

**NEW FLORISTIC RECORDS FROM TURKEY GRID SQUARE B3**

Ekrem AKÇİÇEK, Mecit VURAL\*

*Gazi University, Faculty of Sciences and Arts, Department of Biology, 06500 Ankara,  
TURKEY, mvural@gazi.edu.tr***ABSTRACT**

In this study, 126 taxa for B3 square have been given as new floristic records.

*Key Words : New floristic records, B3 Afyon, flora of Turkey*

**B3 KARESİNDEN (TÜRKİYE) YENİ FLORİSTİK KAYITLAR****ÖZET**

Bu çalışmada 126 takson B3 karesi için yeni kayıt olarak verilmiştir.

*Anahtar Kelimeler : Yeni floristik kayıtlar, B3 Afyon, Türkiye florası*

**1. INTRODUCTION**

According to the grid square system used in the Flora of Turkey, the study area is located in the square B3. As new record given taxa has been established in result of determine the flora of the Kumalar Mountain (Afyon) in between 1996 and 2001.

**2. MATERIAL and METHODS**

All the species mentioned in this article have been determined from the Flora of Turkey (1-3). After checking up from the relevant papers about the district (4-26), 126 new taxa have been found as new records for B3 grid square. The arrangement of the family is in accordance with Davis's Flora of Turkey. The specimens are kept in Gazi Herbarium (GAZI), the Faculty of Sciences and Arts, Gazi University. To avoid repetition "B3 Afyon: Kumalar mountain" is not used each time.

**3. FINDINGS***PTERIDOPHYTA**ASPLENIACEAE**Asplenium onopteris* L.

16 km from Sandıklı to Şuhut, volcanic rocks, 1650 m, 23 ix 2000, Akçiçek 3257.

*SPERMATOPHYTA**GYMNOSPERMAE*

## PINACEAE

*Pinus brutia* Ten.

Dinar, Akçaköy, forest, 1050 m, 2 iv 2000, Akçiçek 2416.

E. Medit. element.

## ANGIOSPERMAE

## DICOTYLEDONES

## RANUNCULACEAE

*Ranunculus reuterianus* Boiss.

Şuhut, Başören village, Toklu hill, steppe, 1650 m, 19 v 2000, Akçiçek 2500.

Endemic, Medit. element.

*R. pedatus* Waldst. & Kit. subsp. *pedatus*

10 km from Sandıklı to Şuhut, volcanic areas, 1300 m, 18 vi 2000, Akçiçek 2440.

## BERBERIDACEAE

*Berberis vulgaris* L.

Sandıklı, roadsides, 1100 m, 28 x 2000, Akçiçek 3426.

*B. integerrima* Bunge

Sandıklı, roadsides, 1100 m, 28 x 2000, Akçiçek 3450.

## PAPAVERACEAE

*Glaucium acutidentatum* Hausskn. & Bornm.

Sandıklı, Ballık, roadsides, 1200 m, 26 vi 2000, Akçiçek 2969.

Endemic, Ir.-Tur. element.

## BRASSICACEAE / CRUCIFERAE

*Diplotaxis tenuifolia* (L.) DC.

Şuhut, Anayurt village, field borders, 1100 m, 26 vii 2000, Akçiçek 3199.

*Erophila verna* (L.) Chevall. subsp. *praecox* (Stev.) Walters

Dinar, Akçaköy, rocky slopes, 1025 m, 2 iv 2000, Akçiçek 2408.

*Arabis caucasica* Willd. subsp. *brevifolia* (DC.) Cullen

13 km from Sandıklı to Şuhut, rocky slopes, 1500 m, 18 v 2000, Akçiçek 2419.

E. Medit. (mt.) element.

*Aubrieta canescens* (Boiss.) Bornm. subsp. *libanotica* Boiss.

15 km from Sandıklı to Şuhut, rocky slopes, 1550 m, 18 v 2000, Akçiçek 2428.

*Erysimum pulchellum* (Willd.) Gay

Dinar, Haydarlı to Soğucak, Naldöken ridge, rocky grounds, 1500 m, 20 v 2000, Akçiçek 2600.

*CARYOPHYLLACEAE*

*Minuartia umbellulifera* (Boiss.) McNeill subsp. *salbacica* McNeill

Şuhut, Başören village, Çakmaktepe pass, steppe, 1880 m, 6 vii 1996, Akçiçek 1552.

Endemic.

*M. recurva* (All.) Schinz & Thell. subsp. *oreina* (Mattf.) McNeill

Şuhut, Koçyatağı yayla, stony places, 1400 m, 19 v 2000, Akçiçek 2545.

