NEW DATA ON VASCULAR FLORA OF WESTERN PREDBALKAN AND BALKAN RANGE IN BULGARIA

Dimitar Dimitrov\textsuperscript{1}, Maya Kartera\textsuperscript{2}, Vassil Vutov\textsuperscript{1}
\textsuperscript{1}National Natural Sciences Museum – Sofia
Bulgarian Academy of Sciences
\textsuperscript{2}Institute of Botany – Sofia
Bulgarian Academy of Sciences

Abstract

During field investigations, supported by Project NATURA 2000, in summer 2005 twenty three species of vascular plants have been established for first time in Western Predbalkan – Dragoytsa, Lakavitsa, and Western Balkan Range – Bilo, Murgash, Rzhan, Golema, Mala, Sofiyska Mts. and protected area “Kutinski pyramid”. 20 species were distributed in Balkan Range, besides 8 of them occur in the protected area “Kutinski pyramid”. 2 species were found in the region of Predbalkan and 1 species is common for the Balkan Range and the protected area. The species belong to 13 plant families. Bulgarian endemics Chamaeytisus frivaldszkyanus, Verbasum formanekii and Galium rigidifolium and Balkan endemic Chamaeytisus jankae f. jankae are species with nature conservancy status.

Key words: Biodiversity, chorology, endemics, vascular flora

INTRODUCTION

In the course of European Project NATURA 2000 implementation, it was established a miss of much data concerning the flora and vegetation of areas belonging to Western Predbalkan and Western Balkan Range floristic regions. For that reason, observations and investigations were undertaken there. The flora of calcareous terrains above Gelyava and Negoushevo villages and some of plant species in Pinus nigra forests above Batouliya and Bakyovo villages in Mala Mt. turned out to be of particular interest from botanical point of view.

The aim of the study is to indicate new species as well as species with nature conservancy status in habitats of Western Predbalkan and Western Balkan Range floristic regions in Bulgaria.

MATERIALS AND METHODS

The field investigations are implemented during the second half of August 2005 in the following floristic regions of Bulgaria: Western Predbalkan and Western Balkan
Range. The last region includes the protected area “Kutinski pyramidi”. Plant habitats were described according to NATURA 2000 as follows: Dragoytsa, Lakavitsa, Bilo, Murgash, Rzhana, Golema, Mala and Sofiyska Mts. (Fig. 1). The study reports new species for the observed regions and confirms the distribution of others.


The Herbarium vouchers have been deposited in the Herbariums of the Institute of Botany (SOM) and University of Sofia “St. Kl. Ohridski” (SO).

RESULTS AND DISCUSSION

As a result of the implemented investigation were found the following species, ranged regarding their belonging to plant families.

**Asteraceae**

*Hieracium praecox* Schultz Bip.


Till now this species is known from Central and Eastern Balkan Range and Mt. Vitosha Region (Pecv, 1992).

**Caryophyllaceae**


Western Balkan Range: Bilo Mt. – above Razliv village, district of Botevgrad, on humid meadows, GN-35, 18.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162205);

Murgash Mt. – above Murgash chalet, at 1600 m, GN-14, 20.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162197).

Till now this species is known from the floristic regions: Pirin Mts., Central Rhodopes (Petrova, 1992).

In the herbarium of Institute of Botany (SOM) there are materials of this species from Western Predbalkan – on limestone places between villages of Slavotin and Slivovik, 04.2003, coll. R. Tzonev, (SOM 162344), Central Balkan Range – along the south slope Koumanitsa, on limestone, at 1770 m, 06.07.1996, coll. T. Meshinev, I. Apostolova (SOM 152925), Sofia Region – park “Borsova Gradina”, towards Tsarigradsko Shosse Blvd., 14.08.2002, coll. D. Stojanov (SOM 159261), Mt. Vitosha Region – above Selishitsa, Neikov Kamuk locality, 1521 m, 29.05.2005, coll. D. Dimitrov (SOM 161798), Strouma River Valley (North) – on sandy places, west of Rila town, 05.2004, coll. D. Dimitrov (SOM 162351), in grassy places, south of Rila town, 27.09.2003, coll. D. Stojanov (SOM 159015), Mt. Slavyanka – above Partil village, Tsatevitsa locality, on dry siliceous and sandy places, at 950 m., 02.08.1981, coll. I. Pashaliev (SOM 151340), Mt. Sredna Gora – Lozenska Mt., on calcareous terrain at the peak Polovrak, 16.05.1991, coll. D. Stojanov (SOM 150562), Thracian Lowland, 12.05.1927, coll. I. Urumov (SOM 20345).

