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NEW FLORISTIC RECORDS FOR SHEBENIK-JABLLANICË NATIONAL PARK

ABSTRACT

In this article we present data for new floristic records on the flora of Shebenik-Jabllanicë National Park, which extends at north – east of Librazhdi town, in the border with Macedonia. It has a total surface 33,927.66 ha and the altitude varies from 300 m to 2264 m a. s. l. The Park is under the administration of Elbasan Regional Administration of Protected Areas (RAPAs) and is one of the largest Albanian National Parks, with great values especially of being home to a rich wild flora and fauna as well, that needs further explorations due to difficult terrains and roads. The Park is known for its diversity of vascular native flora and until now it comprises more than 1000 taxa, with a large number of endemic and sub-endemic species. During our exploration we found many taxa, which are reported here for the first time as present in the park area. Many of them have limited Europe distribution being native to Albania, Macedonia, Serbia, Bulgaria, Greece and Turkey such as: *Fritillaria macedonica* Bornm., *Vincetoxicum speciosum* Boiss. & Spruner, *Crocus jablanicensis* N. Randjel. & V. Randjel. and others widespread, as: *Tulipa sylvestris* L., etc. that increase even more the number of floristic richness of this protected area.

Key words: Flora, plant diversity, botany, Albania

INTRODUCTION

Shebenik – Jabllanicë area is one of the National Parks in Albania and Important Plant Areas, proclaimed with the Decision of Minister Council No. 640, date 21.05.2008, which defines its status, the location, surface, boundaries and the zoning division with the corresponding protection levels. Due to its geographical position, climate, hydrographic network, geological composition it is very rich and hosts a considerable number of vascular plant species, different wild animal species and has beautiful and attractive landscapes too.

Many of the Park areas are still unexplored due to difficult terrains. Based on previous researches (BARINA and PIFKÓ 2011; TAN *et al.*, 2013; GJETA, 2014; GJETA *et al.*, 2013, 2015), until now there are more than 1000 plants species found present in this Park, which makes up nearly 1/4 of the Albanian flora. A considerable number of these taxa are included in the Red List of Albania Vascular Plants as rare, threatened and endangered plants with different threaten status according the IUCN Red List Categories (REC, 2010). With a great importance is the presence in this Park of the endemism and subendemism, without including and mention here the balkanic and subbalkanic species which increase even more the Park values.

During our field work and explorations we found and identified, after a critical literature review, other plant species: *Fritillaria macedonica* Bornm., *F. orientalis* Adams., *F. graeca* Boiss. & Spruner, *Vincetoxicum speciosum* Boiss. & Spruner, *Crocus jablanicensis* Randjel. & V. Randjel., *Stellaria gramine* L., *Tulipa sylvestris* L., etc. which increase the number of the taxa present in Park, its floristic diversity and values, as well as the species distribution.

MATERIAL AND METHODS

The field observations and plant collections were carried out in different periods of the year and frequently. The examination and plant determination follows TUTIN *et al.* (1964-1980), PIGNATTI (1982), DEMIRI (1983), PAPANISTO *et al.* (1988), QOSJA *et al.* (1992; 1996), VANGJELI *et al.* (2000), PILS (2016). Comparisons and consulting are made with Albanian National Herbarium as well. For their threat status and distribution we have also referred to Red List of wild Flora and Fauna, Albania (approved by Ministerial Order 1280, date 20.11.2013), IUCN Red List and EuroMed PlantBase. For the locality of the specimens was used GPS Garmin eTrex. After being dried the specimens collected were deposited at the herbarium of Elbasan University and some at Elbasan RAPAs.

Study area

Shebenik – Jabllanicë area is situated at the most southern part of Librazhd and has a surface of 33,927.66 ha. In Park there are three main types of mother rocks: calcareous, magmatic and sedimentary ones. Mainly the calcareous rocks are found at mountains massifs: Raduçi Mt. – Strapi Peak – Jabllanica Mt. – Kokël – Ruen, the magmatic ones are found: Kallkani Peak – Maja e Zezë – Dupkat – Shebenik – Guri i Pikës – Përroi i Valit – Skura Peak and the conglomerates are alternated at the areas of: Zgosht – Gizavesh – Librazhd – Hotolisht – Kokrevë – Buzgarë. In the area there are 14 glacial lakes, some artificial lakes, two main rivers (Bushtrica and Qarrishta rivers), many streams and springs as part of the hydrographic network which drain to the river Shkumbini. The altitude varies from 300 m to 2,264

m above sea level and has a continental climate, with annual temperatures of 13.4 °C and annual precipitation 1.360 mm according the data of the RAPAs Elbasan. In this area there are found the three types of forests: deciduous thermophilous forests (the oak forests mainly with *Quercus cerris* and *Q. frainetto*, or *Carpinus orientalis* forests), coniferous forests (mostly with *Pinus nigra*, *P. peuce* and *Abies alba*) and the beech forests (dominated by *Fagus sylvatica*) and above the tree line extends the alpine pastures and meadow (GJETA *et al.*, 2013).