*Moenchia mantica* (L.) Bartl. subsp. *caerulea* (Boiss.) Clapham

Şuhut, Taşoluk to Koçyatağı, rocky places, 1380 m, 19 v 2000, Akçiçek 2556.

*Dianthus zonatus* Fenzl var. *aristatus* (Boiss.) Reeve

Sandıklı, Başağaç village, roadsides, 1000 m, 3 viii 1996, Akçiçek 1627/A.

*Bolanthus spergulifolius* (Jaub. & Spach ) Hub.-Mor.

Dinar, Haydarlı, Uzunmusakırı hill, rocky places, 1500 m, 14 vi 1998, Akçiçek 2193.

Endemic.

*Silene arguta* Fenzl

15 km from Sandıklı to Şuhut, volcanic areas, 1550 m, 18 v 2000, Akçiçek 2431.

Ir.-Tur. element.

*ILLECEBRACEAE*

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

20 km from Afyon to Şuhut, steppe, 1100 m, 20 v 1998, Akçiçek 1960.

*P. angorensis* Chaudhri

15 km from Afyon to Şuhut, fallow fields, 1300 m, 23 vi 2001, Akçiçek 3682.

Endemic, Ir.-Tur. element.

*POLYGONACEAE*

*R. gracilescens* Rech.

Şuhut, Başören yayla, steppe, 1600 m, 25 vi 2000, Akçiçek 2883.

Endemic.

*R. cristatus* DC.

Şuhut, Aydın village, Angıtlıkaşı hill, volcanic areas, 1200 m, 13 vi 1998, Akçiçek 1972.

*R. obtusifolius* L. subsp. *subalpinus* (Schur) Celak.

Sincanlı, Akören village, marshes, 1000 m, 24 vi 2000, Akçiçek 2704.

*CHENOPODIACEAE*

*Chenopodium album* L. subsp. *album* var. *album*

Sandıklı, Ballık, roadsides, 1060 m, 4 viii 1997, Akçiçek 1840.

*Atriplex hortensis* L.

Şuhut, Çakırözü village, roadsides, 1200 m, 23 ix 2000, Akçiçek 3277.

*A. lasiantha* Boiss.

Şuhut, Anayurt village, roadsides, 1100 m, 26 vii 2000, Akçiçek 3204.

*Salsola tragus* L.

Dinar to Çay, Karamık marsh, 1000 m, 29 x 2000, Akçiçek 3399.

#### HYPERICACEAE

*Hypericum kotschyannum* Boiss.

Sincanlı, Taşoluk, steppe, 1450 m, 28 x 2000, Akçiçek 3469.

Endemic.

#### MALVACEAE

*Alcea setosa* (Boiss.) Alef.

Şuhut, Anayurt village, field margins, 1100 m, 26 vii 2000, Akçiçek 3160.

E. Medit. element.

#### GERANIACEAE

*Geranium cinereum* Cav. subsp. *subcaulescens* (L'Hérit. ex DC.) Hayek var. *subcaulescens*

Şuhut, Kumalar yayla, steppe, 1750 m, 13 vi 1998, Akçiçek 1997.

#### ACERACEAE

*Acer pseudoplatanus* L.

Sandıklı, Ballık, roadsides, 1100 m, 26 vi 2000, Akçiçek 2973.

Euro-Sib. element.

#### FABACEAE / LEGUMINOSAE

*Cytisus procumbens* (Waldst. & Kit. ex Willd.) Spreng.

Dinar, Haydarlı, Naldöken ridge, rocky slopes, 1500 m, 20 v 2000, Akçiçek 2598.

*Astragalus cretaceus* Boiss. & Kotschy

Şuhut, Koçyatağı to Dadak, rocky places, 1350 m, 23 vi 2001, Akçiçek 3731.

Ir.-Tur. element.

*A. sibthorpianus* Boiss.

Dinar, Haydarlı to Soğucak, rocky places, 1100 m, 20 v 2000, Akçiçek 2642.

Endemic.

*Lens nigricans* (M. Bieb.) Godr.

Dinar, Haydarlı, Uzunmusakırı hill, rocky places, 1500 m, 14 vi 1998, Akçiçek 2235.

Medit. element.

*Trifolium repens* L. var. *repens*

Şuhut, Kumalar yayla, steppe, 1500 m, 25 vi 2000, Akçiçek 2929.

*T. repens* L. var. *giganteum* Lag.-Foss.

