



## New chorological data and floristic notes for Albania

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**ABSTRACT:** Twelve taxa belonging to five families are reported based on fieldwork in Albania from 2007 to 2010. Eleven have not been recorded for the country in the relevant volumes of *Flora Europaea*, *Flora of Albania* or the *Med-Checklist*. Notes on ecology and distribution are provided and all the taxa are mapped within Albania and also in neighbouring countries to show the nearest occurrences in the western part of the Balkan Peninsula. Some taxa in their natural habitat are illustrated by photographs. New localities for two sub-endemic species, *Silene schwarzenbergeri* and *Centaurea vlachorum*, are listed; these extend their known limits of distribution even further north.

**Key words:** Albanian flora, Balkan Peninsula, distribution, endemic, new records

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During fieldwork in different parts of Albania from 2007 to 2010, ca. 2260 herbarium specimens were collected, mostly on serpentine and limestone substrate. Several taxa were discovered which have not been included in the relevant volumes of *Flora Europaea*, *Flora of Albania*, the *Med-Checklist* or recently published literature and they were catered for in a series of floristic contributions among which are those by MALO & SHUKA 2008, SHUKA 2009, SHUKA & TAN 2009, SHUKA *et al.* 2010. Some have been misidentified, e.g., *Corydalis solida* subsp. *incisa* treated erroneously as *C. densiflora*, others were found to be species new to science. We deal here only with twelve taxa which are new records for the country and for two of them (*Silene schwarzenbergeri* and *Centaurea vlachorum*), new localities are provided which extend their known limits of distribution further north. The families and species are grouped in taxonomic sequence following *Flora Europaea*.

### *Aristolochiaceae*

*Aristolochia merxmuelleri* Greuter & E. Mayer (Fig. 1)

NE Albania: Kukësi district, Surroj area, 630 m, 42°02'N, 20°19'E, 7 May 2009, Shuka & Hallaçi 1265 & 1266 (TIR); loc. *ibid.*, 25 June 2011, KITT TAN & G. VOLD obs.

First record for Albanian flora. This species was previously known only from serpentine substrate to the left of the Mirusha River; it is a stenoendemic of Kosovo and Metohija provinces to the northeast of Albania (MAYER & GREUTER 1985). The ecology and morphological characters of the plants in the Surroj area are identical to those of the Kosovo plants except for the higher elevation of 500–800 m as compared with 400–660 m in the *locus classicus* at Mt. Koznik. *A. merxmuelleri* is related to *Aristolochia pallida* Willd.

### *Caryophyllaceae*

*Dianthus superbus* L.

NE Albania: Kukësi district, Mt Maraitit, alpine meadows above Shishtaveci village, 1900–2000 m, 41°56'N, 20°37'E, 15 July 2009, Shuka 3950 & 3951 (TIR).

First record for Albania. A few individuals were observed, also near Restelica village in adjacent Kosovo. This species is common on Mt Šarplanina, very close to the Albanian border (MIČEVSKI 1993) and has a wide distribution in Europe, C and E Asia.

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Fig. 1. *Aristolochia merxmuelleri* from Surroj area (photo L. Shuka).

***Minuartia pseudosaxifraga*** (Mattf.) Greuter & Burdet (Fig. 2)

S Albania: Gjirokastra district, NW slopes and ridge of Mt Nemërçka, limestone rock crevices, 2300-2450 m, 40°07'N, 20°25'E, 20 June 2007, *Shuka & Malo* 3015 (TIR).

First record for Albania. Reported by Kamari (1977) as a Greek endemic based on two localities in N Pindos, NW Greece (Mts Timfi and Nemërçka). *M. pseudosaxifraga* resembles *M. stellata* (E.D. Clarke) Maire & Petitm., another sub-endemic species restricted to Greece and S Albania. The latter was found on Mt Çajupi, 25 km SW of Mt Nemërçka and differs from *M. pseudosaxifraga* not only by the smaller size of bracts, sepals and petals but also by the absence of dense glandular hairs and cream to reddish (not white) anthers. The new locality in the NW part of Mt Nemërçka extends the distribution area of *M. pseudosaxifraga* to S Albania as predicted (KAMARI 1977).

***Heliosperma pusillum*** (Waldst. & Kit.) Reichenb. subsp. ***monachorum*** Niketić & Stevanović (Fig. 3)

S Albania: Gjirokastra district, Mt Nemërçka, shady rock ledges and crevices, limestone, 2200-2450 m, 40°07'N, 20°24'E, 20 June 2007, *Shuka & Malo* 3218 (TIR), loc. ibid., *Shuka & Malo* 3221 (herb. Kit), loc. ibid., *Shuka & Malo* 3219 & 3220 (herb. Shuka).