RESULTS AND DISCUSSION

Shebenik – Jabllanicë National Park has more than 1000 plants species which makes up the 22% of the Albanian flora (Fig. 1) and includes rare, threatened and endangered plants, representing the 19% of the Red List of Albania Vascular Plants. Among them recently we found the presence in the area of the below taxa after identified them. Their location, description and some other data are given below:

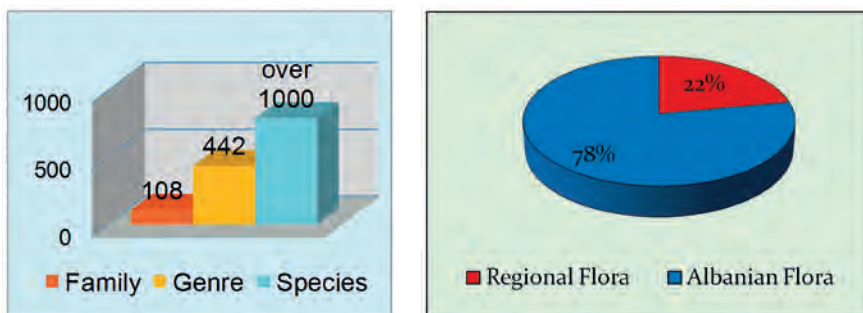


Figure 1. Graphical presentation and comparison of the Shebenik – Jabllanicë flora.

Vincetoxicum speciosum Boiss. & Spruner (Fig. 2) (syn *Cynanchum speciosum* (Boiss. & Spruner) Nyman; *C. triste* Griseb., *V. triste* Griseb.) was found on June 2016 in flower and on August in fruits, at altitudes 1100 m above sea level, in limestone substrate. The locality is near the road of beech forest in Fushë Studë, coordinates 41°17'44.58" N, 20°24'6.36" E. Its population has a small number of individuals, nearly 10 individuals and very sparse. It is a perennial herb; with stem 60-70 cm, erect; leaves broadly ovate, obtuse or acute; corolla 10-12 mm dark purple; lobes lanceolate, with straight hairs on upper surface; life form – hemicryptophytes; flowers in June – July; grows in the zone of thermophilous deciduous forests (composed by *Quercus pubescens*, *Q. cerris*, *Q. frainetto*, *Q. trojana*, *Q. petraea*). According TUTIN *et al.* (1964-1980) its range of distribution is in Albania, Bulgaria, former Yugoslavia, Greece, Turkey.



Figure 2. *Vincetoxicum speciosum*.

Fritillaria macedonica Bornm. (Fig. 3) is recorded on May 2017, in limestone grasslands of Strator and Vishorica, during a field trip at 1600 m a. s. l., coordinates 41°17'23.16" N, 20°28'26.69" E. The population that we found has 40 individuals. It is a perennial herbaceous plant; with stems 4-7 cm high; opposite lower leaves and upper group in three; lilac perianth; life form – geophytes; flowering time April – June. It is a range restricted species and according to TOMOVIĆ *et al.* (2007) it was described from Jabllanica Mt. (*locus classicus*) with distribution in central and eastern Albania (Gurabardhë, Jabllanicë, Mali me Gropa, Gollobordë, Klenjë and Mali i Zebës), in SW Macedonia and in SW Serbia in the Metohija region. In the Albanian Vascular Plants Red List 2013 is under the status LRnt.



Figure 3. *Fritillaria macedonica*.

Fritillaria orientalis Adams (Fig. 4) (syn. *F. tenella* M. Bieb., *F. racemosa* Ker Gawl. nom. illeg. Nom.) was identified on April 2017, on limestone grasslands in Ryen, altitude 1400 m a.s.l. and coordinates 41° 7'54.27"N 20°35'40.51"E. Its population has 20 individuals. Perennial herbaceous plant; with bulb; stem 15-50

cm; linear opposite leaves; flowers purple outside with dark red spot hanging on the top of the stem; life form – geophytes; grows in dry grassy places, grasslands, on limestone; flowering time April – May; distribution: southeast Europe, Austria, Bulgaria, France, Caucasus, Greece, Turkey. The nomenclature of this taxon is in questions and unresolved. In The EuroMed PlantBase *F. orientalis* between other sources is given as accepted name is also given as synonym of *Fritillaria montana* Koch. In TOMOVIĆ *et al.* (2007) are described the differences between *F. orientalis* Adams named since 1805, 1808 and *F. montana* named from Italy since 1832. *F. montana* is present in IUCN Red List with DD status.