20 km from Afyon to Şuhut, steppe, 1100 m, 20 v 1998, Akçiçek 2258.

*T. resupinatum* L. var. *resupinatum*

Şuhut, Başören village, fields, 1400 m, 13 vi 1998, Akçiçek 2019.

## ROSACEAE

*Crataegus x bornmuelleri* Zabel

Şuhut, Kumalar yayla, steppe, 1600 m, 25 vi 2000, Akçiçek 2927.

*C. szovitsii* Pojark

Şuhut, Kavaklı village, rocky places, 1300 m, 6 vii 1996, Akçiçek 1615.

## ONAGRACEAE

*Epilobium montanum* L.

Şuhut, Başören village, streamsides, 1500 m, 24 vi 2001, Akçiçek 3716.

Euro-Sib. element.

*E. tetragonum* L. subsp. *tetragonum*

Şuhut to Taşoluk, steppe, 1500 m, 24 vi 2000, Akçiçek 2833.

## CUCURBITACEAE

*Ecballium elaterium* (L.) A.Rich.

Sincanlı, Akören village, field margins, 1050 m, 28 x 2000, Akçiçek 3501.

Medit. element.

## SAXIFRAGACEAE

*Saxifraga sibirica* L. subsp. *sibirica*

15 km from Sandıklı to Şuhut, volcanic rocks, 1550 m, 18 v 2000, Akçiçek 2430.

## PARNASSIACEAE

*Parnassia palustris* L.

Şuhut, Arızlı village, meadows, 1200 m, 29 x 2000, Akçiçek 3417.

## GROSSULARIACEAE

*Ribes multiflorum* Kit. ex Roem. & Schult.

Şuhut, Başören village, Quercus forest, 1600 m, 24 vi 2001, Akçiçek 3720.

E. Medit. element.

## APIACEAE / UMBELLIFERAE

*Anthriscus caucalis* M.Bieb.

Şuhut, roadsides, 1150 m, 19 v 2000, Akçiçek 2590.

*Pimpinella trragium* Vill. subsp. *pseudotragium* (DC.) Matthews

Şuhut, Başören village, streamsides, 1400 m, 25 vii 2000, Akçiçek 3082.

Ir.-Tur. element.

*Bupleurum affine* Sadler

16 km from Sandıklı to Şuhut, volcanic rocks, 1650 m, 23 ix 2000, Akçiçek 3258.

*B. gerardii* All.

Şuhut, Koçyatağı to Dadak, volcanic rocks, 1350 m, 23 vi 2001, Akçiçek 3742.

*B. falcatum* L. subsp. *persicum* (Boiss.) Koso-Pol.

Şuhut, Koçyatağı to Başarap, volcanic rocks, 1200 m, 25 vii 2000, Akçiçek 3062.

*Heracleum sphondylium* L. subsp. *ternatum* (Velen.) Brummitt

Şuhut, Güneytepe village, steppe, 1100 m, 25 vi 2000, Akçiçek 2911.

Euro-Sib. element.

*Torilis japonica* (Houtt.) DC.

Taşoluk to Şuhut, roadsides, 1200 m, 24 vi 2000, Akçiçek 2745.

*Daucus carota* L.

Sandıklı, Ballık, field margins, 1000 m, 26 vi 2000, Akçiçek 2977.

## VALERIANACEAE

*Valerianella uncinata* (M.Bieb.) Dufur.

Dinar, Akçaköy, steppe, 1000 m, 16 v 1999, Akçiçek 2332.

Ir.-Tur. element.

*V. turgida* (Stev.) Betsche

Şuhut, Siner village, meadows, 1200 m, 19 v 1997, Akçiçek 1701.

## DIPSACACEAE

*Scabiosa micrantha* Desf.

Şuhut, Demirbel village, fallow fields, 1100 m, 19 v 2001, Akçiçek 3588.

## ASTERACEAE / COMPOSITAE

*Pulicaria vulgaris* (L.) Gaertn.

Sandıklı, Başağaç village, roadsides, 1000 m, 3 viii 1996, Akçiçek 1629.

*Senecio aquaticus* Hill subsp. *erraticus* (Bertol.) Matthews

Şuhut, Ortapınar village, meadows, 1100 m, 17 viii 2000, Akçiçek 3220.

Euro-Sib. element.

*S. vulgaris* L.

Şuhut, field borders, 1100 m, 23 vi 2001, Akçiçek 3656.

