



NEW RECORDS ON THE FLORA OF THE GJIROKASTRA REGION (SOUTH ALBANIA)

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SYNOPSIS

The results of this paper are part of the study undertaken on distribution and state of the rare and endangered plants in Gjirokastra region. To that fact during the period of years 2006-2008 there has been carried out several expeditions in order to achieve the objectives. During these expeditions, *Orobanche lavandulacea*, *Gagea granatelli*, and *Galanthus reginae-olgae* ssp. *vernalis* are determinate as new plant species for the flora of Albania in the above mentioned area. The presence of the *Stachys sericophylla* Halascy near the summit of Nemërçka Mountain and *Viola acrocerauniensis* Erben, even in mountains of southern part of Albania, is observed.

Distribution, ecology and interrelationships of the new species, were described in details in this paper.

INTRODUCTION

The district of Gjirokastra is located in the South of Albania. Its hilly-mountainous territory is permeated by two deep valleys; the Valley of Drino and that of Zagorie, which have a great role in the biodiversity and flora of the region. On both sides of the valleys are positioned high mountain ranges (from 350 m to 2484 m in the highest peak of Nemërçka mountain) mainly consisting of calcareous rocks. In the eastern part, its territory is bordered with the Republic of Greece.

The floristic studies in the South of Albania, including the district of Gjirokaster, have less attracted the attention of the native and foreign botanists as compared with the northern part of the country, as a result of the attractive geomorphologic specifics of the Albanian Alps, which are the southern border of the European Alps and as richest part of Albania with endemic plants.

In the Albanian flora, the genus of *Gagea* Salisb., *Galanthus* L. and *Orobanche* L. are represented respectively by 11, 1 and 3 species (DEMIRI 1983; QOSJA et al. 1996; VANGJELI et al. 2000) distributed across the whole territory of the country

starting from the low hills on the seaside and ending with the rock caves of more than 2 200 m high.

In the Balkans Peninsula, the species *Orobanche lavandulacea* is distributed in Yugoslavia, Italy and Greece, the species *Galanthus reginae-olgae* ssp. *vernalis* is distributed in Greece territory, while *Gagea granatelli* is distributed in the countries of the Mediterranean region.

MATERIAL AND METHODS

The defined species have been collected during the expeditions made in the months of spring and summer of the years 2005, 2006, 2007 and 2008, in the district of Gjirokastra.

At each place of new taxa and the exact locality either coordinates, the date of observation and the altitude are recorded. The coordinates were recorded with the aid of GPS Alan Map 500. In addition to the species collected in terrain, morphological comparative analysis has also been made to the species of the genus *Gagea* Salisb., *Galanthus* L. and *Orobanche* L. deposited in the national herbarium (TIA). The three species have been defined based on the floras of Europe (TUTIN et al, 1964-1980), the Flora of Italy (PIGNATI, 1982), the Mountainous Flora of Greece (STRID & KIT TAN, 1985), the Excursionist Flora of Albania (DEMIRI, 1983) and the Flora of Albania (QOSJA et al. 1996; VANGJELI et al. 2000). Collected species have been dried and deposited in the Herbarium of the Department of Biology, Tirana University.

For the three identified species, high resolution digital pictures have been taken and have been deposited at the phototech of the botany section, Department of Biology, Tirana University.

RESULTS AND DISCUSSION

In the expedition made in the Valley of Zagorie on June 19, 2006, amongst the villages Skore and Sopik, in the coordinates N 40 06 428 and E 020 23 640, 1000 m altitude sea level (fig. 1), ***Orobanche lavandulacea* Rchb.** was identified for the first time in Albanian territory. It is part of the Sect. *Trionychon* Wallr. From this genus, so far in the Albanian flora have been identified and described and eleven other species (QOSJA et al. 1996).

