



New Floristic Records for A4 and A5 Squares from Tosya District (Kastamonu)

Tosya (Kastamonu) İlçesinden Türkiye'nin A4 ve A5 Kareleri için Yeni Kayıtlar

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ABSTRACT

In this study, 47 taxa are given as new records from Tosya district in Kastamonu province. The research area is situated in A4 and A5 squares according to the Davis' grid system. 23 Angiospermae taxa for A4 square and 24 Angiospermae taxa for A5 square, totally 47 taxa belonging to 23 families have been determined as new records. One of them is rare and 9 taxa are endemic.

Key Words

New Record, A4 square, A5 square, Tosya.

ÖZ

Bu çalışmada 47 takson Tosya (Kastamonu) ilçesinden yeni kayıt olarak verilmiştir. Araştırma alanı Davis'in kareleme sistemine göre A4 ve A5 karelerinde yer almaktadır. A4 karesi için 23 Angiospermae taksonu ve A5 karesi için 24 Angiospermae taksonu olmak üzere toplamda 23 familyadan 47 takson yeni kayıt olarak tespit edilmiştir. A4-A5 karesi için yeni kayıt olarak verilen taksonlardan biri nadir, 9 tanesi ise endemiktir.

Anahtar Kelimeler

Yeni kayıt, A4 karesi, A5 karesi, Tosya.

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INTRODUCTION

This study was carried out to determine the new floristic records from Tosya district. Tosya is placed in southeast of the Kastamonu province, it is located in the transition region between Irano-Turanian and Euro-Siberian phytogeographical regions. The research area surrounded by Ilgaz (Çankırı) on the west, İskilip-Bayat (Çorum) and Yapraklı (Çankırı) on the south, Kargı-Osmançık (Çorum) on the east and Taşköprü-Kastamonu center district on the north. It is situated in A4-A5 squares according to the Davis' grid system [1].

The plant specimens were collected from the research area in different vegetation periods between 2014-2016 within the fieldworks of the doctoral program. After the identification, 816 taxa have been determined in flora of Tosya. 47 floristic new records for A4 and A5 squares were identified by searching the relevant literature.

MATERIALS and METHODS

The plant specimens were collected during the PhD research named "Flora and Ethnobotany of Tosya District (Kastamonu)" between 2014-2016 [2]. New record specimens were identified by using Flora of Turkey and the East Aegean Islands [1, 3-5], Yıldırımli's chorologies [6-36], check-lists [37-42] and the related papers [43-58]. "Red data book of Turkish plants" was used to determine threat categories of endemic and rare taxons [59]. The plant names are arranged according to evolutionary order. Data about the plants are given in the text, respectively: square, city, district, village, habitats, altitude, collection date, specimen number, endemism and phytogeographical region.

RESULTS

RANUNCULACEAE

Consolida phrygia Soó subsp. *phrygia*

A4 Kastamonu: Tosya, between Manastır and Kayaönü villages, edges of fields, roadsides, 1186 - 1197 m, 06.07.2014, G.2165, Endemic, E. Mediterranean element.

Ranunculus isthmicus Boiss. subsp. *stepporum* P.H.Davis

A4 Kastamonu: Tosya, Avşar village, around the Çaldağ forest management warehouse, open areas, 715 m, 18.04.2014, G.1579.

BRASSICACEAE (CRUCIFERAE)

Thlaspi oxyceras (Boiss.) Hedge

A4 Kastamonu: Tosya, Tosya-Yapraklı road, near Çankırı province border, roadsides and hillsides, 1734 - 1762 m, 16.05.2015, G.2249.

Cochlearia sempervivum Boiss. & Balansa

A4 Kastamonu: Tosya, Tosya-Yapraklı road, near Yeşilgöl turning, *Abies* forest, roadsides 1420 - 1667 m, 01.06.2014, G.1940;

A4 Kastamonu: Tosya, Aşağıkayı village, under *Pinus nigra* forest, hillsides, 1290 - 1523 m, 18.05.2015, G.2287, Endemic.

Cardamine uliginosa M.Bieb.

A4 Kastamonu: Tosya, Yukarıberçin village, roadsides, 1445 m, 24.04.2014, G.1717.