**Minnartia anatolica** (Boiss.) Woron.

Western Balkan Range – Murgash Mt.: on limestone rocky places above Gelyava village, district of Sofia, GN-13, 18.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162145).

Till now this species is known from Mt. Slavyanka, Mesta River Valley, Pirin Mts., Central Rhodopes, Thracian Lowland, Mt. Strandzha (Petrova, 1992).

In the herbarium of Institute of Botany (SOM) there are materials for this species from Strouma River Valley (South) – on calcareous vertical rocks “Chernata skala”, above Ilindentsi village, 29.10.2004, coll. D. Stojanov (SOM 160579), Western Rhodopes – on calcareous rocks, east of Beden village, Smolyan district, 27.06.1971, coll. P. Panov (SOM 129804).

**Dianthus capitatus** Balb. ex DC. subsp. *andrzejowskianus*

Zapal


Till now this species is known from the Danube Plain, Eastern Predbalkan and West Frontier Mts. (Petrova, 1992).

In the herbarium of Institute of Botany there is material from Black Sea Coast (Southern) – on the sandy dunes in Perla, north of Primorsko village (Petrova, 03.05.2002; SOM 157949).

**Dianthus petraeus** Waldst. & Kit. subsp. *noeanus* (Boiss.) Tutin

Till now this species is known from North-East Bulgaria, Eastern Predbalkan, Central and Western Balkan Range (Petrova, 1992).

In the herbarium of Institute of Botany there is material from Western Predbalkan – Glouchene village, on calcareous terrains, 1911, coll. I. Urumov (SOM 26048, 26044) but the population was small, with sparsely distributed specimens and it is rejected from other botanists. With the population in Dragotsa Mt. we confirm the species presence in Western Predbalkan. In SOM there also are materials from Mt. Slavyanka.


Silene galianyi Reichenb.


Till now this species is known from Western Frontier Mts, Strouma River Valley, Northern Pirin Mts, Rila Mts., Eastern Rhodopes, Thracian Lowland, Tundzha Hilly Country (Petrova, 1992).

In the herbarium of Institute of Botany (SOM) there are materials from Mt. Vitosha Region, on the slopes of Verila Mt., in pasture above Kraitinska village (06.08.1994; coll. B. Assiyov, A. Petrova, R. Vassilev, SOM 160896), Pirin Mts. (Southern) – along the road to Golesevka village, at 1000 m (27.07.1989; coll. D. Stojanov, SOM 147895), in the ravine southern from Gostse Delchev (town 08.1985; coll. V. Yvoddov, SOM 92444), near Lozenitsa village, Gostse Delchev district, on sandy soils (12.07.1957; coll. V. Velchev, S. Petrov, S. Ganchev, SOM 104597), Eastern Sredna Gora Mt. – above Gorno Novo selo, Chirpan district (17.07.1970; coll. S. Stanov, SOM 122452), eastern of Rozovets village, Plodviv district, on ruderal places (09.07.1970; coll. S. Stanov, SOM 122451).

Ceratophyllaceae

Ceratophyllum denervum L.

Western Balkan Range: Mala Mt. – in the water of the lake under the protected area “Kutinski pyramidi” FN-84, 07.07.2005, coll. D. Dimitrov (SOM 161975).

Till now this hydrophyte is known from Black Sea Coast, North-East Bulgaria, Danube Plain, Sofia Region, Strouma River Valley, Thracian Lowland and Tundzha Hilly Country (Markova, 1992).

In the herbarium of Institute of Botany (SOM) there is material from Eastern Predbalkan – Pavet village, 30.07.1902, coll. I. Neichev, (SOM 54422), Eastern Rhodopes – along the right bank of Vurbitsa River, behind the bridge to Momchilgrad town, 28.09.2005, coll. D. Stojanov, L. Pechilvanov. (SOM 162140).

Crassulaceae

Sedum rubens L.

Western Balkan Range: Mala Mt. – on sandy grassy places in the protected area “Kutinski pyramidi”, FN-84, 07.07.2005, coll. D. Dimitrov (SOM 161977).

Cuscataeae

Cuscata approximata Babington.


Till now this parasitic species is known from Canipul Plain, Eastern Balkan Range, Znepole Region, Mt. Slavyanka, Rhodopes and Thracian Lowland (Andreev, 1992).


Cyperaceae

Carex panicea L.

