

***Oxytropis montana* (L.) DC. (Fabaceae) in the flora of North Macedonia**

Zoran Nikolov

Natural History Museum of the Republic of North Macedonia, Blvd. Ilinden 86, 1000 Skopje,
North Macedonia,
e-mail: z.nikolov@musmacscinat.mk

Abstract

This paper provides information on the first confirmed record of the presence of *Oxytropis montana* (L.) DC. in the flora of North Macedonia. So far, the only information of its occurrence comes from Hayek (1924), for a locality on the very border with Albania – Čafa (Mt Korab). The new finding is on the peak Ljuboten, on the mountain massif of Šar Planina. In ILDIS World Database of Legumes 2010 (The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity), the territory of the Balkan Peninsula was not included in the distribution area of this species. This new finding confirmed the presence of *Oxytropis montana* in the alpine zone of this mountain massif (Šar Planina) and re-confirms its distribution on the Balkan Peninsula. Our plants match the descriptions given in the relevant literature. From the close-related *Oxytropis neglecta*, *Oxytropis montana* clearly differs in the following characteristics: the ratio between the length of the calyx-teeth and the calyx-tube and the length of the carpophore.

Key words: alpine species, Balkan Peninsula, carpophore, range extension, Šar Planina Mt.

Introduction

Five species of the genus *Oxytropis* have been confirmed, so far, in the flora of North Macedonia (Micevski and Matevski 2001). Four additional species, previously reported in the literature, have not been accepted, as they have not been confirmed during the long-years investigations (Micevski and Matevski 2001). One of them is *Oxytropis montana* (L.) DC. (Fig. 1, 2).

Oxytropis montana is an alpine species distributed in the central and eastern Alps, in France, Germany, Switzerland, Austria, and Italy. (Gutermann and Merxmüller 1961, Leins and Merxmüller 1968, ILDIS World Database of Legumes 2010. The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity). Martinčič (1999) recorded this species also for Slovenia. According to the latest data in ILDIS World Database of Legumes 2010 (The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity), the territory of the Balkan Peninsula is not part of the distribution area of this species. *O. montana* grows on mountain meadows and rocky slopes, between 1500 and 3000 m a.s.l. (Gutermann and Merxmüller, 1961).

Material and methods

During the field work in 2003, several plants, mostly in fruiting stage, were collected from the very peak Ljuboten (2498 m a.s.l.), Šar Planina Mts. Ten years later, in 2013, on the same locality but at some lower altitude (2466 m a.s.l.), abundant population, mostly in flower-stage, was discovered, and some additionally specimens were collected.

The determination of the material was done according to Gutermann and Merxmüller 1961, Hegi 1964, Leins and Merxmüller 1968, Martinčič 1999, Rothmaler 2000 and Schmeil and Fitschen 2003. Photographs of the species (Fig. 1), the herbarium specimens (Fig. 2), and its habitats (Fig. 3) were made. Drawings of different parts of the plants are also given (Fig. 4). The collected plant material is deposited in the Herbarium of the Natural History Museum of North Macedonia.

Taxonomy and nomenclature

There was a dilemma, which name to accept as a valid - *Oxytropis montana* (L.) DC. or *Oxytropis jacquinii* Bunge. After the excellent work of Gutermann and



