula britannica L.
2, valley floor, damp places, 1330 m, 15.09.2018, Kargioğlu 8696. Euro-Siberian element.
Inula montbretiana DC.
2, valley slopes, *Cistus laurifolius* clearings, 1380 m, 10.07.2019, Kargioğlu 8925. Irano-Turanian element.
Inula oculus-christi L.

5, rocky-stony slopes, 1180 m, 17.05.2018, Kargioğlu 8466. Euro-Siberian element.

Jurinea consanguinea DC.

6, forest road edges, 1250 m, 30.05.2016, Kargioğlu 8350.

Lactuca orientalis (Boiss.) Boiss.

4, rocky-stony places, 1500 m, 10.07.2019, Kargioğlu 8882. Irano-Turanian element.

Lactuca serriola L.

7, garden, 1000 m, 10.07.2019, Kargioğlu 8883.

Lactuca variabilis Bornm.

2, valley slopes, *Cistus laurifolius* clearings, 1380 m, 10.07.2019, Kargioğlu 8926. Endemic"LC".

Lactuca viminea (L.) J.Presl & C.Presl

1, rocky-stony slopes, 1470 m, 02.08.2018, Kargioğlu 8657.

Leontodon asperimus (Willd.) Endl.

3, rocky-stony slopes, 2000 m, 04.07.2019, Kargioğlu 8805. Irano-Turanian element.

Matricaria chamomilla L. var. *recutita* (L.) Grierson

4, meadow, 1450 m, 01.05.2016, Kargioğlu 8280.

Onopordum anatolicum Boiss. & Heldr. ex Eig

9, roadsides, 1000 m, 10.07.2019, Kargioğlu 8931. Endemic"LC", Irano-Turanian element.

Picnemon acarna (L.) Cass.

7, steppe, 1000 m, 10.07.2019, Kargioğlu 8939.

Scolymus hispanicus L. subsp. *hispanicus*

7, steppe, 1000 m, 10.07.2019, Kargioğlu 8940.

Mediterranean element.

Scorzonera cana (C.A. Mey.) Griseb. var. *radicosa* (Boiss.) D.F. Chamb.

11, North slope, high mountain range, rocky-stony places, 2200 m, 29.06.2019, Kargioğlu 8767.

Senecio vernalis Waldst. & Kit.

7, steppe, 1000 m, 25.04.2018, Kargioğlu 8413.

Senecio vulgaris L.

7, steppe, 1000 m, 17.05.2018, Kargioğlu 8479.

Sonchus asper (L.) Hill subsp. *glaucescens* (Jord.) Ball

2, stream edge, 1250 m, 04.07.2019, Kargioğlu 8835.

Tanacetum parthenium (L.) Sch. Bip.

2, stream edge, 1250 m, 04.07.2019, Kargioğlu 8836.

Taraxacum scaturiginosum G.E. Haglund

2, valley slopes, stony slopes, 1350 m, 24.05.2018, Kargioğlu 8433.

Tragopogon dubius Scop.

2, valley slopes, rocky-stony slopes, 1380 m, 26.04.2018, Kargioğlu 8460.

Tragopogon latifolius Boiss. var. *latifolius*

5, forest road edge, 1170 m, 17.05.2018, Kargioğlu 8484. Irano-Turanian element.

Tussilago farfara L.

2, stony places, 1300 m, 23.03.2017. Kargioğlu 8367. Euro-Siberian element.

Xanthium spinosum L.

7, garden, 1000 m, 28.06.2018, Kargioğlu 8600.

Xanthium strumarium L. subsp. *strumarium*

7, garden, 1000 m, 10.07.2019, Kargioğlu 8913.

Xeranthemum annuum L.

7, garden, 1000 m, 02.08.2018, Kargioğlu 8664.

Xeranthemum inapertum (L.) Mill.

12, *Quercus cerris* clearing, 1300 m, 10.07.2019, 8942.

BERBERIDACEAE

Berberis crataegina DC.

12, *Quercus cerris* clearing, 1300 m, 25.04.2018, Kargioğlu 8411.

BETULACEAE

Corylus avellana L. var. *avellana*

2, streamside, 1350 m, 15.09.2018, Kargioğlu 8684. Euro-Siberian element.

Corylus colurna L.

2, Demirlik hill, 1600 m, 10.07.2019, Kargioğlu 8880. Euro-Siberian element.

BORAGINACEAE

Alkanna areolata Boiss. var. *areolata*

3, rocky, 1900 m, 27.04.2017, Kargioğlu 8368.

E.Mediterranean element.

Anchusa undulata L. subsp. *hybrida* (Ten.) Cout.

7, steppe, 1000 m, 30.05.2016, Kargioğlu 8357.

Mediterranean element.

Buglossoides arvensis (L.) I. M. Johnst. subsp. *sibthorpiana* (Griseb.) R. Fern.

13, rocky-stony places, 1400 m, 10.07.2019, Kargioğlu 8852.

Cynoglossum montanum L.

14, forest border, open fields, 1880 m, 30.05.2016, Kargioğlu 8335. Euro-Siberian element.

Echium italicum L.

7, steppe, 1000 m, 02.08.2018, Kargioğlu 8635.

Mediterranean element.

Heliotropium dolosum De Not.

7, steppe, 1000 m, 15.06.2017, Kargiođlu 8370.

Lithospermum arvense L.

5, rocky-stony places 1180 m, 10.07.2019, Kargiođlu 8911. Euro-Siberian element.

Myosotis arvensis (L.) Hill subsp. *arvensis*

3, rocky-stony places, 1910 m, 30.05.2016, Kargiođlu 8333. Euro-Siberian element.

Myosotis incrassata Guss.

2, streamsides, 1250 m, 08.05.2016, Kargiođlu 8300.

E. Mediterranean element.

Myosotis ramosissima Rochel

13, rocky-stony places, 1200 m, 10.07.2019, Kargiođlu 8853.

Onosma armena DC.

4, rocky-stony places, 1500 m, 19.05.2019, Kargiođlu 8713. Endemic"LC".

Onosma taurica Willd. var. *taurica*

2, valley slopes, stony places, 1300 m, 08.05.2016, Kargiođlu 8323.

***Symphytum orientale* L.

4, *Quercus vulcanica* clearing, 1690 m, 30.05.2016, Kargiođlu 8342. Euro-Siberian element.

BRASSICACEAE

Aethionema arabicum (L.) Andr. ex DC.

2, rocky-stony slopes, 1330 m, 26.04.2018, Kargiođlu 8437.

Aethionema cordatum (Desf.) Boiss.

12, stony places, 1400 m, 10.07.2019, Kargiođlu 8881.

Alliaria petiolata (M.Bieb.) Cavara & Grande

4, forest road edges, 1650 m, 01.05.2016, Kargiođlu 8266.

Alyssum desertorum Stapf.

2, valley slopes, stony places, 1400 m, 30.05.2016, Kargiođlu 8360.

Alyssum hirsutum M.Bieb. var. *hirsutum*

2, *Cistus laurifolius* clearings, 1470 m, 01.05.2016, Kargiođlu 8271.

***Alyssum lepidotum* Boiss.

13, rocky-stony places, 1200 m, 10.07.2019, Kargiođlu 8855. Endemic"LC".

According to Flora of Türkiye the stylus of this plant is up to ½ hairy. In our example, it is completely hairless. New record for this species Afyonkarahisar. It was checked by řınasi Yıldırımli on 18.02.2017.

Alyssum minutum Schldl. ex DC.

2, *Cistus laurifolius* clearings, 1400 m, 10.07.2019, Kargiođlu 8912.

Alyssum murale Waldst. & Kit. subsp. *murale* var. *murale*

3, rocky-stony slopes, 2000 m, 01.08.2018, Kargiođlu 8609.

Alyssum simplex Rudolph

13, rocky-stony places, 1200 m, 10.07.2019, Kargiođlu 8856.

Alyssum strigosum Banks & Sol. subsp. *cedrorum* (Schott & Kotschy) T.R. Dudley

5, rocky-stony places, 1180 m, 25.04.2018, Kargiođlu 8406.

Arabis caucasica Willd. subsp. *caucasica*

2, valley slopes, forest clearings, 1310 m, 01.05.2016, Kargiođlu 8291.

Arabis nova Vill.

2, valley slopes, stony places, 1400 m, 30.05.2016, Kargiođlu 8359.

Arabis sagittata (Bertol.) DC.

13, rocky-stony places, 1200 m, 10.07.2019, Kargiođlu 8857.

Aubrieta pinardii Boiss.

3, rocky, 1800 m, 01.05.2016, Kargiođlu 8284.

Endemic"LC".

Barbarea verna (Mill.) Aschers.

4, damp meadow, 1750 m, 01.05.2016, Kargiođlu 8281.