*Anthemis cretica* L. subsp. *anatolica* (Boiss.) Grierson

Taşoluk to Şuhut, Koçyatağı yayla, volcanic rocks, 1400 m, 19 v 2000, Akçiçek 2546.

*Tanacetum parthenium* (L.) Sch. Bip.

Sincanlı, Taşoluk, Mandal hill, steppe, 1400 m, 13 vii 1997, Akçiçek 1792.

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

Sandıklı, Bektaş village, Çıralık hill, volcanic rocks, 1200 m, 18 v 2000, Akçiçek 2478.

*Cirsium lappaceum* (M.Bieb.) Fisch. subsp. *anatolicum* Petr.

14 km from Sandıklı to Şuhut, volcanic rocks, 1550 m, 25 vii 2000, Akçiçek 3115.

Ir.-Tur. element.

*C. libanoticum* DC. subsp. *lycaonicum* (Boiss. & Heldr.) Davis & Parris

Şuhut, Güneytepe village, field margins, 1150 m, 23 ix 2000, Akçiçek 3372.

Endemic, E. Medit. (mt.) element.

*Carduus pycnocephalus* L. subsp. *arabicus* (Jacq. ex Murray) Nyman

Şuhut, Koçyatağı to Başarap, volcanic rocks, 1200 m, 25 vii 2000, Akçiçek 3064.

Medit. element.

*Tragopogon buphthalmoides* (DC.) Boiss. var. *latifolius* Boiss.

Şuhut, Başören village, Kıran hill, volcanic rocks, 1600 m, 13 vi 1998, Akçiçek 2026.

Ir.-Tur. element.

*Picris hieracioides* L.

15 km from Sandıklı to Afyon, steppe, 1500 m, 23 ix 2000, Akçiçek 3297.

Euro-Sib. element.

*Hieracium paphlagonicum* Freyn & Sint.

Şuhut, Balçıkhisar to Yıprak, rocky places, 1560 m, 24 ix 2000, Akçiçek 3302.

Endemic.

*Cicerbita variabilis* (Bornm.) Bornm.

Şuhut, Anayurt village, field borders, 1100 m, 26 vii 2000, Akçiçek 3165.

Endemic.

*Lapsana communis* L. subsp. *intermedia* (M. Bieb.) Hayek

Şuhut, Başören village, stony slopes, 1500 m, 24 vi 2001, Akçiçek 3696.

*Taraxacum syriacum* Boiss.

Dinar to Çay, Karamık marsh, 1000 m, 29 x 2000, Akçiçek 3394.

Ir.-Tur. element.

*Crepis foetida* L. subsp. *foetida*

20 km from Afyon to Şuhut, steppe, 1100 m, 20 v 1998, Akçiçek 2262.

*CUSCUTACEAE**Cuscuta epithymum* (L.) L. var. *epithymum*

20 km from Afyon to Şuhut, calcareous rocks, 1250 m, 23 vi 2001, Akçiçek 3674.

*BORAGINACEAE**Heliotropium lasiocarpum* Fisch. & C.A. Mey.

23 km from Afyon to Şuhut, fallow places, 930 m, 24 ix 2000, Akçiçek 3319.

Ir.-Tur. element.

*H. suaveolens* M. Bieb.

Şuhut, Mahmut village, fallow places, 1100 m, 23 viii 1998, Akçiçek 2302.

*Onosma bracteosum* Hausskn. & Bornm.

Dinar, Akçaköy, steppe, 1000 m, 16 v 1999, Akçiçek 2330.

Endemic, Ir.-Tur. element.

*Anchusa officinalis* L.

15 km from Afyon to Şuhut, steppe, 1100 m, 18 v 2001, Akçiçek 3632.

Euro-Sib. element.

*A. pusilla* Guşul.

Dinar, Akçaköy, fallow fields, 900 m, 16 v 1999, Akçiçek 2340.

*SCROPHULARIACEAE**Verbascum armenum* Boiss. & Kotschy var. *occidentale* Hub.-Mor.

16 km from Sandıklı to Şuhut, volcanic rocks, 1650 m, 23 ix 2000, Akçiçek 3254.

Endemic, Ir.-Tur. element.

*V. cappadocicum* Bornm.

Dinar, Doğanlı village, field borders, 1180 m, 24 ix 2000, Akçiçek 3249.

Endemic, Ir.-Tur. element.

*Scrophularia floribunda* Boiss. & Bal.

Şuhut, Aydın village, steppe, 1200 m, 18 v 2001, Akçiçek 3612.

Endemic, E. Medit. element.