Figure 1. Fig. 1. *Oxytropis montana* (L.) DC. a) habitus b) inflorescence

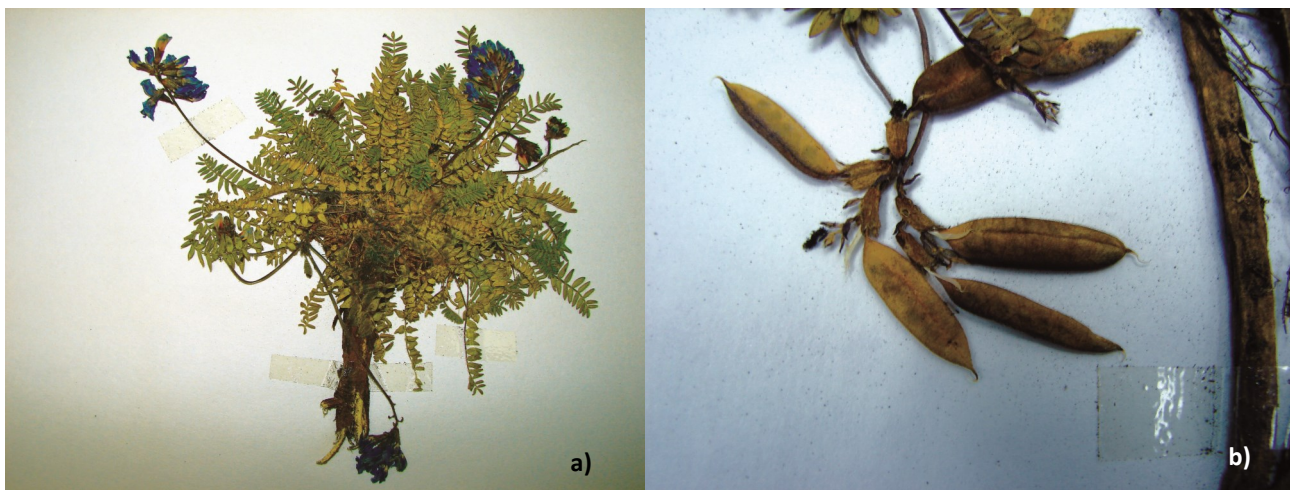


Figure 2. *Oxytropis montana* (L.) DC - Herbarium specimens from Ljuboten. a) Habitus; b) Fruits

Merxmüller (1961), the name *O. jacquinii* was dominantly in use (Leins and Merxmüller, 1968; Stevanović, 1986, Martinčić, 1999; Micevski and Matevski, 2001; Schmeil and Fitschen, 2003). Following this line, in ILDIS World Database of Legumes 2010 (The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity), *O. jacquinii* is also accepted, as a valid name, while *O. montana* is given as its provisional synonym. But, in KewScience: Plants of the world online, is opposite: *O. montana* is accepted as a valid name while *O. jacquinii* is in its synonymy. It is the same in Atlas Florae Europaeae 19, Leguminosae (Fabaceae) (*Astragalus* to *Erophaca*), draft text June 2017 (compiled by Arto Kurtto).

The work of Gutermann (2009), one of the authors of the great issue from 1961 (Gutermann and Merxmüller), that threw new light on this problem, was decisive

in the solution, the name *O. montana* to be accepted, in this paper.

Results and discussion

Мк: Šar Planina Mts (v. Staro Selo): Ljuboten, 2466 m a.s.l., N 42° 12' 21.8" E 021° 07' 07.9", 24.07.2013 Leg./Det.: Z. Nikolov.

The only available information, for the presence of this species, in the flora of North Macedonia, comes from Hayek (1924), for the locality Čafa, mountain Korab (Fig. 5). In addition, there are data for the presence of *O. montana*, on the peak Ljuboten, but they consider the side of the border that belongs to Kosovo [Rejevski, 1974 (1990), sub. *Oxytropis montana* subsp. *jacquinii*, and Stevanović, (1986), sub *Oxytropis jacquinii* Bunge].