Barbarea vulgaris R.Br. subsp. *vulgaris*

2, streamsides damp places, 1200 m, 08.05.2016, Kargiođlu 8312.

Brassica elongata Ehrh.

7, garden, 1000 m, 10.07.2019, Kargiođlu 8913.

Camelina rumelica Velen.

7, garden, 1000 m, 25.04.2018, Kargiođlu 8914.

Capsella bursa-pastoris (L.) Medik.

7, garden, 1000 m, 25.04.2018, Kargiođlu 8412.

Capsella rubella Reut.

2, streamsides, meadow, 1300 m, 08.05.2016, Kargiođlu 8301. Mediterranean element.

Clypeola jonthlaspi L.

2, valley slopes, rocky-stony places, 1300 m, 26.04.2018, Kargiođlu 8444.

Draba bruniifolia Steven subsp. *heterocoma* (Fenzl) Coode & Cullen

12, *Pinus nigra-Cedrus libani* clearing, stony places, 1500 m, 19.05.2019, Kargiođlu 8700.

Erophila verna (L.) DC.

2, valley interiors, stony places, 1150 m, 25.04.2018, Kargiođlu 8416.

Erysimum cuspidatum (M. Bieb.) DC.

2, valley slopes, stony places, 1210 m, 30.05.2016, Kargiođlu 8289.

Erysimum kotschyianum Gay

3, rocky places, 1900 m, 10.07.2019, Kargiođlu 8915. Endemic"LC".

Erysimum smyrnaeum Boiss. & Balansa

2, rocky-stony places, 1200 m, 08.05.2016, Kargiođlu 8306.

Fibigia eriocarpa (DC.) Boiss.

2, valley slopes, stony places, 1300 m, 30.05.2016, Kargiođlu 8354.

Isatis glauca Aucher ex Boiss. subsp. *glauca*

7, roadsides, 1000 m, 04.07.2019, Kargiođlu 8837. Irano-Turanian element.

Lepidium latifolium L.

7, roadsides, 1000 m, 04.07.2019, Kargiođlu 8838.

Lepidium perfoliatum L.

7, roadsides, 1000 m, 04.07.2019, Kargiođlu 8839.

Matthiola longipetala (Vent.) DC. subsp. *longipetala*

2, valley slopes, stony places, 1300 m, 30.07.2019, Kargiođlu 8970.

Thlaspi perfoliatum L.

2, valley slopes, steppe, 1300 m, 01.05.2016, Kargiođlu 8325.

Turritis laxa (Sibth. & Sm.) Hayek

4, forest road edge, *Quercus vulcanica* clearing, 1700 m, 01.05.2016, Kargiođlu 8277.

CAMPANULACEAE

Asyneuma compactum (Boiss. & Heldr.) Damboldt var. *compactum*

3, stony places, 2000 m, 30.05.2016, Kargiođlu 8329. Endemic"NT", E.Mediterranean (mountain) element.

Asyneuma limonifolium (L.) Janch. subsp. *pestalozzae* (Boiss.) Damboldt

2, rocky-stony places, 1400 m, 10.07.2019, Kargiođlu 8858. Endemic"LC".

Asyneuma linifolium (Boiss. & Heldr.) Bornm. subsp. *linifolium*

3, Kayalik yerler, 1900 m, 10.07.2019, Kargiođlu 8916. Endemic"EN", E.Mediterranean (mountain) element.

Campanula ajugifolia Schult.

2, valley slopes, *Cistus laurifolius* clearings, 1340 m, 02.08.2018, Kargiođlu 8624.

Endemic"LC", Irano-Turanian element.

Campanula cymbalaria Sm.

3, rocky North slopes, 2000 m, 10.07.2019, Kargiođlu 8943.

Campanula lyrata Lam. subsp. *lyrata*

2, valley slopes, stony places, 1330 m, 30.05.2016, Kargiođlu 8351.

CANNABACEAE

Celtis planchoniana K.I.Chr.

2, streamsides, 1330 m, 15.09.2018, Kargiođlu 8690.

CAPRIFOLIACEAE

Centranthus longiflorus Stev. subsp. *longiflorus*

2, valley slopes, stony places, 1200 m, 30.05.2016, Kargiođlu 8353.

Cephalaria transsylvanica (L.) Schrad.

5, rocky-stony slopes, 1180 m, 08.06.2018, Kargiođlu 8583.

Dipsacus laciniatus L.

2, streamsides, 1230 m, 02.08.2018, Kargiođlu 8632.

Lonicera caucasica Pall.

4, forest road edge, *Quercus vulcanica* clearing, 1700 m, 30.05.2016, Kargiođlu 8344.

Lonicera etrusca Santi var. *etrusca*

2, streamsides, 1320 m, 28.06.2018, Kargiođlu 8598. Mediterranean element.

Pterocephalus pinardii Boiss.

5, rocky-stony slopes, 1180 m, 02.08.2018, Kargiođlu 8641. Endemic"LC", E.Mediterranean element.

Pterocephalus plumosus (L.) Coulter

12, *Quercus cerris* clearing, 1300 m, 10.07.2019, Kargiođlu 8917.

Scabiosa argentea L.

5, rocky-stony places, 1170 m, 16.06.2019, Kargiođlu 8739.

Valeriana dioscoridis Sm.

2, valley slopes, rocky places, 1350 m, 08.05.2016, Kargiođlu 8314. E.Mediterranean element.

CARYOPHYLLACEAE

Arenaria ledebouriana Fenzl var. *pauciflora* McNeill

4, *Quercus vulcanica* clearing, 1650 m, 19.05.2019, Kargioğlu 8723.

Cerastium anomalum Waldst. & Kit.

2, rocky-stony places, 1420 m, 07.06.2018, Kargioğlu 8548.

Cerastium banaticum (Rochel) Heuff. subsp. *banaticum*

2, rocky-stony places, 1400 m, 10.07.2019, Kargioğlu 8859.

Cerastium fragillimum Boiss.

6, *Pinus nigra* clearing, 1400 m, 25.04.2018, Kargioğlu 8413.

Dianthus zonatus Fenzl var. *zonatus*

2, rocky-stony places, 1350 m, 28.06.2018, Kargioğlu 8599.

Holosteum umbellatum L. subsp. *umbellatum*

6, *Pinus nigra* clearing, 1350 m, 17.05.2018, Kargioğlu 8471.

Minuartia juniperina (L.) Maire & Petitm.

3, rocky, 2000 m, 07.06.2018, Kargioğlu 8526.

Minuartia leucocephala (Boiss.) Mattf.

5, rocky-stony slopes, 1170 m, 08.06.2018, Kargioğlu 8556. Endemic"LC", Mediterranean element.

Paronychia chionaea Boiss. subsp. *chionaea* var. *chionaea*

4, rocky-stony places, 1500 m, 07.06.2017, Kargioğlu 8380.

Saponaria pumilio Boiss.

3, rocky-stony North slopes, 2200 m, 29.06.2019, Kargioğlu 8766. E.Mediterranean element.

Silene compacta Fisch. ex Hornem.

2, rocky-stony places, 1220 m, 02.08.2018, Kargioğlu 8659.

Silene dichotoma Ehrh. subsp. *dichotoma*

13, stony places, 1200 m, 10.07.2019, Kargioğlu 8860.

Silene italica (L.) Pers. subsp. *italica*

2, Demirlik hill, *Quercus vulcanica* clearing, 1650 m, 08.05.2016, Kargioğlu 8308. Mediterranean element.

Silene rhynchocarpa Boiss.

3, rocky-stony places, 1900 m, 01.05.2016, Kargioğlu 8288. E.Mediterranean element.

Silene supina M. Bieb. subsp. *pruinosa* (Boiss.) Chowdhuri

2, valley slopes, *Cistus laurifolius* clearing, 1330 m, 08.06.2018, Kargioğlu 8575.

Silene vulgaris (Moench) Garcke var. *vulgaris*

2, valley slopes, *Pinus nigra* clearing, 1400 m, 30.05.2016, Kargioğlu 8343.

CELASTRACEAE

Euonymus latifolius (L.) Mill. subsp. *latifolius*

2, streamsides, 1350 m, 15.09.2018, Kargioğlu 8678. Euro-Siberian element.

CISTACEAE

Cistus laurifolius L.

4, *Pinus nigra* clearing, 1600 m, 28.06.2018, Kargioğlu 8591. Mediterranean element.

Fumana procumbens (Dunal) Gren. & Godr.

3, rocky-stony slopes, 10.07.2019, Kargioğlu 8958.

Helianthemum nummularium (L.) Mill. subsp. *lycaonicum* Coode & Cullen

12, *Quercus cerris* clearing, 1300 m, 10.07.2019, Kargioğlu 8959. Endemic"LC".