Hesperis buschiana Tzvelev

A4 Kastamonu: Tosya, Tosya-Yapraklı road, near Çankırı province border, roadsides and hillsides, 1734 - 1762 m, 16.05.2015, G.2251, Endemic, Euro-Siberian element.

CAPPARACEAE

Cleome iberica DC.

A5 Kastamonu: Tosya, between Çaybaşı and Keçeli village, roadsides and hillsides, 1090-1175 m, 26.10.2015, G.2452, E. Mediterranean element.

POLYGALACEAE

Polygala comosa Schkuhr

A4 Kastamonu: Tosya, Yukarıkayı village entrance, roadsides and hillsides, 750-890 m, 18.05.2014, G.1797; **A4** Kastamonu: Tosya, Aşağıkayı village road, near Kızılöz neighborhood turning, roadsides, 725 m, 17.05.2015, G.2281.

CARYOPHYLLACEAE

Lepyrodictis holosteoides (C.A.Mey.) Fenzl ex Fisch. & C.A.Mey.

A5 Kastamonu: Tosya, Çaybaşı village entrance, in dry stream bed, roadsides and edges of fields, 520 - 715 m, 19.05.2014, G.1844.

Stellaria pallida (Dumort.) Crép.

A4 Kastamonu: Tosya, Avşar village, around the Çaldağ forest management warehouse, open areas, 715 m, 18.04.2014, G.1572A.

***Dianthus carthusianorum* L.**

A4 Kastamonu: Tosya, Kayaönü village, in front of the huge rock, open areas, 200 - 1215 m, 27.07.2015, G.2404A.

***Silene oreophila* Boiss.**

A4 Kastamonu: Tosya, Aşağıkayı village, under *Pinus sylvestris* forest, roadsides and hillsides, 1567 - 1667 m, 28.06.2014, G.1961, Irano-Turanian element.

***Silene dichotoma* Ehrh. subsp. *racemosa* (Otth) Graebn.**

A5 Kastamonu: Tosya, Yeşilgöl, around the DSI pond, *Abies nordmanniana* subsp. *bornmuelleriana-Pinus sylvestris* forest, roadsides and open areas, 1535 - 1585 m, 07.07.2015, G.2377A.

***Silene conica* L.**

A4 Kastamonu: Tosya, Ermelik village, near Kayseri neighborhood turning, stony slopes, 1110 m, 31.05.2014, G.1890.

POLYGONACEAE***Rumex dentatus* L. subsp. *halacsyi* (Rech.) Rech. f.**

A4 Kastamonu: Tosya, Suluca village, roadsides, 845 - 915 m, 02.07.2014, G.2056.

GERANIACEAE***Geranium molle* L. subsp. *molle***

A4 Kastamonu: Tosya, Suluca village, roadsides, 845 - 915 m, 26.04.2014, G.1767.

***Geranium sylvaticum* L.**

A5 Kastamonu: Tosya, Yeşilgöl, around the DSI pond, *Abies nordmanniana* subsp. *bornmuelleriana-Pinus sylvestris* forest, roadsides and open areas, 1535 - 1585 m, 13.06.2015, G.2321, Euro-Siberian element.

FABACEAE (LEGUMINOSAE)***Lotononis genistoides* (Fenzl) Benth.**

A5 Kastamonu: Tosya, Küçük-kızılca village, roadsides, stony slopes, 770 - 783 m, 04.07.2014, G.2114, Irano-Turanian element.

***Astragalus trichostigma* Bunge**

A5 Kastamonu: Tosya, Küçük-kızılca village, roadsides, stony slopes, 770 - 783 m, 04.07.2014, G.2113, Endemic.

Astragalus barba-jovis* DC. var. *barba-jovis

A4 Kastamonu: Tosya, Ermelik village, pass Kirenli neighborhood, roadsides, stony slopes, 1045 m, 03.07.2014, G.2070, Irano-Turanian element.

***Astragalus germanicopolitanus* Bornm.**

A5 Kastamonu: Tosya, Çaybaşı village entrance, in dry stream bed, roadsides and edges of fields, 520 - 715 m, 25.04.2014, G.1728, Endemic, Irano-Turanian element.

ROSACEAE***Potentilla rupestris* L.**

A5 Kastamonu: Tosya, Yeşilgöl, around the DSI pond, *Abies nordmanniana* subsp. *bornmuelleriana-Pinus sylvestris* forest, roadsides and open areas, 1535 - 1585 m, 13.06.2015, G.2323, Euro-Siberian element.