*Chaenorhinum minus* (L.) Lange subsp. *minus*

Şuhut, Arızlı village, marsh, 1200 m, 29 x 2000, Akçiçek 3388.

*Veronica bornmuelleri* Hausskn.

Dinar, Akçaköy, fallow fields, 900 m, 16 v 1999, Akçiçek 2373.

*V. polita* Fr.

Dinar, Akçaköy, rocky places, 1025 m, 2 iv 2000, Akçiçek 2404.

*V. caespitosa* Boiss. var. *caespitosa*

Şuhut, Başören village, Çakmaktepe pass, steppe, 1880 m, 13 vi 1998, Akçiçek 2076.



Endemic, E. Medit. (mt.) element.

*Lathraea squamaria* L.

Şuhut, damp places, 1000 m, 7 iii 2001, Akçiçek 3506.

Euro-Sib. element.

#### OROBANCHACEAE

*Orobanche rechingeri* Gilli

Dinar, Haydarlı, Uzunmusakırı hill, rocky places, 1500 m, 14 vi 1998, Akçiçek 2238.

#### LAMIACEAE / LABIATAE

*Ajuga chamaepitys* (L.) Schreb. subsp. *palaestina* (Boiss.) Bornm.

Şuhut, Ortapınar village, Kocatepe, steppe, 1100 m, 20 v 1998, Akçiçek 1905.

E. Medit. element.

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

Sandıklı, Ballık to Örmekuyu, steppe, 1250 m, 26 vi 2000, Akçiçek 2954.

*Marrubium trachyticum* Boiss.

Şuhut, Başören village, Kilimatan hill, rocky places, 2200 m, 25 vi 2000, Akçiçek 2896.

Endemic, Ir.-Tur. element.

*Sideritis galatica* Bornm.

Şuhut, Başören village, stony slopes, 1950 m, 28 x 2000, Akçiçek 3474.

Endemic.

*Stachys iberica* M. Bieb. subsp. *stenostachya* (Boiss.) Rech. f.

Şuhut, Güneytepe village, steppe, 1100 m, 25 vi 2000, Akçiçek 2909.

Ir.-Tur. element.

*Nepeta heliotropifolia* Lam. var. *heliotropifolia*

Şuhut, Ağzıkara village, fallow fields, 1150 m, 18 v 2001, Akçiçek 3564.

Ir.-Tur. element.

*Satureja wiedemanniana* (Lallem.) Velen.

15 km from Sandıklı to Afyon, steppe, 1500 m, 23 ix 2000, Akçiçek 3296.

Endemic.

*Thymus zygioides* Griseb. var. *zygioides*

Şuhut, Başören village, Kıran hill, volcanic rocks, 1600 m, 13 vi 1998, Akçiçek 2022.

E. Medit. element.

*T. thracicus* Velen. var. *longidens* (Velen.) Jalas

Şuhut, Başören village, Çakmaktepe pass, volcanic rocks, 1880 m, 25 vii 2000, Akçiçek 3121.

*PLUMBAGINACEAE**Acantholimon glumaceum* (Jaub. & Spach) Boiss.

10 km from Sandıklı to Şuhut, Başkaya hill, volcanic areas, 1300 m, 25 vii 2000, Akçiçek 3102.

Ir.-Tur. element.

*A. puberulum* Boiss. & Bal var. *longiscapum* Bokhari

Şuhut, Başören yayla, Kıran hill, volcanic areas, 1700 m, 23 viii 1998, Akçiçek 2278.

Endemic.

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

23 km from Afyon to Şuhut, fallow fields, 930 m, 24 ix 2000, Akçiçek 3321.

*URTICACEAE**Urtica urens* L.

Şuhut, Ortapınar village, field margins, 1100 m, 17 viii 2000, Akçiçek 3231.

*ULMACEAE**Ulmus minor* Mill. subsp. *minor*

Sincanlı, Taşoluk, field margins, 1200 m, 24 vi 2000, Akçiçek 2837.

*SALICACEAE**Populus alba* L.

Sandıklı, roadsides, 1100 m, 28 x 2000, Akçiçek 3449.

Euro-Sib. element.

*MONOCOTYLEDONES**ARACEAE**Arum maculatum* L.

Dinar, Akçaköy, rocky places, 1025 m, 2 iv 2000, Akçiçek 2401.

*LILIACEAE**Tulipa orphanidea* Boiss. ex Heldr.

Şuhut, Başören village, steppe, 1400 m, 19 v 2001, Akçiçek 3514.