Western Balkan Range: Sofiska Mt. – after Batuliya village, in right above the road to Bakyovo village, district of Sofia, GN-05, 19.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162207).

Till now this species is known from North-East Bulgaria, Danube Plain, Central Balkan Range, Mt. Vitosha Region, West Frontier Mts., Strouma River Valley, Mt. Belasitsa, Mt. Slavyanka, Mesta River Valley, Pirin Mts. (Markova, 1992), Central Rhodopes (Petrova, 2005).

Lamiaceae

_Hyssopus officinalis_ L.

**Western Balkan Range:** Murgash Mt. -- on limestone grassy places in the north above Negoushevo village, district of Sofia, GN-23, 20.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162111) SO 103740.

Till now this species is known from Predbalkan, Western Balkan Range, Znepole Region and Mt. Vitosha Region (Markova, 1992), but not reported for Murgash Mt. The population that was found is a new for Murgash Mt. and situated at a distance of 35 km east of the mentioned locality of the species in Mala Mt.- Beledchie Han village (Velechew, 1962; Roussakova et al., 1999). The new population is mosaic and covered rocky limestone terrain, with accompanied species: _Adonis vernalis_, _Satureja montana_, _Inula ocolus-christii_, _Potentilla cinerea_, _Stipa capillata_, _Agropyrum cristatum_, _Onosma visanii_, _Festuca valesiaca_, _Artemisia alba_, _Achillea dypnulata_, _Teucrium chamaedrys_.

This species is included in the Convention on International trade in Endangered Species (CITES). Appendix II. (valid for Bulgaria till 16.04.1991).

Leguminosae

_Onobrychis alba_ (Waldst. et Kit.) Desv. subsp. _calcarea_ (Vandas) P. W. Ball

**Western Balkan Range:** Mala Mt. -- on sandy places by the pathway above the slope in the protected area "Kutinski pyramidii", FN-84, 07.07.2005, coll. D. Dimitrov, (SOM 161978).

Till now this species is known from Black Sea Coast, North-East Bulgaria, Predbalkan, Central and Eastern Balkan Range, Sofia Region, Znepole Region, Mt. Vitosha Region, Strouma River Valley, Mt. Slavyanka, Mt. Sredna Gora, Rhodopes, Thracian Lowland, Toundzha Hilly Country (Kozuharov, 1992).

_Lembotropis nigricans_ (L.) Griseb.

**Western Balkan Range:** Mala Mt. -- on grassy places in _Pinus nigra_ forest in the protected area "Kutinski pyramidii", FN-84, 07.07.2005, coll. D. Dimitrov (SOM 161980); Golema Mt. -- above Bakyovo village, along the right bank of Batouliyska River, GN-45, 19. 08. 2005, coll. D. Dimitrov, M. Kurteva (SOM 162154), above Yablanititsa village -- over the bridge of Batouliyska River, GN-64, 19.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162153), south of Rebrovo village, district of Sofia, FN-95, 19.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162145; SO 103742).

Till now this species is known from Black Sea Coast (Northern), North-East Bulgaria, Predbalkan, Central and Eastern Balkan Range, Mt. Vitosha Region, Rhodopes, Thracian Lowland and Toundzha Hilly Country (Kozuharov, 1992).

In the herbarium of Institute of Botany (SOM) there is material from Thracian Lowland -- on dry grassy places, near Sira Zagora, 1907, coll. I. Urutov (SOM 43345).

Chamaecytisus frivaldszkyanus (Deg.) Kuzmanov

**Western Balkan Range:** Golema Mt. -- above Leskov Dol village, district of Svo, FN-95, 19. 08. 2005, coll. D. Dimitrov, M. Kurteva (SOM 162114).

Till now this Bulgarian endemic is known from Danube Plain, Eastern Predbalkan, Central Rhodopes, Thracian Lowland, Toundzha Hilly Country (Kozuharov, 1992). Kovachev (1900) reported the species from North-East Bulgaria: district of Rousse.

According to Urutov this species is recorded for Western Predbalkan and Znepole Region (Urutov, 1917; 1935), as well as from Western Balkan Range -- Zhovitova village, Beli Lom village, Mezdra, Botveygrad (Urutov, 1902). The newly found location confirms the species distribution in Western Balkan Range.

In the herbarium of Institute of Botany (SOM) there are materials from Western Balkan Range -- above Iskrets village, peak Koznitsa, 30. 08. 1935, coll. A. Drenovsky (SOM 43362, 43363), Central Balkan Range -- Bozhidar village, Karlovdo district, 25. 08. 1935, coll. Konstantinov, (SOM 93507).