Figura 4. *Fritillaria orientalis* (A, B), *Fritillaria graeca* (C).

Fritillaria graeca Boiss. & Spruner ssp. *thessala* ((Boiss.) Rix) (Fig. 4 C) (syn. *F. thesala* (Boiss) Kamari, *F. ionica* Halácsy, etc.) was identified on May 2016, in Ryen, near the border with Macedonia, altitude 1400 – 1500 m a.s.l., in grasslands on calcareous rocks with coordinates 41°09'19.46" N 20°34'57.30" E. We found only two individuals of this taxon. It is a perennial herbaceous plant; with bulb; 20 (25) cm height; ovate leaves, the upper are in a whorl; slightly tessellated flowers, often tinged with reddish-brown, one flower on the top of the stem; life form – geophytes; grows in dry grassy places, grasslands, on limestone; flowering time April – May. It occurs in northern Greece, Albania and Macedonia. It is in IUCN Red List in DD category.

Tulipa sylvestris L. ssp. *australis* (Link) Pamp. (syn. *T. alpestris* Jordan, *T. celsiana* D.C. etc.) is recorded on May 2017, in Ryen, on limestone open areas of beech forest, altitude 1500 m a.s.l. and coordinates 41° 9'23.01"N 20°34' 18.92"E. Its population has 10 individuals. Perennial herbaceous plant; yellow flowers; height 40 cm; life form – geophytes; blooms on May – June. It has a wide distribution as native and as introduced: Albania, Bulgaria, Greece, France, Italy, Turkey, Spain, Switzerland, Germany (introduced), etc. In the Albanian Vascular Plants Red List 2013 is under the status VU A1b.



Figure 5. *Tulipa sylvestris* L.

Primula elatior (L.) Hill (Fig. 6 A) (syn. *P. veris* var. *elatior* L., *P. elatior* (L.) Hill etc.) is present in Dragan, Strap, Vishoricë, in open limestone areas of *Fagus sylvatica* forest often mixed with *Abies alba*, over 1550 m a.s.l. and coordinates 41°16'56.25"N 20°27'28.44"E. It is evidenced on May 2017 in a field trip for searching this taxon, which often is confused with *P. veris* or *Primula x polyantha* (hybrid of *P. vulgaris* x *P. veris*). The population has 80 individuals. Perennial herbaceous plant, soft-yellow flowers, crestfallen in one side of the stem; bright green leaves in upgrounded rosettes 20 cm height; life form – hemicryptophytes; flowering time March – June. It has a wide range of distribution as native to Europe and in others as introduced: Albania, Austria, Bulgaria, Greece, Spain, Italy, Norway, Finland, etc.

Stellaria holostea L. (Fig. 6 B) (syn. *Cerastium holosteam* Crantz.) is found on May 2016, 2017 in Ryen near the pathway in beech forest, calcareous mother rock, altitude 1300 m a.s.l. and coordinates 41° 7' 37.08"N 20°35' 8.49"E. Its population has 10 individuals. Perennial herbaceous plant; 60 cm height; rhizomatous; branching stems, four angled; inflorescence with several flowers with five white petals, bifid to about half way; opposite lanceolate leaves; life form – chamaephytes; flowering time April – June. It has a wide distribution: Albania, Belgium, Germany, Slovakia, Greece, Portugal, Turkey, France, etc. Its presence in Albania was reported and confirmed in RAKAJ *et al.* (2013).



Figure 6. *Primula elatior* (A), *Stellaria graminea* (B), *Asarum europaeum* (C).

Asarum europaeum L. (Fig. 6 C) is noticed in Ryen, on March 2017, near pathway in beech forest, altitude 1200 – 1300 m a.s.l., limestone mother rock, coordinates 41°07'32.31" N 20°35'3.37" E. We have noticed 5 individuals of this taxon. Perennial herbaceous plant; life form – hemicryptophytes; stem 15 cm; reniformes petiolate leaves; single purple flower; flowering time March – May. It has a wide distribution as native and introduced: Albania, Italy, Greece, Austria, Belgium, Hungary, France, Germany, introduced in Great Britain, Denmark.