E. Medit. element.

*IRIDACEAE**Crocus biflorus* Mill. subsp. *isauricus* (Siehe ex Bowles) B.Mathew

Sincanlı, Taşoluk, fallow fields, 1200 m, 2 iv 2000, Akçiçek 2398.

Endemic, E. Medit. element.

*C. biflorus* Mill. subsp. *tauri* (Maw) B.Mathew

Şuhut, Başören village, Toklu hill, steppe, 1650 m, 19 v 2000, Akçiçek 2577.

Ir.-Tur. element.

#### CYPERACEAE

*Carex spicata* Huds.

Dinar, Haydarlı, damp places, 1500 m, 14 vi 1998, Akçiçek 2201.

Euro-Sib. element.

#### POACEAE

*Elymus panormitanus* (Parl.) Tzvelev

Dinar, Haydarlı, Uzunmusakırı hill, steppe, 1550 m, 14 vi 1998, Akçiçek 2146.

Medit. element.

*E. elongatus* (Host) Runemark subsp. *ponticus* (Podp.) Melderis

Dinar to Çay, Karamık marsh, 1000 m, 29 x 2000, Akçiçek 3398.

*E. hispidus* (Opiz) Melderis subsp. *hispidus*

Şuhut, Anayurt village, field margins, 1100 m, 26 vii 2000, Akçiçek 3153.

*E. hispidus* (Opiz) Melderis subsp. *podpyrae* (Nábelek) Melderis

Dinar, Tatarlı, roadsides, 1100 m, 26 vii 2000, Akçiçek 3195.

Ir.-Tur. element.

*Triticum baeoticum* Boiss. subsp. *thaoudar* (Reut. ex Hausskn.) Schiem.

Sandıklı, Ballık, roadsides, 1100 m, 26 vi 2000, Akçiçek 2970.

*Hordeum marinum* Huds. var. *marinum*

*Bromus hordeaceus* L. subsp. *hordeaceus*

Taşoluk to Şuhut, steppe, 1500 m, 24 vi 2000, Akçiçek 2816.

*Polypogon viridis* (Gouan) Breistr.

Şuhut, Arızlı village, steppe, 1200 m, 29 x 2000, Akçiçek 3436.

Euro-Sib. element.

*Phleum montanum* C.Koch subsp. *montanum*

Şuhut, Başören yayla, steppe, 1600 m, 25 vi 2000, Akçiçek 2893.

*Festuca cyllenica* Boiss. & Heldr. subsp. *uluana* Markgr.-Dann.

Şuhut, Kilimatan hill, rocky slopes, 2200 m, 26 vi 2000, Akçiçek 2904.

Endemic, Euxine element.

*Lolium temulentum* L. var. *temulentum*

15 km from Afyon to Şuhut, roadsides, 1100 m, 18 v 2001, Akçiçek 3541.

*Poa sterilis* M. Bieb.

Şuhut, Arızlı village, steppe, 1120 m, 19 v 2001, Akçiçek 3517.

*Eremopoa persica* (Trin.) Roshev.

Taşoluk to Şuhut, rocky places, 1500 m, 24 vi 2000, Akçiçek 2812.

Ir.-Tur. element.

*Melica persica* Kunth subsp. *inaequiglumis* (Boiss.) Bor

Dinar, Karaadilli to Tatarlı, rocky places, 1130 m, 26 vii 2000, Akçiçek 3182.

*M. persica* Kunth subsp. *canescens* (Regel) P.H. Davis

20 km from Afyon to Şuhut, calcareous rocks, 1300 m, 23 vi 2001, Akçiçek 3667.

Ir.-Tur. element.

*Stipa ehrenbergiana* Trin. & Rupr.

Dinar, Akçaköy, Sarıbelen ridge, rocky places, 1000 m, 26 vi 2000, Akçiçek 3015.

Ir.-Tur. element.

*Digitaria sanguinalis* (L.) Scop.

Şuhut, Çakırözü village, roadsides, 1200 m, 23 ix 2000, Akçiçek 3281.

*Spodiopogon pogonanthus* (Boiss. & Bal. ex Bal.) Boiss.

Şuhut, Balçıkhisar to Yıprak, rocky slopes, 1560 m, 24 ix 2000, Akçiçek 3303.

E. Medit. element.

#### 4. RESULTS AND DISCUSSION

The phytogeographic elements are represented in the research area as follows: Irano-Turanian 16.2 %, Mediterranean 11.6 % and Euro-Siberian 8.5 %. It shows that the area is located in the transition zone of Irano-Turanian and Mediterranean phytogeographic regions; however, the Irano-Turanian phytogeographic region has more influence in the area.