COLCHICACEAE

Colchicum atticum Spruner ex Tommas

2, streamsides, meadow, 1300 m, 23.03.2017, Kargioğlu 8361. E.Mediterranean element.

Colchicum triphyllum Kunze

2, streamsides, meadow, 1300 m, 23.03.2017, Kargioğlu 8362. Mediterranean element.

CONVOLVULACEAE

Convolvulus arvensis L.

7, village surroundings, steppe, 1000 m, 30.05.2016, Kargioğlu 8352.

Convolvulus lineatus L.

2, streamsides, stony places, 1200 m, 07.06.2018, Kargioğlu 8546.

Cuscuta europaea L.

2, valley slopes, *Cistus laurifolius* clearing (on *Salvia tomentosa*), 1450 m, 07.06.2017, Kargioğlu 8397.

Cuscuta palaestina Boiss.

7, garden, (on *Capsicum* sp.), 1000 m, 10.07.2019, Kargioğlu 8944.

CORNACEAE

Cornus mas L.

2, streamsides, 1320 m, 10.07.2019, Kargiođlu 8945.
Euro-Siberian element.

Cornus sanguinea L. subsp. *australis* (C.A.Mey.) Jav.
2, streamsides, 1350 m, 15.09.2018, Kargiođlu 8681.
Euro-Siberian element.

CRASSULACEAE

Rosularia libanotica (L.) Sam.

11, Northern slope, stony places, 2200 m,
29.06.2019, Kargiođlu 8763. E.Mediterranean
element.

Sedum acre L.

5, rocky-stony places, 1170 m, 08.06.2018, Kargiođlu
8582.

Sedum album L.

3, rocky places, 1900 m, 10.07.2019, Kargiođlu 8844.

Sedum amplexicaule DC. subsp. *tenuifolium* (Sm.)
Greuter & Burdet

2, valley slopes, *Cistus laurifolius* clearings, 1370 m,
29.06.2019, Kargiođlu 8783. Mediterranean
element.

Sedum pallidum M. Bieb.

3, rocky places, 1900 m, 10.07.2019, Kargiođlu 8840.
Euro-Siberian element.

Sedum sempervivoides M.Bieb.

11, rocky North slopes, 2200 m, 10.07.2019,
Kargiođlu 8927.

Umbilicus luteus (Huds.) Webb & Berthel.

2, rocky-stony places, 1400 m, 10.07.2019, Kargiođlu
8862.

CYPERACEAE

Carex coriogyne Nelmel

4, on the forest road, 1600 m, 10.07.2019, Kargiođlu
8909. Endemic"LC", E.Mediterranean element.

Carex panicea L.

2, valley slopes, *Cistus laurifolius* clearings, 1550 m,
Kargiođlu 8378. Euro-Siberian element.

Scirpoides holoschoenus (L.) Sojak subsp.
oloschoenus

2, streamsides, damp places, 1150 m, 04.07.2019,
Kargiođlu 8816.

ELAEAGNACEAE

Elaeagnus angustifolia L. var. *angustifolia*

5, forest road edge, 1170 m, 16.06.2019, Kargiođlu
8732.

EUPHORBIACEAE

Euphorbia anacampseros Boiss. var. *anacampseros*
1, *Pinus nigra* clearing, 1900 m, 17.05.2018,
Kargiođlu 8473. Endemic"LC".

Euphorbia kotschyana Fenzl

2, rocky-stony slopes, 1230 m, 02.08.2018,
Kargiođlu 8638. E.Mediterranean (mountain)
element.

Euphorbia stricta L.

12, gutter surroundings, 1500 m, 10.07.2019,
Kargiođlu 8910. Euro-Siberian element.

Mercurialis annua L.

2, streamsides, stony places, 1300 m, 15.09.2018,
Kargiođlu 8694.

FABACEAE

Astragalus angustifolius Lam. subsp. *angustifolius*

11, rocky-stony Northern slopes, 2200 m,
04.07.2019, Kargiođlu 8792.

Astragalus campylosema Boiss. subsp.
campylosema

5, rocky-stony slopes, 1170 m, 08.06.2018,
Kargiođlu 8561. Endemic"LC". Irano-Turanian
element.

Astragalus depressus L. var. *depressus*

3, rocky, 1910 m, 01.05.2016, Kargiođlu 8287.

Astragalus mesogitanus Boiss.

2, rocky-stony places, 1400 m, 10.07.2019, Kargiođlu
8863. Endemic"LC". Irano-Turanian element.

Astragalus microcephalus Willd. subsp.
microcephalus

2, valley slopes, *Cistus laurifolius* clearing, 1380 m,
10.07.2019, Kargiođlu 8941. Irano-Turanian
element.

Astragalus ponticus Pall.

7, steppe, 1000 m, 30.05.2016, Kargiođlu 8348.

Astragalus stereocalyx Bornm.

4, *Quercus vulcanica* clearing, 1650 m, 01.05.2016,
Kargiođlu 8278. Endemic"NT", Irano-Turanian
element.

Astragalus vulnerariae DC.

6, *Pinus nigra* ormanı clearing, 1450 m, 08.06.2018,
Kargiođlu 8572. Endemic"LC".

Colutea melanocalyx Boiss. & Heldr. subsp.
melanocalyx

2, valley slopes, stony places, 1330 m, 08.05.2016, Kargiođlu 8316. Endemic"EN", E.Mediterranean element.

Cytisus hirsutus L.

12, *Quercus cerris* clearing, 1300 m, 28.06.2018, Kargiođlu 8607.

Genista albida Willd.

4, rocky-stony places, 1450 m, 01.05.2016, Kargiođlu 8270.

Genista burdurensis P.E.Gibbs

5, rocky-stony places, 1170 m, 16.06.2019, Kargiođlu 8740. Endemic"NT", Irano-Turanian element.

Hedysarum varium Willd. subsp. *varium*

12, *Quercus cerris* clearing, 1300 m, 07.06.2018, Kargiođlu 8507. Irano-Turanian element.

Lathyrus aphaca L.

5, forest road edge, 1170 m, 19.05.2019, Kargiođlu 8706.

Lathyrus digitatus (M.Bieb.) Fiori

2, *Quercus vulcanica* clearing, 1320 m, 08.05.2016, Kargiođlu 8318. E.Mediterranean element.

Lathyrus nissolia L.

2, streamsides, 1320 m, 25.04.2018, Kargiođlu 8421.

Lotus corniculatus L. var. *corniculatus*

2, streamsides, stony places, 1250 m, 10.07.2019, Kargiođlu 8949.

Medicago lupulina L.

2, streamsides, stony places, 1300 m, 07.06.2017, Kargiođlu 8399.

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

2, streamsides, stony places, 1120 m, 08.06.2018, Kargiođlu 8587.

Medicago orbicularis (L.) Bartal.

2, streamsides, stony places, 1250 m, 30.05.2016, Kargiođlu 8349.

Medicago sativa L. subsp. *sativa*

7, steppe, 1000 m, 10.07.2019, Kargiođlu 8948.

Medicago x varia Martyn

2, streamsides, stony places, 1400 m, 10.07.2019, Kargiođlu 8864.

Onobrychis hypargyrea Boiss.

7, Firinci hill, 1400 m, 28.06.2018, Kargiođlu 8602.

Onobrychis oxyodonta Boiss. var. *oxyodonta*

2, streamsides, stony places, 1400 m, 10.07.2019, Kargiođlu 8865.

Ononis pusilla L.

2, valley slopes, stony places, 1300 m, 08.05.2016, Kargiođlu 8324. Mediterranean element.

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

2, valley slopes, stony places, 1450 m, 10.07.2019, Kargiođlu 8950.

Pisum sativum L. subsp. *sativum* var. *sativum*

2, streamsides, stony places, 1300 m, 25.04.2018, Kargiođlu 8427.

Securigera varia (L.) Lassen

2, rocky-stony places, 1400 m, 10.07.2019, Kargiođlu 8867. E.Mediterranean element.

Trifolium arvense L. var. *arvense*

6, *Pinus nigra* clearing, 1420 m, 10.07.2019, Kargiođlu 8960.

Trifolium grandiflorum Schreb.

2, streamsides, stony places, 1400 m, 10.07.2019, Kargiođlu 8868. E.Mediterranean element.

Trifolium ochroleucum Huds.

2, valley slopes, *Cistus laurifolius* clearings, 1320 m, 07.06.2018, Kargiođlu 8543.

Vicia cassubica L.

4, *Quercus vulcanica* clearing, 1650 m, 07.06.2018, Kargiođlu 8539. Euro-Siberian element.

Vicia cracca L. subsp. *tenuifolia* (Roth) Gaudin

2, valley slopes, stony places, 1300 m, 17.06.2017, Kargiođlu 8389.