Chamaecytisus jankae (Velen.) Rothm. f. jankae

**Western Balkan Range:** Mala Mt. -- in artificial _Pinus nigra_ forest in the protected area "Kutinski pyramidii", FN-84, 07.07.2005, coll. D. Dimitrov (SOM 161979).

Till now this Balkan endemic is known from Black Sea Coast, North-East Bulgaria, Western Predbalkan, Znepole Region, Mt. Vitosha Region, West Frontier Mts., Pirin Mts., Rda Mts., Eastern Rhodopes, Mt. Strandela (Kozuharov, 1992).

In the herbarium of Institute of Botany (SOM) there are materials from Central Rhodopes -- at stone places near Arda River, above Kimitisa village, 01.10.2005, coll. D. Dimitrov (SOM 162181).

Poaceae

_Cleistogenes serotina_ (L.) Keng.

**Western Balkan Range:** Golema Mt., the north above Bakyovo village, on clay slates in _Pinus nigra_ forest, GN-05, 19.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162139); Murgash Mt.: on limestone grassy places north of Negoushevo village, Sofia district, GN-23, 20.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162136).

This species is known till now from the North-East Bulgaria, Danube Plain, Predbalkan, Znepole Region, Strouma River Valley, Eastern Rhodopes, Thracian Lowland and Toundzha Hilly Country (Kozuharov, 1992).

In the herbarium of Institute of Botany (SOM) there are materials from Eastern Balkan Range, Sotirya village, Sliven district, on dry limestone places (03.08.2002; coll. D. Stojanov, SOM 157062), Central Balkan Range -- on rocky slopes of Sechanluka locality (10.09.1955; coll. N. Vyhodcevski, SOM 91115), on dry places above Enina village, upper the protected area "Eininks zhdrolo", at 580 m (07.2002; coll. Djankova, D. Stojanov, SOM 158442) and Mt. Western Sredna Gora -- Lozenska Mt., on eastern slopes, in assoc. _Andropogon ichenum_ (15.07.1955; coll. I. Ganchev SOM 90571).

_Lolium multiflorum_ Lam.

**Western Predbalkan:** near Petrevene village, KH-68, 17.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162131).
Till now this species is known from Black Sea Coast, Danube Plain, Znepole Region, Pirin Mts., Central Rhodopes, Thraciaw Lowland, Toundzha Hilly Country (Kozuharov, 1992).

*Molinia arundinacea* (Schrank) H. Paul  
Western Balkan Range: Morgash Mt. – in a humid meadow near to “Tursava” hunting farm, GN-14, 19.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162135).  
So far this species is known from North-East Bulgaria, PRedbalkan, Sofia Region, Thraciaw Lowland, Mt. Strandzha (Kozuharov, 1992).  
In the herbarium of Institute of Botany (SOM) there are materials from Mt. Vitosha Region – Lyulin Mt., nearby a snatoriaw, 26.09.1948, coll. I. Ganchev, (SOM 4578), Rila Mts. – on rocky pastures, Cherna Rila, above the Dry Lake, 09.08.1910, coll. B. Davyov. (SOM 4564, 4563).

*Agropyron cristatum* (L.) Gaertner  
Western Balkan Range: Morgash Mt. – at limestone grassy places above Negoawsevo village, Sofia district, GN-23, 20.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162132).  
Till now this species is known from Black Sea Coast, Predbalkan, Sofia Region, Znepole Region, West Frontier Mts., Strouma River Valley, South Pirin Mts., Thraciaw Lowland and Toundzha Hilly Country (Kozuharov, 1992).  
In the herbarium of Institute of Botany (SOM) there are materials from North-East Bulgaria – Dobrich, north of Ograaziden village, near Bulgarian-Humanian border, 05.06.2004, coll. D. Stojanov (SOM 160924), Vetrino village, Varna district – pasture near stone-pit, 30.08.2002, coll. Ant. Petrova (SOM 158947), Mt. Sredna Gora – in the vicinities of Srednogorets village, Pirdop district: it dry grassy places, on limestone, 28.05.1964, coll. S. Ganchev, V. Velchev (SOM 184414), Karabair hill: on south rocky slopes, on limestone, in thin bushes, 06.10.1965, coll. S. Ganchev, S. Denchev (SOM 127559).