The Mediterranean elements which are new records for B3 square, such as *Pinus brutia*, *Ranunculus reuterianus*, *Arabis caucasica* subsp. *brevifolia*, *Alcea setosa*, *Lens nigricans*, *Ecballium elaterium*, *Ribes multiflorum*, *Cirsium libanoticum* subsp. *lycaonicum*, *Carduus pycnocephalus* subsp. *arabicus*, *Veronica caespitosa* var. *caespitosa*, *Ajuga chamaepitys* subsp. *palaestina*, *Thymus zygoides* var. *zygoides*, *Tulipa orphanidea*, *Crocus biflorus* subsp. *isauricus*, *Elymus panormitanus* and *Spodiopogon pogonanthus* are generally found in the south and south-west parts of the area.

The Irano-Turanian elements such as *Glaucium acutidentatum*, *Astragalus cretaceus*, *Valerianella uncinata*, *Cirsium lappaceum* subsp. *anatolicum*, *Tragopogon buphthalmoides* var. *latifolius*, *Taraxacum syriacum*, *Heliotropium lasiocarpum*, *Onosma bracteosum*, *Verbascum cappadocicum*, *Marrubium trachyticum*, *Stachys iberica* subsp. *stenostachya*, *Nepeta heliotropifolia* var. *heliotropifolia*, *Acantholimon glumaceum*, *Crocus biflorus* subsp. *tauri*, *Elymus hispidus* subsp. *podpyrae*, *Eremopoa persica*, *Melica persica* subsp. *canescens* and *Stipa ehrenbergiana* are located in the north and the east parts of the area.

The Euro-Siberian elements such as *Acer pseudoplatanus*, *Epilobium montanum*, *Heracleum sphondylium* subsp. *ternatum*, *Senecio aquaticus* subsp. *erraticus*, *Anchusa officinalis*, *Lathraea squamaria*, *Populus alba*, *Carex spicata* and *Polypogon viridis* are located in forest and pastures of the high places, water and streamsides, and damp microclimate areas.

The flora elements mentioned above are also found in the other squares neighbouring to

## B3 (4-26).

The collected taxa as new records for B3 square in the area such as *Erophila verna* subsp. *praecox*, *Minuartia recurva* subsp. *oreina*, *Paronychia kurdica* subsp. *kurdica* var. *kurdica*, *Chenopodium album* subsp. *album* var. *album*, *Trifolium repens* var. *repens*, *Trifolium resupinatum* var. *resupinatum*, *Bupleurum gerardii*, *Daucus carota*, *Scabiosa micrantha*, *Tanacetum parthenium*, *Lapsana communis* subsp. *intermedia*, *Veronica bornmuelleri*, *Veronica polita* and *Chrozophora tinctoria* have spreaded around the study area and in our country.

*Minuartia umbellulifera* subsp. *salbacica* (C2), *Paronychia angorensis* (A4, B2, B4), *Verbascum armenum* var. *occidentale* (A3, A4), *Scrophularia floribunda* (B1, C1, C2) and *Festuca cyllenica* subsp. *uluana* (A2, A3) collected in the study area as new records for B3 square are the regional endemic taxa, which are known in the other squares neighbouring to B3.

*Nepeta heliotropifolia* var. *heliotropifolia* was previously reported from A9, B8 and B9 squares in Turkey. It is the first time this species has ever been collected from B3 square.

In this study, we have tried to explain the reasons of being located in the area and taxa which are recorded for the first time in B3 square. We believe that this study will provide to contribution to the Flora Turkey.

## ACKNOWLEDGEMENTS

We would like to thank Prof. Dr. Şinasi Yıldırım for checking the new records for B3 grid square.