It has been found in schistaceous and calcareous substrate, under shrubberies dominated by deciduous broadleaved plants or in open environments, in heights ranging from 500 m to 1400 m altitude. It flowering in May until June and makes fruit in July. Corolla of *O. lavandulacea* is dark blue or violet. The length of stems is between 25 and 50 cm long. It is characterized by having branched stems, flowers sessile or pedicelate, subtended by two bracteoles (6-8 mm long) as well as by a

bract few longer than bracteoles. Calyx is campanulate with connate segments. Anthers are white, stigma included, white, frequently violet or pale blue coloured. Inflorescence is 12-20 cm long. It parasitizes on plants of the *Labiatae* family exactly to the species of the genus *Thymus* L. In the years 2006-2008, it was found frequently on the sides facing of the west part of Nemërçka Mountain, between the villages Skore and Sopik of the district Gjirokaster. This species was not mentioned in the Mountain Flora of Greece (STRID & KIT TAN, 1985). Since the location is near the state border with Greece, we think it must be growing on the other side of the national border.

Another report from Barina Zoltan, Botanist of the Hungarian Natural History Museum, in May 2008 (pers. communication) enlarges its distribution farther in the northwest of the country in the Vlora district (fig. 1).

Orobanche lavandulacea were distributed in Northern Africa, Western Asia and Europe (Southeaster Europe in Greece, Italy, Yugoslavia and Southwestern Europe in France and Spain).

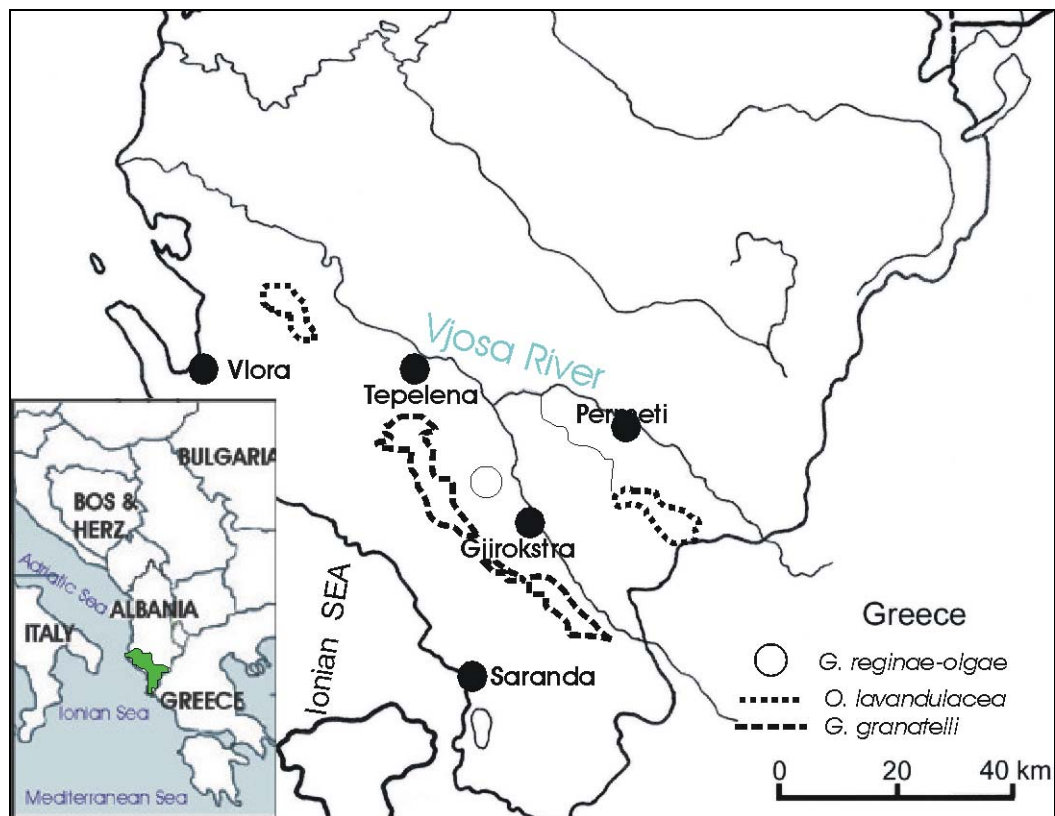


Figure 1. Distribution areal of *G. reginae-olgae* ssp. *vernalis*, *O. lavandulacea* and *G. granatelli* in South Albania.