Vicia sativa L. subsp. *nigra* (L.) Ehrh. var. *nigra*

2, rocky-stony places, 1400 m, 10.07.2019, Kargiođlu 8869.

FAGACEAE

Quercus cerris L.

2, rocky-stony slopes, 1370 m, 02.08.2018, Kargiođlu 8650. Mediterranean element.

Quercus infectoria Oliv. subsp. *veneris* (A.Kern.) Meikle

2, valley slopes, 1370 m, 15.09.2018, Kargiođlu 8668.

Quercus pubescens Willd. subsp. *pubescens*

2, valley slopes, 1330 m, 15.09.2018, Kargiođlu 8695.

Quercus trojana Webb subsp. *trojana*

2, valley slopes, 1330 m, 15.09.2018, Kargiođlu 8651. E.Mediterranean element.

Quercus vulcanica Boiss. & Heldr. ex Kotschy

1, forest border, open spaces 2000 m, 10.07.2019, 8918.

Endemic "NT", E.Mediterranean element.

GENTIANACEAE

Centaurium erythraea Rafn. subsp. *turcicum* (Velen.) Melderis

2, valley slopes, rocky-stony places, 1330 m, 10.07.2019, 8961.

GERANIACEAE

Erodium cicutarium (L.) L' Her. subsp. *cutarium*
2, streamsides, stony places, 1150m, 08.05.2016, Kargiođlu 8310.

Geranium lucidum L.

2, rocky slopes, 1450 m, 08.05.2016, Kargiođlu 8304.

Geranium macrostylum Boiss.

4, *Quercus vulcanica* clearing, 1720 m, 01.05.2016, Kargiođlu 8279. E.Mediterranean (mountain) element.

Geranium purpureum Vill.

2, streamsides, 1300 m, 30.05.2016, Kargiođlu 8358.

Geranium pyrenaicum Burm.f.

2, rocky-stony places, 1400 m, 10.07.2019, Kargiođlu 8870.

HYPERICACEAE

Hypericum aviculariifolium Jaub. & Spach

4, *Cistus laurifolius* clearing, 1750 m, 08.06.2018, Kargiođlu 8552. Endemic "LC", E.Mediterranean element.

Hypericum lydiium Boiss.

6, forest road edge, 1350 m, 07.06.2017, Kargiođlu 8379.

***Hypericum montbretii* Spach

4, on the forest road, 1400 m, 10.07.2019, Kargiođlu 8962.

Hypericum organifolium Willd. var. *depilatum* (Freyn & Bornm.) N.Robson

2, valley slopes, stony places, 1300 m, 15.06.2016, Kargiođlu 8283. Endemic "LC", Irano-Turanian element.

Hypericum orientale L.

2, valley slopes, *Cistus laurifolius* clearings, 1400 m, 10.07.2019, Kargiođlu 8904.

Hypericum perforatum L. subsp. *perforatum*

7, steppe, 1000 m, 10.07.2019, Kargiođlu 8871.

Hypericum scabrum L.

3, rocky-stony places, 2000 m, 07.06.2018, Kargiođlu 8524. Irano-Turanian element.

IRIDACEAE

Crocus chrysanthus (Herb.) Herb.

2, meadow, 1300 m, 23.03.2017. Kargiođlu 8363.

Crocus pallasii Goldb. subsp. *pallasii*

3, *Quercus vulcanica* clearing, 1800 m, 02.11.2018, Kargiođlu 8683.

Crocus speciosus M. Bieb. subsp. *speciosus*

14, *Quercus vulcanica* clearing, 1850 m, 03.12.2018, Kargiođlu 8691.

Iris kerneriana Asch. & Sint.

12, *Quercus cerris* clearing, 1300 m, 02.06.2014, Kargiođlu 7715. Endemic "LC", Euro-Siberian element.

Iris schachtii Markgr.

3, rocky places, 1900 m, 02.06.2013, Kargiođlu 7709. Endemic "LC", Irano-Turanian element.

JUGLANDACEAE

Juglans regia L.

5, forest road edge, 1170 m, 15.09.2018, Kargiođlu 8689.

JUNCACEAE

Juncus inflexus L.

2, streamsides, damp places, 1150 m, 04.07.2019, Kargiođlu 8817.

LAMIACEAE

Ajuga chamaepitys (L.) Schreb. subsp. *chia* (Schreb.) Arcang.

3, rocky-stony places, 1910 m, 01.05.2016, Kargiođlu 8286.

Clinopodium graveolens (M.Bieb.) Kuntze subsp. *rotundifolium* (Pers.) Govaerts

2, rocky-stony places, 1400 m, 17.05.2018, Kargiođlu 8467.

Clinopodium vulgare L. subsp. *vulgare*

4, *Quercus vulcanica* clearings, 1700 m, 10.07.2019, Kargiođlu 8872.

Lamium amplexicaule L. var. *amplexicaule*

2, streamsides, stony places, 1250 m, 08.05.2016, Kargiođlu 8297.

Lamium garganicum L. subsp. *striatum* (Sm.) Hayek var. *striatum*

- 12, *Quercus cerris* clearing, 1450 m, 01.05.2016, Kargioğlu 8262. Mediterranean element.
- Marrubium anisodon* K. Koch
2, rocky-stony places, 1400 m, 10.07.2019, Kargioğlu 8873.
- Marrubium astracanicum* Jacq. subsp. *macrodon* (Bornm.) P.H. Davis
3, steppe, 2000 m, 01.08.2018, Kargioğlu 8614. Endemic"LC".
- Marrubium parviflorum* Fisch. & C.A.Mey. subsp. *parviflorum*
7, steppe, 1000 m, 08.05.2016, Kargioğlu 8317. Irano-Turanian element.
- Marrubium lutescens* Boiss. & Heldr. subsp. *lutescens*
1, rocky-stony slopes, 1900 m, 29.06.2019, Kargioğlu 8778. Endemic"LC", Mediterranean element.
- Mentha longifolia* (L.) L. subsp. *longifolia*
2, streamsides, damp places, 1400 m, 02.08.2018, Kargioğlu 8644.
- Mentha longifolia* (L.) L. subsp. *typhoides* (Briq.) Harley
4, *Quercus vulcanica* clearing, damp places, 10.07.2019, Kargioğlu 8895.
- Micromeria cristata* (Hampe) Griseb. subsp. *phrygia* P. H. Davis
3, rocky places, 2000 m, 10.07.2019, Kargioğlu 8841. Endemic"LC", Mediterranean element.
- Nepeta nuda* L. subsp. *nuda*
2, valley slopes, steppe, 1880 m, 15.09.2018, Kargioğlu 8667. Euro-Siberian element.
- Origanum sipyleum* L.
2, stony places, 1330 m, 15.09.2018, Kargioğlu 8686. Endemic"LC", E.Mediterranean element.
- Origanum vulgare* L. subsp. *hirtum* (Link) letsw.
2, rocky-stony slopes, 1530 m, 02.08.2018, Kargioğlu 8646. E.Mediterranean element.
- Phlomis armeniaca* Willd.
3, rocky-stony places, 1900 m, 10.07.2019, Kargioğlu 8957. Irano-Turanian element.
- Phlomis nissolii* L.
7, step, 1100 m, 02.08.2018, Kargioğlu 8648. Endemic"LC", Irano-Turanian element.
- Phlomis pungens* Willd. var. *pungens*
5, rocky-stony slopes, 1170 m, 16.06.2019, Kargioğlu 8749.
- Prunella vulgaris* L.
2, streamsides, 1350 m, 10.07.2019, Kargioğlu 8896. Euro-Siberian element.
- Salvia cadmica* Boiss. var. *cadmica*
12, rocky-stony places, 1450 m, 01.05.2016, Kargioğlu 8269. Endemic"LC".
- Salvia sclarea* L.
5, rocky-stony slopes, 1170 m, 04.07.2019, Kargioğlu 8828.
- Salvia tomentosa* Mill.
2, rocky-stony slopes, 1370 m, 02.08.2018, Kargioğlu 8655. Mediterranean element.
- Salvia verticillata* L. subsp. *amasiaca* (Frey & Bornm.) Bornm.
3, rocky-stony places, 1900 m, 10.07.2019, Kargioğlu 8842. Irano-Turanian element.
- Scutellaria albida* L. subsp. *albida*
2, rocky-stony places, 1400 m, 10.07.2019, Kargioğlu 8874. E.Mediterranean element.
- Scutellaria orientalis* L. subsp. *alpina* (Boiss.) O. Schwarz var. *alpina*
11, Northern slope, 2000 m, steppe, 26.09.2019, Kargioğlu 8756.
- Sideritis montana* L. subsp. *remota* (d' Urv.) P. W. Ball ex Heywood
2, steppe, 1300 m, 10.07.2019, Kargioğlu 8892. E.Mediterranean element.
- ***Sideritis phrygia* Bornm.
6, rocky-stony slopes, 1500 m, 02.08.2018, Kargioğlu 8658. Endemic"NT", Irano-Turanian element.
- Teucrium chamaedrys* L. subsp. *chamaedrys*
2, rocky-stony slopes, 1430 m, 02.08.2018, Kargioğlu 8662.
- Teucrium polium* L. subsp. *polium*
12, *Cistus laurifolius* clearing, 1250 m, 10.07.2019, Kargioğlu 8893.
- Thymus leucostomus* Hausskn. & Velen.
4, *Cistus laurifolius* clearings, 1750 m, 07.06.2018, Kargioğlu 8557. Endemic"NT", Irano-Turanian element.
- Thymus longicaulis* C. Presl subsp. *chaubardii* (Reichb. f.) Jalas
2, valley slopes, *Cistus laurifolius* clearings, 1550 m, 10.07.2019, Kargioğlu 8894. Mediterranean element.
- Ziziphora tenuior* L.