Rosaceae

*Potentilla detommasi* Ten. var. *holosericea* (Griseb.) Hausskn.  
Till now this species is known from Znepole Region, West Frontier Mts., Pirin Mts., Rila Mts., Thraciaw Lowland (Markova, 1992), Mt. Strandzha (Bancheva et. al., 2002).  
In the herbarium of Institute of Botany there are materials from Mt. Slavyanka – on calcareous grassy places below the peak Gotsev vruch, 26.07.2005, coll. D. Dimitrov (SOM 162390), Central Rhodopes – along the road between Skobelevo village and Peroushitsa town, on stone places, 21.05.1966, coll. M. Markova (SOM 120029).

Ranunculaceae

*Adonis vernalis* L.  
Western Balkan Range: Morgash Mt. – on limestone rocky places above Gelyawa village, district of Sofia, GN-13; 18.08.2005; coll. D. Dimitrov, M. Kurteva (SOM 162108); on limestone grassy places, in the north above Negoawsevo village, district of Sofia, GN-23, 20.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162110).  
Till now this steppe species is known from Black Sea Coast, North-East Bulgaria, PRedbalkan, Eastern Balkan Range, Sofia Region, Znepole Region and Thraciaw Lowland (Anchev, 1992).  
In the herbarium of Institute of Botany (SOM) and Sofia University (SO) there are materials for this species from Mt. Vitosha Region – Malo Buchino village (17.04.1903, coll. I. Urumov, SOM 29436), Mt. Sredna Gora – Lozenksa Mt. (1901; coll. Toshev, SOM 29478) and Suitsinska Sredna goara, Znevoyo village, district of Stara Zagora, in limestone grassy places of peak Drenaka, 489 m, in the left from the road to the village (03.03.2004; coll. D. Stojanov, R. Tzonev, SOM 159896).

This species is included in the Convention on International trade in Endangered Species (CITES). Appendix II. (valid for Bulgaria till 16.04.1991).

Rubiacceae

*Galium rigidifolium* Krendl  
Western Balkan Range: Mala Mt. – in the protection area “Kutinski pyramidi” on rocky sandy places, FN-84, 07.07.2005, coll. D. Dimitrov; V. Vutov (SOM 163579).  
Till now this Bulgarian endemic is known from Black Sea Coast (Northern), North-East Bulgaria, Eastern Predbalkan, Eastern Balkan Range, Mt. Vitosha region – Vitosha Mt., Lyulin Mt., Strouma River Valley, Mt. Sredna Gora, Western Rhodopes (rev. Anchev, 2006).  
Material of this species was collected from Mesta River Valley – on rocky places along the roadside to Gotse Delchev town, behind Banichav village, 30.06.2005, coll. D. Dimitrov (SOM 163507).

Scrophulariaceae

*Verbascum formanekii* Borbás ex Form.  
Western Balkan Range: Morgash Mt. – on limestone grassy places above Gelyawa village, district of Sofia, GN-13, 18.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162113); on limestone terrain above Negoawsevo village, district of Sofia, GN-23, 20.08.2005, coll. D. Dimitrov, M. Kurteva (SOM 162112; SO 103741).  
Till now this Bulgarian endemic is known from Predbalkan, Sofia Region, Znepole Region, Mt. Vitosha Region, Pirin Mts., Rila Mts, Western Sredna Gora Mt. (Stefanova – Gateva, 1995).  
In the herbarium of Institute of Botany (SOM) there are materials from North-East Bulgaria – Shumen, coll. B. Achtarov (SOM 65922), Western Rhodopes – Rakitovo valley, 1910, coll. I. Urumov, (SOM 65923).
CONCLUSIONS

As a result of the study 23 new taxa on the territory of Western Predbalkan and Western Balkan Range were discovered. Twenty species were distributed in Western Balkan Range, besides 8 of them occur in the protected area “Kutinski pyramidi”. Two species were found in the region of Western Predbalkan and 1 species is common for Western Balkan Range and the protected area “Kutinski pyramidi”.

Four of the species are endemics: 3 – Bulgarian (Chamaecytisus frinaldizkyanus, Verbasum formanekii and Galium rigidifolium) and 1 – Balkan (Chamaecytisus jankae F. Janka).

Two species: Hyssopus officinalis and Adonis ravenalis are included in the Convention on International trade in Endangered Species (CITES).

With this study was confirmed the distribution of three species in the observed regions as follows: Dianthus ppyrenaeus subsp. noeanus – for Western Predbalkan, Chamaecytisus frinaldizkyanus – from Western Balkan Range and Hyssopus officinalis, which was remarked for Western Balkan Range, but with new locality – Murgash Mt.

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