PARNASSIACEAE (CELASTRACEAE)***Parnassia palustris* L.**

A5 Kastamonu: Tosya, Kızılcahal plateau, between Yağcılar-Dağçatağı villages, marshy ground by stream sides, 1310 - 1320 m, 01.08.2015, G.2431.

APIACEAE (UMBELLIFERAE)***Coriandrum sativum* L.**

A4 Kastamonu: Tosya, Karabey village, open areas and wall sides, 890 m, 22.04.2016, G.2475.

ASTERACEAE (COMPOSITAE)***Symphotrichum leave* (L.) A.Löve & D.Löve**

A5 Kastamonu: Tosya, Ermelik village entrance, roadsides, open areas, 935 m, 24.08.2015, G.2441.

Anthemis kotschyana* Boiss. var. *kotschyana

A4 Kastamonu: Tosya, Ermelik village, near Kayseri neighborhood turning, stony slopes, 1110 m, 31.05.2014, G.1891.

***Cirsium pubigerum* DC. var. *paphlagonicum* Petr.**

A5 Kastamonu: Tosya, Kızılcahal plateau, between Yağcılar-Dağçatağı villages, marshy ground by stream sides, 1310 - 1320 m, 01.08.2015, G.2433, Endemic.

***Tragopogon latifolius* Boiss. var. *angustifolius* Boiss.**

A5 Kastamonu: Tosya, Tosya-Yapraklı road, near Küçük-kızılca village turning, edges of fields, open areas, 717 m, 01.08.2015, G.2419; **A5** Kastamonu: Tosya, Yapraklı road, near Sevinçören village turning, edges of fields, 930 m, 18.04.2016, G.2463A, Irano-Turanian element.

***Lapsana communis* L. subsp. *pisidica* (Boiss. & Heldr.) Rech.f.**

A5 Kastamonu: Tosya, Kuzkaya village, edges of fields, open areas and wall sides, 810 - 862 m, 31.05.2014, G.1869.

Taraxacum syriacum Boiss.

A5 Kastamonu: Tosya, Kızılcahal plateau, between Yağcılar-Dağçatağı villages, marshy ground by stream sides, 1310 - 1320 m, 01.08.2015, G.2427, Irano-Turanian element.

CAMPANULACEAE

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

A5 Kastamonu: Tosya, between İncebel village-Kastamonu road (D-775), open areas, 1406 m, 19.06.2015, G.2357, Endemic, E. Mediterranean element.

ERICACEAE

Monotropa hypopithys L.

A5 Kastamonu: Tosya, Yeşilgöl, around the DSI pond, *Abies nordmanniana* subsp. *bornmuelleriana*-*Pinus sylvestris* forest, roadsides and open areas, 1535 - 1585 m, 06.07.2014, G.2163.

CONVOLVULACEAE

Calystegia sepium (L.) R.Br. subsp. ***sepium***

A4 Kastamonu: Tosya, Avşar village, around the Çaldağ forest management warehouse, open areas, 715 m, 01.07.2014, G.1998.

BORAGINACEAE

Anchusa stylosa M.Bieb.

A5 Kastamonu: Tosya, Yenidoğan village, roadsides, open areas, 510-515 m, 27.03.2016, G.2459.

SOLANACEAE

Solanum americanum Mill.

A5 Kastamonu: Tosya, Küçükkızılca village, roadsides, stony slopes, 770 - 783 m, 04.07.2014, G.2124.

Lycium depressum Stocks

A4 Kastamonu: Tosya, Suluca village, roadsides, 845 - 915 m, 02.07.2014, G.2053, Irano-Turanian element.

SCROPHULARIACEAE

Verbascum pallidiflorum Hub.-Mor.

A5 Kastamonu: Tosya, pathway between Yeşilgöl-Sekiler village, under *Pinus nigra* forest, stony slopes, 1015 - 1415 m, 16.05.2015, G.2260, Endemic, Irano-Turanian element.

LAMIACEAE (LABIATAE)

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

A5 Kastamonu: Tosya-Çorum road, Gökomuz village, roadsides, slopes, *Quercus*, *Pinus nigra*, *Pinus brutia*, 995 m, 23.04.2014, G.1671, E. Mediterranean element.