12, *Quercus cerris* clearing, 1200 m, 19.05.2019, Kargioğlu 8716. Irano-Turanian element.

LILIACEAE

Fritillaria pinardii Boiss.

10, steppe, 1900 m, 01.05.2016, 8283.

Irano-Turanian element.

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

2, *Corylus avellana* clearings, 1350 m, 04.04.2016, Kargioğlu 8159.

Gagea foliosa (C. Presl) Schult. & Schult. f.

10, step, 1880 m, 08.05.2016, Kargioğlu 8307.

Gagea granatelli (Parl.) Parl.

2, streamsides, 1300 m, 01.05.2016, Kargioğlu 8282. Mediterranean element.

LINACEAE

Linum cariense Boiss.

3, rocky-stony places, 2000 m, 30.05.2016, Kargioğlu 8331. Endemic"LC", Irano-Turanian element.

Linum catharticum L.

4, *Cedrus libani*-*Pinus sylvestris* forest clearing, rocky-stony places, 1500 m, 07.06.2018, Kargioğlu 8504.

Linum hirsutum L. subsp. *pseudoanatolicum* P.H. Davis

5, rocky-stony slopes, 1170 m, 08.06.2018, Kargioğlu 8571. Endemic"LC", Irano-Turanian element.

Linum tenuifolium L.

2, valley slopes, *Cistus laurifolius* clearing, 1450 m, 10.07.2019, Kargioğlu 8897.

MALVACEAE

Malva neglecta Wallr.

7, road and garden edges, 1000 m, 19.05.2019, Kargioğlu 8699.

MORACEAE

**Ficus carica* L. subsp. *carica*

5, forest road edge, 1170 m, 04.07.2019, Kargioğlu 8814. Mediterranean element.

**Morus alba* L.

15, garden, 1000 m, 10.7.2019, Kargioğlu 8937.

**Morus nigra* L.

15, garden, 1000 m, 10.7.2019, Kargioğlu 8938.

OLEACEAE

Jasminum fruticans L.

2, valley slopes, rocky places, 1330 m, 08.05.2016, Kargioğlu 8315. Mediterranean element.

Ligustrum vulgare L.

12, forest road edges, 1400 m, 07.06.2018, Kargioğlu 8514. Euro-Siberian element.

ONAGRACEAE

Epilobium dodonaei Vill.

2, stony places, 1350 m, 15.09.2018, Kargioğlu 8675. Euro-Siberian element.

Epilobium hirsutum L.

2, stony places, 1350 m, 15.09.2018, Kargioğlu 8682. ***Oenothera biennis* L.

7, garden edge, 890 m, 15.09.2018, Kargioğlu 8685. (an invasive species)

ORCHIDACEAE

Cephalanthera epipactoides Fisch & C.A.Mey.

12, *Quercus vulcanica* forest clearing, 1700 m, 10.07.2019, Kargioğlu 8900. E.Mediterranean element.

Cephalanthera rubra (L.) Rich.

4, *Pinus nigra*-*Cedrus libani* forest clearing, 1600 m, 06.07.2017, Kargioğlu 8374.

Epipactis helleborine (L.) Crantz subsp. *helleborine*

1, *Cistus laurifolius* clearing, 1550 m, 06.07.2017, Kargioğlu 8373.

Orchis mascula (L.) L. subsp. *pinetorum* (Boiss. & Kotschy) G.Camus

1, *Quercus vulcanica* forest clearing, 1600 m, 10.07.2019, Kargioğlu 8854. E.Mediterranean element.

Orchis palustris Jacq.

2, streamsides, 1100 m, 10.07.2019, Kargioğlu 8898.

Orchis pallens L.

3, rocky-stony places, 1900 m, 10.07.2019, Kargioğlu 8899. Euro-Siberian element.

OROBANCHACEAE

Odontites verna Dumort.

2, rocky-stony slopes, 1370 m, 02.08.2018, Kargioğlu 8645.

Pedicularis cadmea Boiss.

11, North slope, rocky-stony places, 2000 m, 30.05.2016, Kargioğlu 8328.

Endemic "LC", E. Mediterranean element.

Phelypaea coccinea (M. Bieb.) Poir.

2, valley slopes, *Cistus laurifolius* community clearing, 1400 m, 17.05.2018, Kargioğlu 8465.

Irano-Turanian element.

PAEONIACEAE

Paeonia mascula (L.) Mill. subsp. *mascula*

2, stony places, 1200 m, 08.05.2016, Kargioğlu 8292.

PAPAVERACEAE

Corydalis solida (L.) Clairv. subsp. *solida*

2, valley slopes, 1350 m, 25.04.2018, Kargioğlu 8407.

Fumaria officinalis L. subsp. *officinalis*

2, streamsides, 1300 m, 08.05.2016, Kargioğlu 8319.

Glaucium leiocarpum Boiss.

2, rocky-stony places, 1400 m, 10.07.2019, Kargioğlu 8875.

Papaver argemone L. subsp. *argemone*

2, streamsides, 1150 m, 08.05.2016, Kargioğlu 8302.

Papaver dubium L. subsp. *dubium*

2, valley slopes, rocky-stony places, 26.04.2018, Kargioğlu 8455.

Papaver macrostomum Boiss. & A.Huet

2, valley slopes, stony places, 1220 m, 08.05.2016, Kargioğlu 8309. Irano-Turanian element.

Papaver pilosum Sibth. & Sin. subsp. *sparsipilosum* (Boiss.) Kadereit

4, *Quercus vulcanica* forest clearing, 1700 m, 07.06.2017, Kargioğlu 8377. Endemic "LC".

Papaver rhoeas L.

2, valley slopes, steppe, 1210 m, 30.05.2016, Kargioğlu 8285.

PLANTAGINACEAE

Digitalis ferruginea L. subsp. *ferruginea*

2, rocky-stony slopes, 1370 m, 02.08.2018, Kargioğlu 8631. Euro-Siberian element.

***Digitalis lamarckii* Ivanina

5, forest road edge, 1170 m, 28.06.2018, Kargioğlu 8592. Endemic "LC", Irano-Turanian element.

Globularia orientalis L.

12, *Quercus cerris* clearing, 1250 m, 07.06.2018, Kargioğlu 8501. Irano-Turanian element.

Globularia trichosantha Fisch. & C.A. Mey. subsp. *trichosantha*

2, valley slopes, steppe, 1400 m, 01.05.2016, Kargioğlu 8268. Irano-Turanian element.

Plantago holosteum Scop.

3, steppe, 2200 m, 10.07.2019, Kargioğlu 8963.

Mediterranean element.

Plantago lanceolata L.

2, streamsides, damp places, 1300 m, 10.07.2019, Kargioğlu 8905.

Plantago major L. subsp. *intermedia* (Gilib.) Lange

2, streamsides, damp places, 1330 m, 10.07.2019, Kargioğlu 8906.

Veronica bozakmanii M.A.Fisch.

2, streamsides, stony places, 1300 m, 08.05.2016, Kargioğlu 8295. Irano-Turanian element.

Veronica chamaedrys L.

2, valley slopes, stony places, 1300 m, 30.05.2016, Kargioğlu 8346. Euro-Siberian element.

Veronica pectinata L. var. *glandulosa* Riek ex M. A. Fisch. var. *pectinata*

2, valley slopes, stony places, 1300 m, 08.05.2016, Kargioğlu 8298.

PLUMBAGINACEAE

Acantholimon acerosum (Willd.) Boiss. subsp. *acerosum* var. *acerosum*

2, valley slopes, stony places, 1470 m, 128.06.2018, Kargioğlu 8597. Irano-Turanian element.