Fig. 2. *Minuartia pseudosaxifraga* from Mt Nemërçka (photo L. Shuka).

First record for Albania. Growing together with *Minuartia pseudosaxifraga* and replacing *Silene parnassica* Boiss. & Spruner subsp. *parnassica*, which on this mountain occurs at the lower altitudes of 1900-2230 m. Known so far from Montenegro, Republic of Macedonia, Serbia and Mt Timfi in NW Greece (GREUTER 1997, NIKETIĆ *et al.* 2007).

***Silene lerchenfeldiana*** Baumg.

NE Albania: Kukësi district, Shishtavec area, Guri i Mëngjezit (Morning Rock), semi-shaded places and siliceous rock crevices, 1946 m, 41°56'N, 20°37'E, 15 July 2009, *Shuka* 3962 (TIR); Mt Kallabaku, 1850-2100 m, 41°56'N, 20°37'E, 19 June 2010, *Shuka & Hallaçi* 4054 (TIR), loc. ibid., *Shuka & Hallaçi* 4055 (herb. Shuka).

First record for Albania. *S. lerchenfeldiana* was found together with the calcifuge *S. waldsteinii* Griseb. It is mainly distributed in the mountains of East and Central Balkans; the nearest localities are Mts Šarplanina and Korab in the Republic of Macedonia (MICEVSKI 1993). Although pink-flowered forms exist elsewhere in its distributional range, the Albanian plants were all white-flowered.

***Silene schwarzenbergeri*** Halascy

SE Albania: Erseka district, along the road from Helmës village to Qarri Pass, 1000-1200 m, 40°48'N,

20°40'E, 14 July 2010, *Shuka* 4087 (TIR); Korcha district, along national road from Floqi to Qarri Pass, 950–1130 m, 40°29'N, 20°40'E, 18 May 2007, *Shuka* 4067 (TIR), tributary on north side of old Polena village, 900–1100 m, 40°58'N, 20°39'E, 13 April 2007, *Shuka* 3307 (TIR), Gjergjevica valley, along the road from Hasani Bridge to Kulas, 1150–1500 m, 40°34'N, 20°34'E, 1 July 2010, *Shuka* 4015–4017 (TIR).

NE Albania: Mati district: Mt Mbasdeja, rocky clearings in *Fagus* forest, 1240 m, 41°39'N, 20°11'E, 16 July 2008, *Shuka* 2522 (TIR).

*S. schwarzenbergeri* is restricted to ophiolitic rock and scree slopes of the Pindos range in NW Greece, extending to adjacent parts of S Albania (GREUTER 1997). It had been reported for Albania in only two localities, near Gjergjevica village (ALSTON & SANDWITH 1940) and near Mborja village (VANGJELI *et al.* 1995), both close to Korcha city. We here report three other localities in Korcha district, one in Erseka and a fifth one in Mati district, NE Albania; the latter is surprisingly disjunct and extends the northern distribution of the species to near latitude 41°40'N. All localities are on ophiolitic substrate.

### Scrophulariaceae

*Cymbalaria microcalyx* (Boiss.) Wettst. subsp. *minor* (Cuf.) Greuter (Fig. 4)



Fig. 3. *Heliosperma pusillum* subsp. *monachorum* from Mt Nemërçka (photo L. Shuka).

S Albania: Gjirokastra district, bank of Zhulati river (a tributary of Kardhiqi river), below Qafa e Taroninës, limestone rock crevices and cliffs of Kardhiqi valley, with *Colutea arborescens* abundant 10 m above river bank, 325–350 m, 40°07'N, 19°59'E, 16 May 2009, *Shuka & Malo* 3180 (TIR), above Kolonja village, on the left of Picari village, 590 m, 40°16'N, 20°01'E, 10 April 2008, *Shuka & Malo* 2672 (TIR).

First record for the Albanian flora, the nearest occurrences being the Ionian Islands and the adjacent mainland of western Greece to the south (TAN & IATROU 2001). The population above Kolonja village represents the northernmost distribution limit of the species.

### *Pedicularis ernesti-mayeri* Stevanović, Niketić & Lakušić

N Albania: Shkodra district, Buni i Thores, limestone rock, meadows above *Fagus* forest tree line, 1860 m, 42°23'N, 19°43'E, 21 July 2007, *Shuka* 1634 (TIR); loc. *ibid.*, 26 June 2009, *Shuka* 1928 (TIR); Maja Jezerca, ann. 2000, *Wraber* (pers. comm. M. Niketić).