Stachys annua (L.) L. subsp. ***cilicica*** (Boiss.) R.Bhattacharjee

A4 Kastamonu: Tosya, Dağardı village entrance, edges of fields, roadsides, 807 m, 26.04.2014, G.1775; **A4** Kastamonu: Tosya, Yukarıkayı village entrance, roadsides, open slopes, 750-890 m, 18.05.2014, G.1784, Endemic, E. Mediterranean element.

PLANTAGINACEAE

Kickxia spuria (L.) Dumort. subsp. ***integrifolia*** (Brot.) R.Fernandes

A4 Kastamonu: Tosya, Kayaönü village, in front of the huge rock, open areas, 1200 - 1215 m, 27.07.2015, G.2408.

IRIDACEAE

Crocus speciosus M.Bieb. subsp. ***speciosus***

A4 Kastamonu: Tosya, Tosya-Yapraklı road, near Çankırı province border, roadsides and hillsides, 1734 - 1762 m, 26.10.2015, G.2447B;

A5 Kastamonu: Tosya, pass the picnic site, Musaköy road, under *Pinus sylvestris*, 1630-1640 m, 26.10.2015, G.2453.

Gladiolus illyricus W.D.J. Koch

A5 Kastamonu: Tosya, near Keçeli village, under *Pinus sylvestris*, stream sides, 1581 m, 08.07.2014, G.2178, Mediterranean element.

ORCHIDACEAE

Dactylorhiza incarnata (L.) Soó

A5 Kastamonu: Tosya, Yeşilgöl, around the DSI pond, *Abies nordmanniana* subsp. *bornmuelleriana*-*Pinus sylvestris* forest, roadsides and open areas, 1535 - 1585 m, 01.06.2014, G.1942, Rare.

POACEAE (GRAMINEAE)

Bromus intermedius Guss.

A5 Kastamonu: Tosya, Küçükkızılca village, roadsides, stony slopes, 770 - 783 m, 04.07.2014, G.2121.

Rostraria cristata (L.) Tzvelev var. ***cristata***

A4 Kastamonu: Tosya, Suluca village, roadsides, 845 - 915 m, 02.07.2014, G.2060.

Arundo donax L.

A4 Kastamonu: Tosya, Avşar village, around the Çaldağ

forest management warehouse, open areas, 715 m, 18.04.2014, G.1589.

DISCUSSION

As a result of this study 23 Angiosperm taxa belonging to 15 families for A4 square and 24 Angiosperm taxa belonging to 16 families for A5 square, totally 47 taxa have been determined as new records. These belong to Irano-Turanian (8 taxa), East Mediterranean (5 taxa), Euro-Siberian (3 taxa) and Mediterranean (1 taxon) phytogeographical regions.

9 taxa are endemic and one taxon is rare. Threat categories of the endemic and rare taxa are as follows: *Consolida phrygia* subsp. *phrygia* - LR (nt), *Cochlearia semipervivum* - LR (nt), *Hesperis buschiana* - LR (nt), *Stachys annua* subsp. *cilicica* - LR (lc), *Astragalus trichostigma* - EN, *Astragalus germanicopolitanus* - DD, *Cirsium pubigerum* var. *paphlagonicum* - EN, *Asyneuma linifolium* subsp. *linifolium* - LR (lc), *Verbascum pallidiflorum* - EN and rare *Dactylorhiza incarnata* - VU.

Some of these new records have widely distribution. For example, *Cleome iberica* (A1, A2, A4, A8, B7, B8, C2, C3, C5), *Silene dichotoma* subsp. *sibthorpiana* (A2, A3, A4, A7, B2, B3, B4, B6, B8, C2, C6), *Lotononis genistoides* (A2, B1, B2, B3, B4, B5, C2, C3, C4, C5) etc. However several taxa were only known from a few closer square. These are: *Cirsium pubigerum* var. *paphlagonicum* (A4, only one record from Ilgaz D.), *Astragalus trichostigma* (A3, only one record from Ankara, Beypazarı), *Astragalus germanicopolitanus* (A4, only one record from Çankırı), *Hesperis buschiana* (A5, B1), *Stachys annua* subsp. *cilicica* (A5, C5), *Verbascum pallidiflorum* (A6, A7) and *Dactylorhiza incarnata* (A2, A3, A4, B6).

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