Lonicera etrusca Santi (Fig. 7 A,B) (syn. *Caprifolium etruscum* (G. Santi) Schult., *L. cyrenaica* Viv., *L. viscidula* Boiss., etc.) was noticed on April 2016, only three individuals, in Llangë village, on an eroded surface with *Buxus sempervirens*, *Juniperus oxycedrus*, etc., altitude 500 – 600 m a.s.l., near Qar-rishta river and on May 2017 in Kosharisht village. Coordinates 41°15'52.02"N 20°23'1.64"E. Liana plant; deciduous perennial; height 3 m; oval leaves; pedunculate flower, pale yellow to reddish pink, with elongated tubular corolla; life form – phanerophytes; blooms on May – June; It is distributed in Albania, Greece, Morocco, Tunisia, etc. and introduced in Krym and Madeira.

Potentilla detommasii Ten. (Fig. 7 C) (syn. *P. holosericea* Griseb., *P. suskalo-vicii* Adamović, *P. vranjana* Zimmerman) is found on May 2016, in Ryen, on limestone grasslands, altitude 1400–1500 m a.s.l., coordinates 41°08'17.45" N, 20°35'2.42" E. Its population has 10 individuals. It is a perennial herbaceous plant; height 40 cm; leaves with 5 obovate white villous leaflets, beneath with many hairs; yellow flowers in crowded cymes; life form – hemicryptophytes; flowering time May – June; distribution: Albania, Italy, Bulgaria, Turkey, Macedonia.

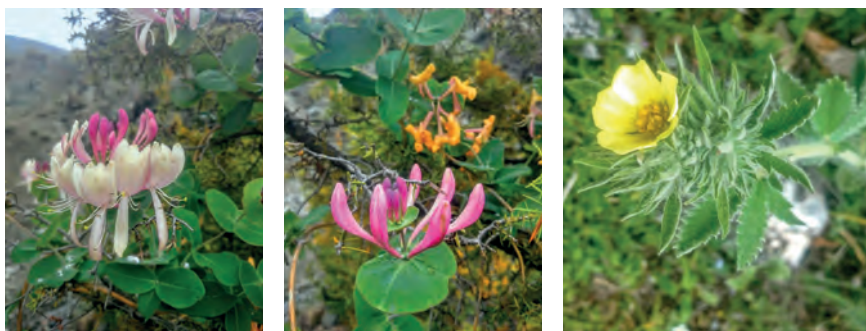


Figure 7. *Lonicera etrusca* (A, B) *Potentilla detommasii* (C).

Crocus jablanicensis N. Randj. & V. Randj. *sp. nova* (Fig. 8) is found on May 2017, in Dragan area, at Strapi Mt. on Vishorica open areas of beech forest, 1500–1600 m a.s.l., grasslands near the snowmelt, on limestone. The coordinates of the two localities are 41°18'1.52" N, 20°29'4.03" E; 41°17'20.13" N, 20°28'30.85" E. The number of individuals which we found was 30. This taxon is described by

RANDELOVIC *et al.* (2012). They have found it on Jablanica Mt. in the western part of Macedonia. It has white style, stigma and perianth throat. This taxon is not in Albanian Flora.



Figure 8. *Crocus jablanicensis*.

CONCLUSION

Shebenik – Jabllanicë national Park has a rich floristic diversity, of which we have noticed present in it and identified after a literature review the species: *Vincetoxicum speciosum* Boiss. & Spruner, *Fritillaria macedonica* Bornm., *Fritillaria orientalis* Adams, *Fritillaria graeca* Boiss. & Spruner ssp. *thessala*, *Tulipa sylvestris* L. ssp. *australis* (Link) Pamp., *Primula elatior* (L.) Hill, *Stellaria holostea* L., *Asarum europaeum* L., *Lonicera etrusca* Santi, *Potentilla detommasii* Ten., *Crocus jablanicensis* N. Randj. & V. Randj. *sp. nova*, the last one is not in the Albanian Flora. There are given their localities, the number of individuals numbered

at the location, general data for their distribution in our country and others, the threaten status, etc. Some of them have a very low individuals number such as: *Fritillaria graeca* ssp. *thessala*, *Lonicera etrusca* being very rare in the Park area. Some other species have more individuals: *Fritillaria macedonica*, *Primula elatior*, *Crocus jablanicensis*. With limited distribution not only in the Park area, but in all our country or more are: *Fritillaria macedonica*, *F. graeca*, *C. jablanicensis*, while *Stellaria holostea*, *Asarum europaeum*, *Potentilla detommasii* are with a wide distribution areas.