A trip was made to the northern Albanian Alps with the intention of monitoring known populations of *Wulfenia baldacci* Degen and *Petasites doerfleri* Hayek on Buni i Thores. The *Pedicularis* was discovered in the area, not surprising bearing in mind the not too distant locality of the Kosovo Alps (Mt Prokletije) from where it was



Fig. 4. *Cymbalaria microcalyx* subsp. *minor* from Kardhiqi valley (photo L. Shuka).



Fig. 5. *Galanthus reginae-olgae* subsp. *reginae-olgae* from Bistricea valley (photo L. Shuka).

first described (STEVANOVIĆ *et al.* 2001). Together with *Petasites doerfleri*, we observed *Heliosperma macranthum* (Pančić) Neumayer, *Gentiana dinarica* Beck., *A. ottonis* Orph. subsp. *amaliae* Strid, *Pinguicula balcanica* Casper, *Viola calcarata* subsp. *zoysii* (Wulfen) Merxm., *Dryas octopetala* L. and *Salix retusa* L. This locality extends the known distribution range of *P. ernesti-mayeri* more to the south and west.

Marjan Niketic (Belgrade) had kindly informed Kit Tan that the late Prof. Tone Wraber (Slovenia) had found *P. ernesti-mayeri* in N Albania much earlier, in the year 2000 and has also shown him a specimen. As far as we can ascertain this discovery had not been published nor is it known if the plant was collected from the Albanian or Kosovo part of Mt Jezerca; we include Wraber's record here. Buni i Thores is 50-70 km further south than Mt Jezerca.

#### Asteraceae

##### *Centaurea prespans* Rech. fil.

SE Albania: Korcha district, watershed of Mikro Prespa Lake, calcareous rocks of the western slopes, below castle of Gradishta, 870 m, 40°40'N, 20°59'E, 15 June 2007, *Shuka* 451 (TIR).

New for Albania. *C. prespans* was first described as a yellow-flowered species restricted to NW and N Central Greece (RECHINGER 1975). A pink-flowered form of *C. prespans* was later discovered on calcareous cliff faces and at the base of cliffs and screes near the edge of Lake Megali Prespa, NW of the village of Psarades and north of the frontier post of Koula (TAN *et al.* 2007). We now record the pink-flowered form in Albanian territory, just across the Greek-Albanian border. Although the plants were not yet in full flower, it was obvious from four capitula available, that the florets would be pink rather than yellow. We have never observed yellow-flowered *C. prespans* in Albania.

##### *Centaurea alba* subsp. *ipeccensis* (Rech.fil.) Dostál

N Albania: Shkodra district, in meadows overlying hard limestone, along the path from Okol (Thethi) village to Peja Pass, 850-1100 m, 42°25'N, 19°45'E, 19 July 2007, *Shuka* 789 (TIR).

First record for Albania. This is a stenoendemic from Kosovo where the type material was collected, also from the Peja (Peć) area.

##### *Centaurea vlachorum* Hartvig

NE Albania: Kukësi district, Livadhet e Laskit (Meadows of Laski), along road to Qafa e Kumbullës (Prunus Pass), on serpentine substrate, 1250-1350 m, 42°00'N, 20°17'E, 15 May 2010, *Shuka* 4113 (TIR), loc. *ibid.*, 20 June 2010, *Shuka* 4188 (TIR) & 25 June 2011, KITT TAN & G. VOLD 30954 (C).

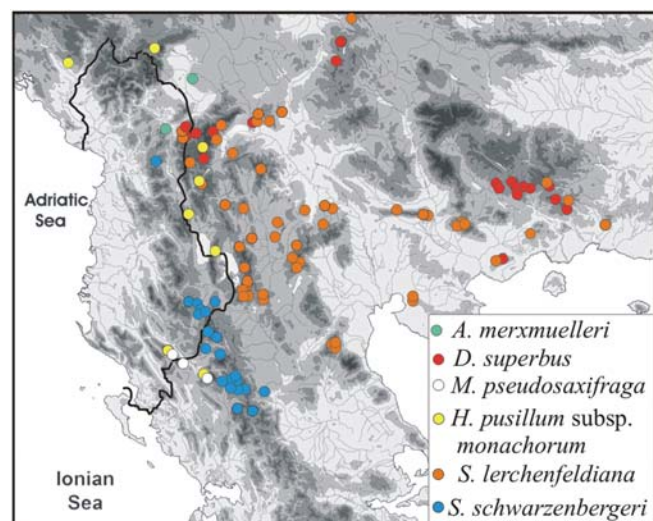
This serpentine species was recently discovered in the Lura National Park, Peshkopi district in the northeast of the country and reported as new for Albania (SHUKA & TAN 2009). The new locality in the meadows of Laski represents the northernmost limit of distribution. The plants here were not yet flowering in May but had finished flowering and were in early fruit subsequent visits in June. The population of *C. vlachorum* in the Laski meadows was very large, occupying nearly the area of a football field.