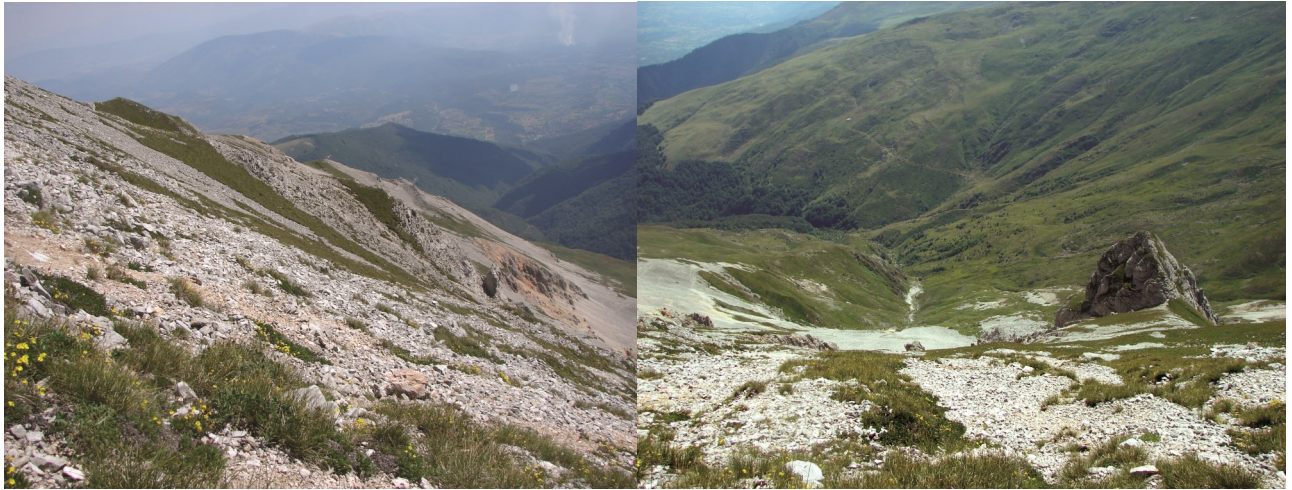


Figure 3. *Oxytropis montana* (L.) DC. Species' habitats on Ljuboten (Šar Planina Mt.)

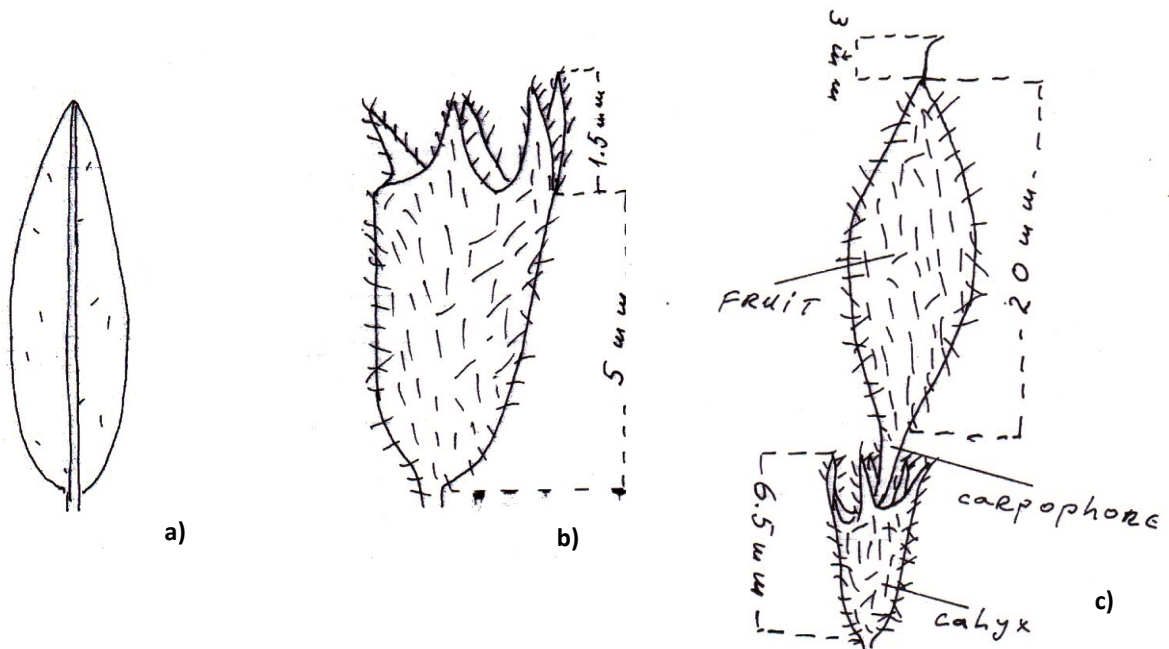


Figure 4. *Oxytropis montana* (L.) DC. a) Leaflet; b) Calyx; c) Fruit with calyx and carpophore

The data of Degen (1902): "*Oxytropis montana* (L.). DC. In monte Ljuboten, an no 1893, detexit cel. DIECK; in cacumine montis Mandra Scardi an no 1900, detex. BIERBACH", also considers the peak Ljuboten, but because of the obscure information (Mandra Scardi), it was not possible, with certainty, to confirm the side of the border, where this finding belongs.