REFERENCES

- BARINA Z., PIFKÓ D., 2011 - Contributions to the flora of Albania, 2. *Willdenowia* **41**: 139.
- DEMIRI M., 1983 - Flora ekskursioniste e Shqipërisë. SH.B.L.SH.Tiranë, 985 pp.
- GJETA E., 2014 - Studim mbi florën, bimësinë dhe diversitetin e habitateve natyrore në pellgun ujëmbledhës të lumit Shkumbin, në rrjedhën e mesme të tij. PhD thesis, University of Tiranë: 153.
- GJETA E., MULLAJ A., NAQELLARI P., PUPULEKU B., 2015 - Preliminary data on the flora of the Shebenik-Jabllanica National Park. 3rd International Conference HERTSPO 2015. Proceedings book Vol. 1. University of Shkodra “Luigj Gurakuqi” B.E.N.A. 6-8 November, Shkodër, Albania: 280.
- GJETA E., ZOTAJ A., MULLAJ A., NAQELLARI P., PUPULEKU B., 2013 - Types of natural habitats in Shebenik–Jabllanica national park. *Albanian journal of agricultural sciences* **12** (4): 593-597.
- IUCN Red List. <http://www.iucnredlist.org/details/165151/0> The EuroMed PlantBase. (<http://ww2.bgbm.org/EuroPlusMed/PTaxonDetail.asp?NameCache=Fritillaria+orientalis>)
- RANDELOVIC N., RANDELOVIC V., HRISTOVSKI N., 2012 - *Crocus jablanicensis* (Iridaceae), a new species from the Republic of Macedonia, Balkan Peninsula. *Annali Botanici Fennici* **49**: 99-02.
- PAPARISTO K., DEMIRI M., MITRUSHI I., QOSJA XH., 1988 - Flora e Shqipërisë 1. Lycopodiaceae–Platanaceae. ASHRPSSH–Qendra e Kërkimeve Biologjike, Tiranë, 457 pp.
- PIGNATTI S., 1982 - Flora d'Italia. Vol. I-III. Bologna, Edagricole, 790 pp. (I), 732pp. (II), 780 pp. (VIII).
- PILS G., 2016 - Illustrated Flora of Albania. Christian Theiss GmbH, 9431 St. Stefan. Austria, 576 pp.
- QOSJA XH., PAPARISTO K., DEMIRI M., VANGJELI J., BALZA E., 1992 - Flora e Shqipërisë 2. Rosaceae–Umbelliferae. ASHRSH–Qendra e Kërkimeve Biologjike, Tiranë. 446 pp.
- QOSJA XH., PAPARISTO K., VANGJELI J., RUCI B., MULLAJ A., 1996 - Flora e Shqipërisë 3. Pirolaceae–Campanulaceae. ASHRSH–Instituti i Kërkimeve Biologjike, Tiranë, 331 pp.
- RAKAJ M., PIFKÓ D., BARINA Z., SHUKA L., 2013 - Catalogue of newly reported and confirmed vascular plant taxa from Albania (1990–2012). *Wulfenia* **20**: 17-42.
- REC (Qendra Rajonale e Mjedisit), 2010 - Akte ligjore mjedisore në Shqipëri. 2007 – 2009. 5. Shtypshkronja “Gent Grafik”. Tiranë: 594 pp.
- TAN K., GJETA E., MULLAJ A., SHUKA L., VOLD G., 2013 - On the identity of *Anchusa leucantha* (Boraginaceae) from northern Greece. Copyright © 2013 Magnolia Press, ISSN 1179-3155 (print edition). ISSN 1179-3163 (online edition). *Phytotaxa* **140** (1): 35–42, www.mapress.com/phytotaxa/.

- TOMOVIĆ G., VUKOJIĆIĆ S., NIKETIĆ M., ZLATKOVIĆ B., STEVANOVIĆ V., 2007 - *Fritillaria* (Liliaceae) in Serbia: Distribution, habitats and some taxonomic notes. *Phytologia Balcanica* **13** (3): 359-370.
- TUTIN T.G., BURGESS N.A., CHATER A.O., EDMONDSON J.R., HEYWOOD V.H., MOORE D.M., VALENTINE D.H., WALTERS S.M., WEBB D.A., 1964-1980 - Flora Europaea. Volume 1 - 5 *Lycopodiaceae to Orchidaceae (Monocotyledones)*. Cambridge University Press.
- VANGJELI J., RUCI B., MULLAJ A., PAPANISTO K., QOSJA XH., 2000 - Flora e Shqipërisë 4. ASHRSH-Instituti i Kërkimeve Biologjike, Tiranë, 502 pp.