Acantholimon puberulum Boiss. & Balansa subsp. *puberulum*

3, steppe, 2000 m, 04.07.2019, Kargioğlu 8795.

Irano-Turanian element.

Plumbago europaea L.

7, roadsides, 1000 m, 04.07.2019, Kargioğlu 8824. Euro-Siberian element.

POACEAE

Aegilops triuncialis L. subsp. *triuncialis*

5, rocky-stony places, 1170 m, 08.06.2018, Kargioğlu 8577.

Aegilops cylindrica Host

5, rocky-stony places, 1170 m, 10.07.2019, Kargioğlu 8908. Irano-Turanian element.

Brachypodium sylvaticum (Huds.) P. Beauv.

1, *Quercus vulcanica* clearing, 2000 m, 10.07.2019, Kargioğlu 8748. Euro-Siberian element.

Briza humilis M.Bieb.

5, stony places, 1200 m, 10.07.2019, Kargioğlu 8876.

Bromus sterilis L.

2, streamsides, 1230 m, 30.07.2019, Kargiođlu 8971.

Bromus tectorum L.

2, streamsides, 1230 m, 30.07.2019, Kargiođlu 8972.

Calamagrostis pseudophragmites (Haller) Koeler

2, streamsides, damp places, 1150 m, 04.07.2019, Kargiođlu 8785.

Euro-Siberian element.

Dactylis glomerata L. subsp. *hispanica* (Roth) Nyman

12, *Quercus cerris* ormanı clearing, 1300 m, 08.06.2018, Kargiođlu 8567.

Echinaria capitata (L.) Desf.

5, forest road edges, 1230 m, 30.07.2019, Kargiođlu 8973.

Hordeum bulbosum L.

5, rocky-stony places, 1170 m, 16.06.2019, Kargiođlu 8735.

Melica ciliata L. subsp. *ciliata*

3, rocky places, 2000 m, 10.07.2019, Kargiođlu 8845.

Phleum exaratum Griseb. subsp. *exaratum*

5, rocky-stony slopes, 1170 m, 30.05.2016, Kargiođlu 8355.

Phleum montanum K. Koch subsp. *serrulatum* (Boiss.) Dođan

1, *Quercus vulcanica* clearing, rocky places, 2000 m, 10.07.2019, Kargiođlu 8885.

E.Mediterranean element.

Poa bulbosa L.

2, rocky-stony slopes, 1300 m, 02.08.2018, Kargiođlu 8628.

Stipa holosericea Trin.

2, rocky-stony slopes, 1300 m, 08.05.2016, Kargiođlu 8313. Irano-Turanian element.

Taeniatherum caput-medusae (L.) Nevski subsp. *crinitum* (Schreb.) Melderis

5, rocky-stony slopes, 1170 m, 10.07.2019, Kargiođlu 8964. Irano-Turanian element.

POLYGALACEAE

Polygala anatolica Boiss. & Heldr.

4, *Pinus nigra* clearing, rocky, 1550 m, 07.06.2018, Kargiođlu 8509.

Polygala pruinosa Boiss. subsp. *pruinosa*

2, valley slopes, *Cistus laurifolius* clearings, 1350 m, 17.05.2018, Kargiođlu 8500.

POLYGONACEAE

Atraphaxis billardieri Jaub. & Spach. subsp. *billardieri*

3, rocky-stony, 2000 m, 10.07.2019, Kargiođlu 8955. Irano-Turanian element.

***Polygonum alpinum* All.

11, North slopes, rocky-stony places, 2200 m, 29.06.2019, Kargiođlu 8755.

Euro-Siberian element.

Polygonum cognatum Meissn.

7, garden, 1000 m, 10.07.2019, Kargiođlu 8956.

Polygonum convolvulus L.

2, streamsides, 1330 m, 15.09.2018, Kargiođlu 8692.

Rumex acetosella L.

2, streamsides, stony places, 1330 m, 17.05.2018, Kargiođlu 8468.

Rumex crispus L.

15, garden, 1000 m, 24.05.2018, Kargiođlu 8432.

Rumex scutatus L.

5, rocky-stony slopes, 1170 m, 04.07.2019, Kargiođlu 8818.

PORTULACEAE

Portulaca oleracea L.

15, garden, 1000 m, 10.07.2019, Kargiođlu 8946.

PRIMULACEAE

Anagallis arvensis L. var. *arvensis*

2, rocky-stony slopes, 1400 m, 10.07.2019, Kargiođlu 8877.

Androsace maxima L.

2, valley slopes, stony places, 1300 m, 01.05.2016, Kargiođlu 8273.

Cyclamen cilicium Boiss. & Heldr.

2, valley slopes, *Quercus infectoria* clearings, 1300 m, 02.11.2018, Kargiođlu 8697. Endemic"NT".

Primula acaulis (L.) L. subsp. *acaulis*

4, forest road edge, 1650 m, 19.05.2019, Kargiođlu 8724. Euro-Siberian element.

RANUNCULACEAE

Adonis aestivalis L. subsp. *aestivalis*

7, garden edge, 1000 m, 30.05.2016, Kargiođlu 8360.

Ceratocephalus falcatus (L.) Pers.

2, streamsides, stony places, 1230 m, 23.03.2017, Kargiođlu 8361.

Delphinium peregrinum L.

7, steppe, 1100 m, 02.08.2018, Kargiođlu 8630.

Mediterranean element.

Eranthis hyemalis (L.) Salisb.

2, streamsides, stony places, 1300 m, 23.03.2017, Kargiođlu 8364.

Ranunculus arvensis L.

2, streamsides, 1280 m, 01.05.2016, Kargiođlu 8265.

Ranunculus brutius Ten.

2, valley slopes, *Cistus laurifolius* clearing, 1450 m, 28.06.2018, Kargiođlu 8608. Euro-Siberian element.

Ranunculus demissus DC. var. *major* Boiss.

4, *Pinus nigra-Cedrus libani* clearing, 26.04.2018, Kargiođlu 8458. Endemic"LC".

Ranunculus ficaria L. subsp. *ficariiformis* Rouy & Foucaud

2, streamsides, damp places, 1230, 25.04.2018, Kargiođlu 8430.

Ranunculus repens L.

2, streamsides, damp places, 1230, 30.05.2016, Kargiođlu 8340.

Ranunculus reuterianus Boiss.

4, forest road and its edges, 1700 m, 30.05.2016, Kargiođlu 8339. Endemic"LC".

Ranunculus rumelicus Griseb.

12, *Quercus cerris* clearing, 1300 m, 01.05.2016, Kargiođlu 8264. Mediterranean element.

Thalictrum lucidum L.

6, forest road and its edges, 1450 m, 06.08.2018, Kargiođlu 8566.

RESEDACEAE

Reseda luteola L. subsp. *lutea*

5, forest road edges, 1170 m, 08.06.2018, Kargiođlu 8585.

RHAMNACEAE

Frangula dodonei Ard. subsp. *dodonei*

2, streamsides, 1350 m, 02.08.2018, Kargiođlu 8639.

Rhamnus petiolaris Boiss. & Balansa

2, valley slopes, rocky, 1380 m, 10.07.2019, Kargiođlu 8951. Endemic"LC".

Rhamnus thymifolia Bornm.

2, rocky-stony places, 1200 m, 10.07.2019, Kargiođlu 8878. Endemic"LC".

ROSACEAE

Agrimonia eupatoria L. subsp. *eupatoria*

5, rocky-stony slopes, 1180 m, 16.06.2019, Kargiođlu 8728.

Amelanchier parviflora Boiss. var. *parviflora*

12, forest road edges, 1250 m, 19.05.2019, Kargiođlu 8710. Endemic "LC", E.Mediterranean element.

**Amygdalus communis* L.

5, forest road edges, 1170 m, 16.06.2019, Kargiođlu 8733.

**Cerasus avium* (L.) Moench

7, garden, 1000 m, 10.07.2019, Kargiođlu 8928.

Cerasus mahaleb (L.) Mill. var. *mahaleb*

5, forest road edge, 1170 m, 10.07.2019, Kargiođlu 8930.

Cerasus prostrata (Labill.) Ser. var. *prostrata*

11, rocky Northern slopes, 2200 m, 29.06.2019, Kargiođlu 8777. Mediterranean element.

**Cerasus vulgaris* Mill.

7, garden, 1000 m, 10.07.2019, Kargiođlu 8929.

Cotoneaster nummularius Fisch. & C.A.Mey.

2, rocky places, 1250 m, 02.08.2018, Kargiođlu 8652.

Crataegus azarolus L. var. *azarolus*

7, garden edge, 890m, 10.07.2018, Kargiođlu 8919.

Crataegus monogyna Jacq. subsp. *monogyna*

2, valley slopes, 1350 m, 15.09.2018, Kargiođlu 8673.