#### Amaryllidaceae

##### *Galanthus reginae-olgae* Orph. subsp. *reginae-olgae* (Fig. 5)

S Albania: Delvina district, above Syri i Kalter (spring of Blue Eyes) in Bistricea valley, limestone substrate, still flowering, 230-270 m, 39°54'N, 20°11'E, 30 November 2008, *Shuka* 2832 (TIR); loc. *ibid.*, fruiting, 7 April 2010, *Shuka* 3698 (TIR), loc. *ibid.*, 8 April 2010, Kit Tan & *al.* 30880 (Copenhagen Bot. Garden), west of Dhrovjani village, above the springs in Bistricea valley, limestone substrate, fruiting, 120 m, 39°55'N, 20°08'E, 24 December 2010, *Shuka* 5002 (TIR).

First record for the Albanian flora. *G. reginae-olgae* subsp. *reginae-olgae* was flowering from October to



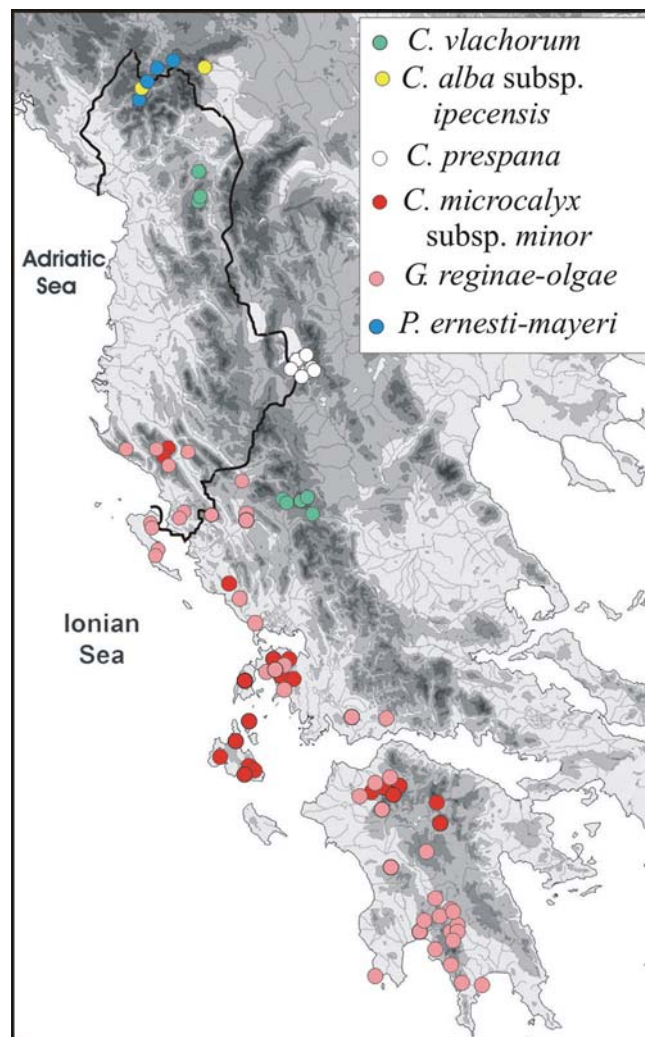
**Fig. 6.** Distribution map of *Aristolochia merxmuelleri*, *Dianthus superbus*, *Minuartia pseudosaxifraga*, *Heliosperma pusillum* subsp. *monachorum*, *Silene lerchenfeldiana* and *Silene schwarzenbergeri* in Albania and nearest localities in neighbouring countries.