Our plants match the descriptions given by Guter-mann and Merxmüller (1961) and Leins and Merxmüller (1968). From the close-related *Oxytropis neglecta* Ten. present at the wider territory of the Balkan Pen-

ninsula (ILDIS World Database of Legumes 2010. - The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity), *O. montana* differs in two main characteristics: the ratio between the length of the calyx-tube and the calyx-teeth and the length of the carpophore and the calyx. In compare to *O. neglecta*, where the calyx-teeth are usually more than 1/2 as long as the tube and the carpophore is usually c. 1/2 as long as the calyx-tube, the calyx-teeth by *O. montana* are mostly 1/4, rarely 1/3 as long as the tube and the carpophore is equaling or longer than the

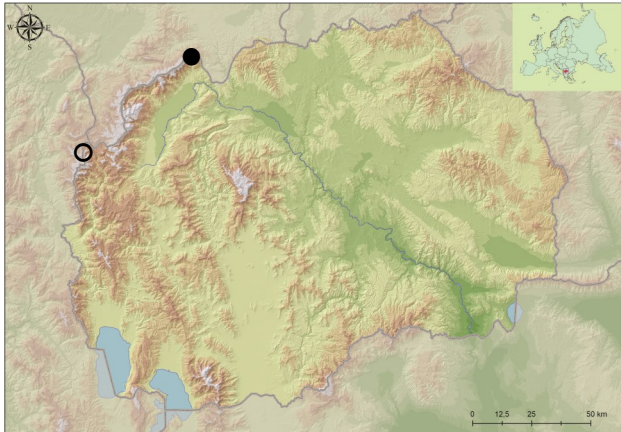


Figure 5. *Oxytropis montana* (L.) DC.
(○) - literature data, (●) - new data

calyx (Gutermann and Merxmüller, 1961; Leins and Merxmüller, 1968). That is the case with our plants (Fig. 4b, 4c).

Conclusion

This finding confirmed the data of Hayek (1924), for the presence of this species in the flora of North Macedonia, and proved also that *O. montana* comes on the Balkan Peninsula. Consequently, the territory of the Balkan Peninsula, through this alpine zone of Mts Šar Planina, is part of the distribution area of *O. montana*.

Acknowledgements

I express my gratitude to Boštjan Surina, for his help in obtaining the necessary literature. Also, I am grateful to Marjan Niketić and Vlado Matevski for their help in the improvement of the manuscript.

References

Degen, A., 1902. Referate über ungarische boten Arbeiten. MBL, 1:92.
Gutermann, W., Merxmüller, H., 1961. Die europäischen Sippen von *Oxytropis* sectio *Oxytropis*. Sonderdruck aus den Mitteilungen der Botanischen Staatssammlung, 4:199-275. München.
Guterman, W., 2009. Notulae nomenclaturales 29-40 (Zur Nomenklatur von Gefäßpflanzen Österreichs [Notulae nomenclaturales 29-40 (On the Nomencla-

tures of the vascular plants of Austria)]. – *Phyton* (Horn, Austria), 49(1):77-92.

Hayek, A., 1924. Zweiter Beitrag zur Kenntnis der Flora von Albanien. DAWW (Denkschriften der Kaiserlichen Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Klasse), 99:144. Kaiserlich-Königlichen Hof- und Staatsdruckerei, Wien.

Hegi, G., 1964. *Illustrierte Flora von Mitteleuropa*. Band IV, Teil 3. Dicotyledones, 2. Teil. Leguminosae-Tropaeaceae. München.

ILDIS World Database of Legumes, 2010. The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity.