Crataegus orientalis Pall. ex M.Bieb. subsp. *orientalis*

2, valley slopes, 1350 m, 15.09.2018, Kargiođlu 8670.

Geum urbanum L.

4, forest road edge, *Quercus vulcanica* clearing, 1700 m, 01.05.2016, Kargiođlu 8276.

Euro-Siberian element.

Malus sylvestris (L.) Mill. subsp. *orientalis* var. *orientalis*

12, forest road edges, 1200 m, 02.08.2018, Kargiođlu 8642.

Mespilus germanica L.

2, streamsides, 1350 m, 15.09.2018, Kargiođlu 8671. Euro-Siberian element.

Potentilla recta L.

2, valley slopes, *Cistus laurifolius* clearings, 1370 m, 17.05.2018, Kargiođlu 8499.

Potentilla reptans L.

2, streamsides, damp places, 1350 m, 10.07.2019, Kargiođlu 8932.

Potentilla speciosa Willd.

1, rocky Northern slopes, 2200 m, 10.07.2019, Kargiođlu 8933.

Prunus divaricata Ledeb. subsp. *divaricata*

12, 1100 m, forest road edges, 01.08.2018, Kargiođlu 8615.

Prunus spinosa L.

5, rocky slopes, 1170 m, 10.07.2019, Kargiođlu 8934. Euro-Siberian element.

Pyracantha coccinea M.Roem.

2, streamsides, 1320 m, 10.07.2019, Kargiođlu 8935. Euro-Siberian element.

Pyrus elaeagnifolia Pall. subsp. *elaegnifolia*

12, forest road edges, 1250 m, 10.07.2019, Kargiođlu 8936.

Rosa canina L.

12, *Q. cerris* forest clearing, 1250 m, 10.07.2019, Kargiođlu 8886.

Rosa pulverulanta M.Bieb.

3, rocky-stony places, 2000 m, 02.08.2018, Kargiođlu 8653.

Rubus canescens DC. var. *canescens*

7, roadside, 1000 m, 10.07.2019, Kargiođlu 8887. Euro-Siberian element.

Sanguisorba minor L. subsp. *balearica* (Bourg. ex Nyman) Munoz Garm. & C.Navarro

2, valley slopes, stony places, 1330 m, 30.05.2016, Kargiođlu 8327.

Sorbus torminalis (L.) Crantz var. *torminalis*

2, streamsides, 1300 m, 02.08.2018, Kargiođlu 8660.

Sorbus umbellata Fritsch

2, streamsides 1350 m, 15.09.2018, Kargiođlu 8677.

RUBIACEAE

Asperula lilaciflora Boiss. subsp. *phrygia* (Bornm.) Schönb.-Tem.

4, *Cistus laurifolius* community clearings, 1750 m, 10.07.2019, Kargiođlu 8888. Endemic"LC".

Asperula nitida Sm. subsp. *hirtella* (Boiss.) Ehrend.

3, rocky-stony places, 1900 m, 10.07.2019, Kargiođlu 8889.

Endemic"NT", E.Mediterranean (mountain) element.

Crucianella angustifolia L.

1, *Cistus laurifolius* community clearings, 1600 m, 10.07.2019, Kargiođlu 8890. Mediterranean element.

Galium album Mill. subsp. *pyncotrichum* (H.Braun) Krendl

4, *Cistus laurifolius* community clearings, 1750 m, 10.07.2019, Kargiođlu 8890. Euro-Siberian element.

Galium parschale Forssk.

4, steppe, 1600 m, 10.07.2019, Kargiođlu 8891. E.Mediterranean (mountain) element.

Galium spurium L. subsp. *spurium*

2, streamsides, 1330 m, 28.06.2018, Kargiođlu 8595. Euro-Siberian element.

Galium verum L. subsp. *verum*

7, steppe, 1000 m, 30.07.2019, Kargiođlu 8974. Euro-Siberian element.

SALICACEAE

Populus tremula L. subsp. *tremula*

2, streamsides and valley slopes, 1350 m, 10.07.2019, Kargiođlu 8952.

Salix alba L. subsp. *alba*

2, streamsides, 1330 m, 10.07.2019, Kargiođlu 8953. Euro-Siberian element.

Salix cinerea L. var. *cinerea*

2, streamsides and valley slopes, 1350 m, 02.08.2018, Kargiođlu 8654.

Euro-Siberian element.

SANTALACEAE

Thesium scabriflorum P.H.Davis

1, *Cistus laurifolius* community clearings, 1450 m, 10.07.2019, Kargiođlu 8954. Endemic"VU", Irano-Turanian element.

Viscum album L. subsp. *album*

15, garden (on *Amygdalus communis*), 1000 m, 10.07.2019, Kargiođlu 8947.

SAPINDACEAE

Acer hyrcanum Fisch. & C.A.Mey. subsp. *sphaerocaryum* Yalt.

2, stony places, 1200 m, 10.07.2019, Kargiođlu 8879. Endemic"VU", E.Mediterranean element.

In the sample I took on this date (02.08.2018), the wing and leaf sizes differ. In my example, the wing length is 2.5-3.2 cm, in Flora it is 2-2.3 cm; leaf is 7.7-8 cm in my example and 3.5-5.5 cm in flora.

Acer platanoides L.

2, valley interiors, 1350 m, 15.09.2018, Kargiođlu 8688. Euro-Siberian element.

Acer tataricum L. subsp. *tataricum*
12, forest road edges, 1400 m, 07.06.2018,
Kargiođlu 8510.

SCROPHULARIACEAE

Verbascum cheiranthifolium Boiss. var. *heldreichii*
Boiss.

3, rocky-stony places, 1800 m, 30.07.2019, Kargiođlu
8975. Endemic "NT".

Verbascum flavidum (Boiss.) Freyn & Bornm.

4, forest road edge, 1600 m, 30.07.2019, Kargiođlu
8976. Euro-Siberian element.

Verbascum phrygium Bornm.

3, rocky-stony places, 1900 m, 10.07.2019, Kargiođlu
8847.

Endemic "NT", Irano-Turanian element.

Verbascum splendidum Boiss.

12, *Quercus cerris* clearing, 1300 m 30.07.2019,
Kargiođlu 8977. E. Mediterranean element.

SOLANACEAE

Hyoscyamus niger L.

12, forest road edge, 1350 m, 17.05.2018, Kargiođlu
8493.

Solanum americanum Mill.

5, garden, 1000 m, 10.07.2019, Kargiođlu 8884.

TAMARICACEAE

Tamarix parviflora DC.

2, streamsides, 1330 m, 15.09.2018, Kargiođlu 8674.
Mediterranean element.

THYMELAEACEAE

Daphne oleoides Schreb. subsp. *oleoides*

3, rocky places, 2000 m, 01.08.2018, Kargiođlu 8610.

ULMACEAE

Ulmus glabra Huds.

2, valley slopes, 1370 m, 15.09.2018, Kargiođlu
8669. Euro-Siberian element.

VERBENACEAE

Verbena officinalis L. var. *officinalis*

5, rocky-stony North slopes, 1170 m, 16.06.2019,
Kargiođlu 8731.

VIOLACEAE

Viola odorata L.

12, *Quercus cerris* clearings, 1400 m, 04.04.2014,
Kargiođlu 7778.

Viola sieheana W. Becker

2, valley slopes, rocky-stony slopes, 1300 m,
06.05.2013, Kargiođlu 7682.

XANTHORRHOEACEAE

Asphodeline taurica (Pall.) Endl.

11, rocky North slopes, 2300 m, 29.06.2019,
Kargiođlu 8779. E.Mediterranean element.

ZYGOPHYLLACEAE

Tribulus terrestris L.

15, uncultivated farmland and roadsides, 1000 m,
30.07.2019, Kargiođlu 8968.

Zygophyllum fabago L.

15, steppe, 1000 m, 30.07.2019, Kargiođlu 8969.
Irano-Turanian element.

4. Discussion and Conclusion

As a result of this study, 270 genera belonging to 77 families and 458 taxa belonging to these genera were determined. Of the 458 taxa, 6 taxa belong to Pteridophyta, 452 taxa belong to Magnoliophyta, 9 of these 452 taxa belong to Pinophytina and 443 belong to Magnoliphytina.

In the distribution of 458 taxa identified in the research area according to phytogeographic regions; It was found that the Mediterranean flora region was represented by 67 taxa (14.62 %), the Euro-Siberian region was represented by 50 taxa (10.98 %) and the Irano-Turanian flora region was represented by 48 taxa (10.48 %). The phytogeographic distribution of the remaining 294 taxa could not be determined. 58 of the 458 taxa determined are endemic and the endemism rate is 12,44%.