The new taxa, *Galanthus reginae-olgae* Orph. ssp. *vernalis* Kamari (KAMARI, 1982) has been found in shrubby woods dominated by hornbeam on January, 26, 2006. It is located in the coordinates N 40 09 948/E 020 03 678, 353 m altitude. Two years ago, it was seen in the hills below the village of Picar in the heights 300-500 m

above the sea level, growing in schistaceous substrate. *G. regina-olgae* subsp. *vernalis* flowering from the end of January to March and makes fruit in May up to June. Its scape go up to 25 cm, Outer perigon segments up to 15-20 x 6-8 mm; they are white, inner segments are 9-12 x 5-7 mm, they are with a green spot around the sinus at the apex. Spathe goes up to 2.5-3.5 cm long and the pedicel is equaling or shorter than spathe. Fruit is a polyspermic, syncarpous, subspherical capsule. The territory which is growing is under overgrazing by animals and so it is threatened.

In the Red Data Book of Greece, (PHITOS et al, 1995) it is stressed that *G. regina-olgae* may grow in the South of Albania, thanks to the geographical vicinity and the similarity of environments. In the Greek island of Corfu, the growth of *G. regina-olgae* ssp. *olgaea* is also reported (PHITOS, 2000). *Galanthus reginae-olgae* is distributed in Greece and in South Italy. The finding of the species in the territory of Albania extends the territory of its spread farther to the north and represents another valuable contribution to the flora of Albania.

Gagea granatelli Parl., (Syn. *G. arvensis* Dumort ssp. *granatelli* (Parl.) K. Richt; *Ornithogalum granatelli* Parl.) has been met on 31.03.2006, in the slopes of the Wide Mountain (Mali i Gjerë). It was met also in the Mountain of Muzina and the Mountain of Pus in the coordinates N 40 09 931 and E 019 58 229, altitude 1096 m, in open pasture milieus or calcareous cliffs dominated by the herbaceous plant or on the xerophyle oak communities environments.

The height of the plant goes from 5 to 15 cm, basal leaves 2, 10-18 cm long x 1-2 mm wide when they are pressed, cauline lives 2-3, opposite to alternate, sometimes with blackish leafy bulbils in their axils. Its flowers are yellow, inflorescence umbellate with 2-8 flowers (rear with one). The pedicle is often woolly. It blooms early in spring, in the months at the end of March up to April rear in May. It is found in the heights 800 m up to 1500 m.

In the heights above 1000 m, together with *Gagea granatelli*, *Viola acrocerauniensis* (ERBEN, 1986) another endemic species of Albania is also often met. It is a typical Mediterranean species according to STRID & KIT TAN (1985) that consider it as a submediterranean taxon. *Gagea granatelli* is closely related to *G. villosa* (Bieb.) Duby, and differing from this in shap of perianth segments, cauline leaves and presence of bulbils.

Growing habitat of the new species, recorded in this paper, is included in the Mediterranean region. The Mediterranean climate has influenced in the vegetation forms of the Gjirokastra district that is composed by vegetation of shrubby and woody plant communities dominated by *Ass. Querco-Carpinetum* and *Orno-Carpinetum orientalis* and the vegetation of herbaceous plants represented from West Mediterranean xeric grassland habitats. This habitat is characterized by a wet autumn and winter and dry summer climate.

We confirm also the presence of the *Stachys sericophylla* Halascy (rediscovery after more than 28 yrs. in a new site) near the summit of Nemërçka Mountain (mainly in brooks) which was known up to now in Çika Mountain, Vlora district. We have found and *Viola acrocerauniensis* Erben, even in mountains of southern part of

Albania, in altitudes 800 m to 2250 m above sea level. This new sites enlarges the distribution area of this two endemic species of Albanian.

CONCLUSIONS

The identification of the three above mentioned species comprises a contribution to the flora of Albania.

The species *Orobanche lavandulacea* Rchb. and *Gagea granatelli* Parl., geographically grow in the neighboring countries as well, thus completing the geography of their distribution.

The species *G. regina-olgae* ssp. *vernalis* is included on the UNEP-WCMW database, and since the territory of its distribution is quite small (less than 10 ha), it requires specific protection measures.

The presence of new distribution sites for *Stachys sericophylla* and *Viola acrocerauniensis* in mountains of South Albania is another contribution for the botanical studies in Albania.

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