## REFERENCES

1. Davis, P.H., (ed.) "Flora of Turkey and The East Aegean Islands", 1-9: *Edinburgh Univ. Press*, Edinburgh (1965-1985).
2. Davis, P.H., Mill, R.R. and Tan, K., (eds) "Flora of Turkey and the East Aegean Islands" (supplement), 10: *Edinburgh Univ. Press*, Edinburgh (1988).
3. Güner, A., Özhatay, N., Ekim, T. and Başer, K.H.C., (eds) "Flora of Turkey and The East Aegean Islands" (supplement), 11: *Edinburgh Univ. Press*, Edinburgh (2000).
4. Donner, J., "Distribution maps to P.H.Davis, Flora of Turkey", 1-10, *Linzer. Biol. Beitr.*, 22 (2): 381-515 (1990).
5. Ekim, T., "New floristic records from Central Turkey (Eskişehir)" *Notes from the Royal Botanic Garden*, Edinburgh, 34 (2): 205-216 (1975).
6. Akman, Y., Ketenoglu, O., "Anadolu'dan yeni floristik kayıtlar (B3-C3)", *DOĞATU Botanik D.*, 11 (3): 265-269 (1987).
7. Duman, H., Karavelioğulları, F.A., "New Floristic Records for the Grid Squares (A4, A8, B1, B3, B6, C1, C6)", *Tr. J. of Botany*, 19 (6): 623-626 (1995).
8. Aytaç, Z., "Değişik kareler için yeni kayıtlar", *Türk. J. Bot.*, 18 (1): 39-41 (1994).
9. Kaynak, G., Tarımcılar, G., "New floristic records for the grid square B3 Uluborlu-Isparta, Turkey", *Tr. J. of Bot.*, 25 (3): 163-165 (2001).
10. Küçüködük, M., "Türkiye florasındaki B3 ve C3 kareleri için yeni kayıtlar", *S.Ü. Fen-Ed. Fak., Fen Derg.*, 3: 47-84 (1988).
11. Gemici, Y., "New records for the squares (B2-B3) in the flora of Turkey", *E.U. Fac. of Sc. J.*, B 10 (1): 1-11 (1988).
12. Mutlu, B., Erik, S., "B3-C3 (Isparta) kareleri için yeni floristik kayıtlar", *Hac. Fen ve Müh. Bil. Derg.*, Ankara, 17: 57-79 (1996).
13. Ocakverdi, H., "Türkiye florasındaki B3 karesi için yeni kayıtlar", *Doğa Bilim Derg.*, A7 (3): 518-523 (1983).
14. Bekat, L., "B3, C3 (Isparta) için yeni floristik kayıtlar", *Doğa Tr. J. of Botany*, Ankara, 13 (2): 124-133 (1989).
15. Serin, M., Ertugrul, K., "New floristic records for the squares B3 and B4 (Ilgın- Konya, Turkey)", *Tr. J. of*

- Bot.*, 2 (1): 71-73 (1999).
16. Kargıoğlu, M., Aşçı, F., "B3 Karesinden yeni floristik kayıtlar", *OT Sistematik Botanik Dergisi*, 8 (1): 67-72 (2001).
  17. Tatlı, A., Tel, A.Z., Akçiçek, E. and Yakut, E., "New floristic records for B2 square from Kütahya (Turkey)", *Turk. J. Bot.*, 21 (5): 313-315 (1997).
  18. Yıldırım, Ş., "Türkiye'deki eğreltilerin yayılışı", *OT Sistematik Botanik Dergisi*, 3 (1): 93-104 (1996).
  19. Yıldırım, Ş., "Chorology of the Turkish Gymnosperms" *OT Sistematik Botanik Dergisi*, 3 (2): 113-124 (1996).
  20. Yıldırım, Ş., "The chorology of the Turkish species of *Acanthaceae*, *Aceraceae*, *Aizoaceae*, *Amaranthaceae* and *Anacardiaceae* families", *OT Sistematik Botanik Dergisi*, 4 (1): 125-130 (1997).
  21. Yıldırım, Ş., "The chorology of the Turkish species of *Apiaceae* family", *OT Sistematik Botanik Dergisi*, 4 (2): 105-128 (1997).
  22. Yıldırım, Ş., "The chorology of the Turkish species of *Asteraceae* family", *OT Sistematik Botanik Dergisi*, 6 (2): 75-123 (1999).
  23. Yıldırım, Ş., "The chorology of the Turkish species of *Boraginaceae* family", *OT Sistematik Botanik Dergisi*, 7 (2): 257-272 (2000).
  24. Yıldırım, Ş., "The chorology of the Turkish species of *Brassicaceae*, *Buddlejaceae* and *Buxaceae* families", *OT Sistematik Botanik Dergisi*, 8 (1): 141-171 (2001).
  25. Brummitt, R.K., Powell C.E., (eds) "Authors of Plant Names", *Kew: Royal Botanic Gardens* (1992).
  26. Akçiçek, E., "Demirlik ve Kulaksız Dağları (Kütahya) Florası", Y. Lisans Tezi, *Dumlupınar Üniv. Fen Bil. Enst.*, Kütahya, 41-134 (1995).

Received:03.01.2002

Accepted:12.03.2003