November (without leaves) in shaded, mixed deciduous and evergreen woodland and scrub (*Castanea sativa*, *Fraxinus angustifolius*, *Paliurus spina-christi*, *Quercus coccifera*, *Q. ilex*, *Phlomis*, *Ruscus*). It is known from the Peloponnese where it flowers without leaves or with leaves 1–15 cm long, in the western part of mainland Greece and the island of Kerkira but is absent from Macedonia (pers. comm. V. Matevski, Skopje). Other collections in S Albania refer to *G. reginae-olgae* subsp. *vernalis* Kamari; in the wild and in cultivation, they flowered in January to March, together with leaves. Populations of the latter taxon from lower altitudes, e.g., 300–400 m in the Kardhiqi valley and near Picari village, flower in January whereas those from higher altitudes of 800–1200 m in Gjirokastra district (Mt Picari, Mt Murgana, Çajupi Pass) and Vlora district (Llogara Pass), flower from February to March, depending on altitude and exposition. The degree of leaf development at flowering time has often been used as a taxonomic character separating the two subspecies but as seen in the Peloponnese, there are various degrees of development and the character is not constant.

## SUMMARY OF RESULTS

Our results reveal that nine taxa, which were previously considered endemic to neighbouring countries, now also occur in Albania. *Centaurea alba* subsp. *ipeensis* is only known in one locality in each of its country of occurrence.

Regarding substrate preferences, *Aristolochia merxmuelleri*, *Silene schwarzenbergeri* and *Centaurea vlachorum* are obligate serpentinophytes, growing only on



**Fig. 7.** Distribution map of *Cymbalaria microcalyx* subsp. *minor*, *Pedicularis ernesti-mayeri*, *Centaurea prespana*, *Centaurea alba* subsp. *ipeensis*, *Centaurea vlachorum* and *Galanthus reginae-olgae* in Albania and nearest localities in neighbouring countries.

ophiolithic soils in the Albanian-Pindos mountain chain. All the other taxa occur on limestone, flysch or siliceous substrate.

The new localities for *Silene schwarzenbergeri* and *Centaurea vlachorum* in NE Albania, taxa which have previously been considered as endemic to N Pindos (NW Greece), extend substantially the distribution limits of these taxa to the north. The narrow range of five local endemics geographically isolated in the N Albanian Alps (*Pedicularis ernesti-mayeri*, *Centaurea alba* subsp. *ipeensis*), Dukadjini area (*Aristolochia merxmuelleri*), Prespa area (*Centaurea prespana*) and Mts Nemërçka-Timfi range (*Minuartia pseudosaxifraga*) are now much broadened.

Two taxa, *Cymbalaria microcalyx* subsp. *minor* and *Galanthus reginae-olgae* subsp. *reginae-olgae*, are East

Mediterranean elements whereas *Heliosperma pusillum* subsp. *monachorum* and *Silene lerchenfeldiana* are distinctly East and Central Balkan elements.

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## REZIME

# Novi horološki podaci za floru Albanije

Lulëzim SHUKA, Sadik MALO i Kit TAN

U radu su predstavljeni rezultati terenskih istraživanja vaskularne flore u Albaniji u periodu od 2007 do 2010. god. Oslanjajući se na relevantnu florističku literaturu kao što je *Flora Europaea*, *Flora of Albania* i *Med-Checklist* utvrđeno je da 8 novih taksona nisu do sada zabeleženi za teritoriju Albanije: *Aristolochia merxmulleri* Greuter & E. Mayer, *Dianthus superbus* L., *Minuartia pseudosaxifraga* (Mattf.) Greuter & Burdet, *Heliosperma pusillum* (Waldst. & Kit.) Reichenb. subsp. *monachorum* Niketić & Stevanović, *Silene lerchenfeldiana* Baumg., *Cymbalaria microcalyx* (Boiss.) Wettst. subsp. *minor* (Cuf.) Greuter, *Centaurea alba* subsp. *ipeccensis* (Rech.fil.) Dostàl, *Galanthus reginae-olgae* Orph. subsp. *reginae-olgae*. Osim toga za 4 vrste dati su novi podaci o rasprostranjenju u Albaniji: *Silene schwarzenbergeri* Halascy, *Pedicularis ernesti-mayeri* Stevanović, Niketić & Lakušić, *Centaurea prespana* Rech. fil. i *Centaurea vlachorum* Hartvig. Osim preciznih opisa lokaliteta sa koordinatama, prikazane su karakteristike svakog staništa novootkrivenih taksona sa podacima o tipu podloge i nadmorske visine. Takođe, novi nalazi razmatrani su u kontekstu opšteg rasprostranjenja svakog prikazanog taksona. Većina novootkrivenih vrsta su endemične te podaci u ovom radu predstavljaju vredne priloge horologiji i ekologiji endemične flore Balkanskog poluostrva.

**Ključne reči:** Flora Albanije, Balkansko poluostrvo, rasprostranjenje, endemična flora, novi nalazi.