Kurto, A., 2017. *Atlas Florae Europaeae*, 19. Leguminosae (Fabaceae) (*Astragalus* to *Erophaca*). Draft text, June 2017. Helsinki.

Leins, P., Merxmüller, H., 1968. *Oxytropis*. - In: Tutin, T.G., Heywood, V.H., Burges, N.A., Moore, D.M., Valentine, D.H., Walters, S.M., Webb, D.A (Eds.). *Flora Europaea*, 2. Rosaceae to Umbelliferae. Cambridge University Press.

Martinčič, A., 1999. *Oxytropis*. - In: Martinčič, A., Wraber, T., Nejc, J., Ravnik, V., Podobnik, A., Turk, B., Vreš, B. (Eds.). *Mala flora Slovenije*, pp. 1-845. Tehnička založba, Ljubljana.

Micevski, K., Matevski, V., 2001. *Oxytropis*. - In: Micevski, K. (Ed.). *Flora of the Republic of Macedonia*, I (5):1193-1198. Macedonian Academy of Sciences and Arts. Skopje.

Rajevski, L., 1990 (1974). Phytocenological characteristics of mountain pasture of the northern side of Šar Planina mountain. *Glasnik Instituta za botaniku i Botaničke bašte Univerziteta u Beogradu*, 9: 1–62.

Rothmaler, W., 2000. *Exkursionsflora von Deutschland*. Bd. 3. Spektrum Akademischer Verlag Heidelberg. Berlin.

Schmeil, O., Fitschen, J., 2003. *Flora von Deutschland und angrenzender Länder*. 92. Auflage. Quelle & Mayer Verlag Wiebelsheim.

Stevanović, V., 1986. *Oxytropis jacquinii* Bunge. In: Sarić, M., Diklić, N. (Eds.). *Flora de la Republique Socialiste de Serbie*, X. Supplement (2): 112–114. Academie Serbie des Sciences et des Arts. Belgrade.

***Oxytropis montana* (L.) DC. (Fabaceae) во флората на Северна Македонија**

Зоран Николов

Родот *Oxytropis*, во флората на Северна Македонија е застапен со 5 видови (Мицевски и Матевски 2005). Помеѓу видовите кои се наведуваат во литературата, а чие присуство не беше потврдено, се наоѓа и *Oxytropis montana* (L.) DC. (Мицевски и Матевски 2005).

O. montana е алпски вид распространет во Франција, Германија, Швајцарија, Австрија и Италија (Gutermann and Merxmüller 1961; Leins and Merxmüller 1968; ILDIS World Database of Legumes 2010. - The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity). Martinčič (1999) го наведува и за Словенија.

Единствениот податок, за присуството на овој вид во флората на Северна Македонија го среќаваме кај Науек (1924), а се однесува за северната страна на планината Кораб, на локалитетот Кафа, на границата со Албанија. Во текот на теренските истражувања (2003 и 2018), колекциониран е растителен материјал од *O. montana* од Љуботен (Шар Планина). Во таксономски поглед, од блискиот *Oxytropis neglecta* Ten., кој се наведува за поширокиот регион на Балканскиот Полуостров (ILDIS World Database of Legumes 2010. - The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity), *O. montana* се разликува по две основни карактеристики: односот на должината на забците на чашката и чашкината трубичка и должината на карпофорот во однос на должината на чашката. Додека кај *O. neglecta* должината на забците на чашката достигнува скоро $\frac{1}{2}$ од должината на чашкината трубичка, а должината на карпофорот обично достигнува $\frac{1}{2}$ од должината на истата, кај *O. montana* должината на чашкините забци изнесува најчесто $\frac{1}{4}$, поретко $\frac{1}{3}$ од должината на чашкината трубичка, а должината на карпофорот е еднаква или поголема од должината на чашката.

Овој податок, кој всушност е потврдата на податокот на Науек (1924) за присуството на овој вид, на територијата на Северна Македонија, покрај локалното, има и пошироко, хоролошко значење. Имено, во ареалот на распространување на *O. montana*, даден во ILDIS World Database of Legumes 2010 (The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity), територијата на Балканскиот Полуостров не е вклучена.