In the study area, Asteraceae (54), Fabaceae (35), Brassicaceae (33), Lamiaceae (32), Rosaceae (27), Poaceae (16), Caryophyllaceae (15), Apiaceae (15), Ranunculaceae (12) and Boraginaceae (13) were determined as the richest families in terms of species (Table 2). In the study area, *Astragalus* (8),

Alyssum (7), *Ranunculus* (7), *Hypericum* (7), *Silene* (6), *Centaurea* (4), *Verbascum* (4), *Achillea* (3) and *Minuartia* (2) contain the most species were determined as genera (Table 3).

Considering the comparison of the families containing the most taxa in the floristic studies carried out in the research area and nearby regions in the table 2. below, it is seen that the Fabaceae family is in the first place in Barla Mountain and Ahırdağı, on the other hand, Deresinek Basin (Sultan Mountains), Doğanhisar (Sultan Mountains), The Chief Commander Historic National Park, Akdağ, Maymun Mountains, Kumalar Mountains and Emir Mountains, we see that the Asteraceae family ranks first. Asteraceae and Fabaceae are the first two families in the flora of Türkiye. The research area shows the most similarity with the flora studies carried out in Doğanhisar and Emir Mountains, which are closer (Ocakverdi 1984, Ekim et al. 1985, Bekat 1987, Gemici 1990, Aytaç and Vural 1990, 1991, Kargioğlu 2003, Akçiçek 2003, Köse and Ocak 2004).

When we look at the comparison of the genera with the most taxa in the floristic studies carried out in the research area and the nearby region, we see that the genus *Astragalus* is in the first place in all studies except the Monkey Mountains (Ocakverdi 1984, Ekim et al. 1985, Bekat 1987, Gemici 1990, Aytaç and Vural 1990, 1991, Kargioğlu). 2003, Akçiçek 2003, Köse and Ocak 2004).

This study of the flora of Deresinek Basin made a significant contribution to the flora of Afyonkarahisar. Newly added taxa to Afyonkarahisar flora list and endemic species list are; *Alyssum lepidotum* Boiss. (Endemic), *Aster alpinus* L., *Digitalis lamarckii* Ivanina (Endemic), *Hypericum montbretii* Spach, *Muscari discolor* Boiss. & Hausskn. ex Boiss. (Endemic), *Oenothera biennis* L., *Polygonum alpinum* All., *Sideritis phrygia* Bornm. (Endemic), *Symphytum orientale* L.

IUCN Red Data Book categories and plants in these categories identified in the Deresinek Basin are shown in Table 4 (Ekim et al. 2000, IUCN 2012).

Table 2. Comparison of the families with the most taxa according to the results of the floristic studies carried out in the research area and the nearby region.

Families	Deresinek Basin	Doğanhisar	The Chief Commander Historic National Park	Barla Mountain	Akdağ	Ahırdağı	Maymun Mountains	Kumalar Mountain	Emir Mountains North
Total Taxa Number	458	461	667	776	1058	603	481	898	495
Asteraceae	54	55	89	87	136	65	81	104	53
Fabaceae	35	48	81	109	105	77	41	77	51
Brassicaceae	33	24	29	48	67	34	26	50	36
Apiaceae	15	17	26	34	44	19	17	36	19
Lamiaceae	32	35	45	56	61	50	41	71	44
Caryophyllaceae	15	27	41	43	52	31	12	42	30
Boraginaceae	13	11	20	25	24	18	17	33	17
Rosaceae	27	14	30	22	38	21	14	42	17
Poaceae	16	45	47	43	62	33	20	89	38

Table 3. Comparison of the genera with the most taxa according to the results of the floristic studies carried out in the research area and the nearby region.

Genus	Deresinek Basin	Doğanhisar	The Chief Commander Historic National Park	Barla Mountain	Akdağ	Ahırdağı	Maymun Mountains	Kumalar Mountain	Emir Mountains North
<i>Astragalus</i>	8	10	21	19	18	16	12	17	12
<i>Centaurea</i>	4	9	8	12	15	8	17	8	7
<i>Trifolium</i>	3	1	15	12	22	12	12	10	6
<i>Silene</i>	6	4	11	12	13	8	15	15	10
<i>Alyssum</i>	7	2	8	10	10	7	12	7	6
<i>Ranunculus</i>	7	5	11	10	16	11	14	11	7
<i>Minuartia</i>	2	-	6	6	9	6	5	6	4
<i>Hypericum</i>	7	-	7	6	12	6	4	5	3
<i>Salvia</i>	4	-	6	9	8	5	9	13	8

Table 4. IUCN categories of endemic plants determined in the Deresinek Basin.

Species	IUCN Categories
<i>Papaver pilosum</i> subsp. <i>sparsipilosum</i>	"LC"
<i>Bellevalia tauri</i>	"LC"
<i>Muscari discolor</i>	"NT"
<i>Achillea teretifolia</i>	"LC"
<i>Carduus olympicus</i> subsp. <i>hypoleucus</i>	"LC"
<i>Centaurea kotschyi</i>	"LC"
<i>Cyanus reuterianus</i>	"LC"
<i>Inula anatolica</i>	"LC"
<i>Lactuca variabilis</i>	"LC"
<i>Onopordum anatolicum</i>	"LC"
<i>Onosma armena</i>	"LC"
<i>Alyssum lepidotum</i>	"LC"
<i>Aubrieta pinardii</i>	"LC"
<i>Erysimum kotschyianum</i>	"LC"
<i>Asyneuma compactum</i> var. <i>compactum</i>	"NT"
<i>Asyneuma limonifolium</i> subsp. <i>pestalozzae</i>	"LC"
<i>Asyneuma linifolium</i> subsp. <i>linifolium</i>	"EN"
<i>Campanula ajugifolia</i>	"LC"
<i>Pterocephalus pinardii</i>	"LC"
<i>Minuartia leucocephala</i>	"LC"
<i>Helianthemum nummularium</i> subsp. <i>lycaonicum</i>	"LC"
<i>Carex coriogyne</i>	"LC"
<i>Euphorbia anacampseros</i> var. <i>anacampseros</i>	"LC"
<i>Astragalus campylosema</i> subsp. <i>campylosema</i>	"LC"
<i>Astragalus mesogitanus</i>	"LC"
<i>Astragalus stereocalyx</i>	"NT"
<i>Astragalus vulnerariae</i>	"LC"
<i>Colutea melanocalyx</i> subsp. <i>melanocalyx</i>	"EN"
<i>Genista burdurensis</i>	"NT"
<i>Quercus vulcanica</i>	"NT"
<i>Hypericum aviculariifolium</i>	"LC"
<i>Hypericum organifolium</i> var. <i>depilatum</i>	"LC"
<i>Iris kerneriana</i>	"LC"
<i>Iris schachtii</i>	"LC"
<i>Marrubium astracanicum</i> subsp. <i>macrodon</i>	"LC"
<i>Marrubium lutescens</i> subsp. <i>lutescens</i>	"LC"
<i>Micromeria cristata</i> subsp. <i>phrygia</i>	"LC"
<i>Origanum sipyleum</i>	"LC"
<i>Phlomis nissolii</i>	"LC"
<i>Salvia cadmica</i> var. <i>cadmica</i>	"LC"
<i>Sideritis phrygia</i>	"NT"
<i>Thymus leucostomus</i>	"NT"
<i>Linum cariense</i>	"LC"
<i>Linum hirsutum</i> subsp. <i>pseudoanatolicum</i>	"LC"

<i>Pedicularis cadmea</i>	"LC"
<i>Digitalis lamarckii</i>	"LC"
<i>Cyclamen cilicium</i>	"NT"
<i>Ranunculus demissus</i> var. <i>major</i>	"LC"
<i>Ranunculus reuterianus</i>	"LC"
<i>Rhamnus petiolaris</i>	"LC"
<i>Rhamnus thymifolia</i>	"LC"
<i>Amelanchier parviflora</i> var. <i>parviflora</i>	"LC"
<i>Asperula lilaciflora</i> subsp. <i>phrygia</i>	"LC"
<i>Asperula nitida</i> subsp. <i>hirtella</i>	"NT"
<i>Thesium scabriflorum</i>	"VU"
<i>Acer hyrcanum</i> subsp. <i>sphaerocaryum</i>	"VU"
<i>Verbascum cheiranthifolium</i> var. <i>heldreichii</i>	"NT"
<i>Verbascum phrygium</i>	"NT"

With this research, the flora of the Deresinek Valley between the Dort Stream and the Eber Stream in the North of the Sultan Mountains was determined, and as a result, 9 new taxa were added to the flora of Afyonkarahisar. Therefore, this study contributed to the flora and biological diversity of Afyonkarahisar, and also Illustrated flora of Türkiye.

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