

***Orobanche artemisiae-campestris* (Orobanchaceae), a rare species in the flora of the Republic of North Macedonia**

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Abstract

This work confirms the presence of *Orobanche artemisiae-campestris*, in the flora of North Macedonia. This rare species is, so far, known from a single, relatively unknown locality - "Lundzi", from the surrounding of the city Gevgelija, in the southern part of the country. The new find is on the Ogražden Mt, in the eastern part of the country. *O. artemisiae-campestris* parasitizes exclusively on *Artemisia campestris*. The range extends from west to east Europe and, perhaps, also to Caucasus. Taxonomically, *O. artemisiae-campestris* is very close to *O. picridis-hieracioides* (= *O. picridis*).

Key words: *Artemisia campestris*, parasitic, North Macedonia

Introduction

Orobanche artemisiae-campestris (Fig. 1.) is an obligate, root parasitic species of the family Orobanchaceae. It belongs to *Orobanche* subsect. *Minores* Teryokhin in Opred. Zarazikhovyykh Fl. SSSR (ed. L.Yu. Budantsev): 39 (1993), which comprises "similar, small flowered plants, corolla typically < 20 mm" (Thorogood & Rumsey, 2020). Species of this subsection, so far registered in the flora of North Macedonia, are the following: *O. hederæ* Duby, *O. amethystea* Thuill., *O. picridis-hieracioides* Vaucher ex Holandre, *O. pubescens* d'Urv., *O. serbica* Beck & Petrović, *O. minor* Sm., and *O. esulae* Pančić (Nikolov, 2024). *O. artemisiae-campestris* is strictly parasitic on *Artemisia campestris*. It prefers dry and semi-dry grasslands, sunny, warm rocky slopes, open thickets (Kreutz, 1995, Pusch, 2009).

The native range of *O. artemisiae-campestris* is from west to east Europe and, perhaps, also to Caucasus (POWO, 2025).

Materials and methods

Plants of *O. artemisiae-campestris* have been collected during the fieldwork on the Ogražden Mt., in eastern part of the country. Voucher specimens are deposited in the herbarium collection of Natural History Museum of North Macedonia (HMMNH). The nomenclature followed Gaudin (1829), Kreutz (1995), Pusch (2009), POWO (2025). The name *Orobanche artemisiae-campestris* Gaudin (1829) – first coined by Vaucher (1827) as "Orobanche de l'Artemise des

champs" – just had priority over *O. loricata*" (Rumsey & Thorogood, 2023). The following, reliable and relevant sources have been used for determination and additional data: Gaudin (1829), Beck (1890, 1930), Chater & Webb (1972), Parabućski (1974), Delipavlov (1995), Kreutz (1995), Uhlich, Pusch & Barthel (1995), Pusch (2009), Piwowarczyk (2012), Stojanov (2020), Thorogood & Rumsey (2020), Rumsey & Thorogood (2023). Photos of alive plants as well as of the voucher specimen are also provided. In addition, the connection between the parasitic – *Orobanche artemisiae-campestris* and the host plant – *Artemisia campestris*, is preserved. Distribution of *O. artemisiae-campestris* in North Macedonia is also presented.

Results and discussion

Orobanche artemisiae-campestris Gaudin, Fl. Helv. 4: 179. [Jan-Jul 1829].

Syn.: *O. loricata* H.G.L. Reichenbach, Iconogr. Bot. Pl. Crit. 7: 41, t. 682 f. 917, 1829 (1831?).

Literature data

Beck (1930:199, sub *O. loricata*); Uhlich, Pusch & Barthel (1995, sub *O. loricata*).

Makedonien: Lundzi bei Gevgelija (Dimonie).

New data

Ogražden Mt. (Strumica), 774 m a.s.l., 03.06.2012; (leg./det. Z. Nikolov).



Fig. 1. *Orobanche artemisiae-campestris* Gaudin
(Photo: Z. Nikolov)

**Description of the species
(based on the collected plants)**

Stem 27-32 cm, $\pm$ purplish, with dense, glandular hairs, giving the plants $\pm$ woolly appearance, with usually numerous scales in the lower, and few, in the upper part; the scales up to 21 mm long, 2-3 mm bright, the lowest glabrous, the upper, densely pubescent. Inflorescence (3)7-12 cm, covered with dense, glandular hairs, many flowered, compact in the beginning, later, dense in the upper, and lax, in the lower part, changing the ratio-length stem-inflorescence, from clearly shorter to almost equal. The bracts almost reaching the corolla-tip, dark-brownish, densely glandular pubescent. Calyx somewhat shorter of the corolla, the segments, lower of the middle or even near to the base, unequally

bidentate, with filiform tips, densely pubescent. Corolla 18-20 mm, whitish to yellowish, to the tip of the upper lip with violet nuance and dark, violet nerves, covered from outside with light, glandular hairs; the dorsal line, after the even curved base, is somewhat straight (flat) in middle, then clearly bent to the almost entire or clearly divided into two lobes (with recurved tips) upper lip; the lower lip consists of 3, almost equal, crenate lobes. The stamens inserted at 3 mm from the corolla base, the filaments pubescent in the lower, broaden part, to the anthers - almost glabrous; the anthers are dark-brownish, glabrous. The ovary (including style) c. 15 mm, glabrous, the light-purplish style with rare, glandular hairs. The two-lobed stigma purple or whitish, tinged with light, violet nuance.

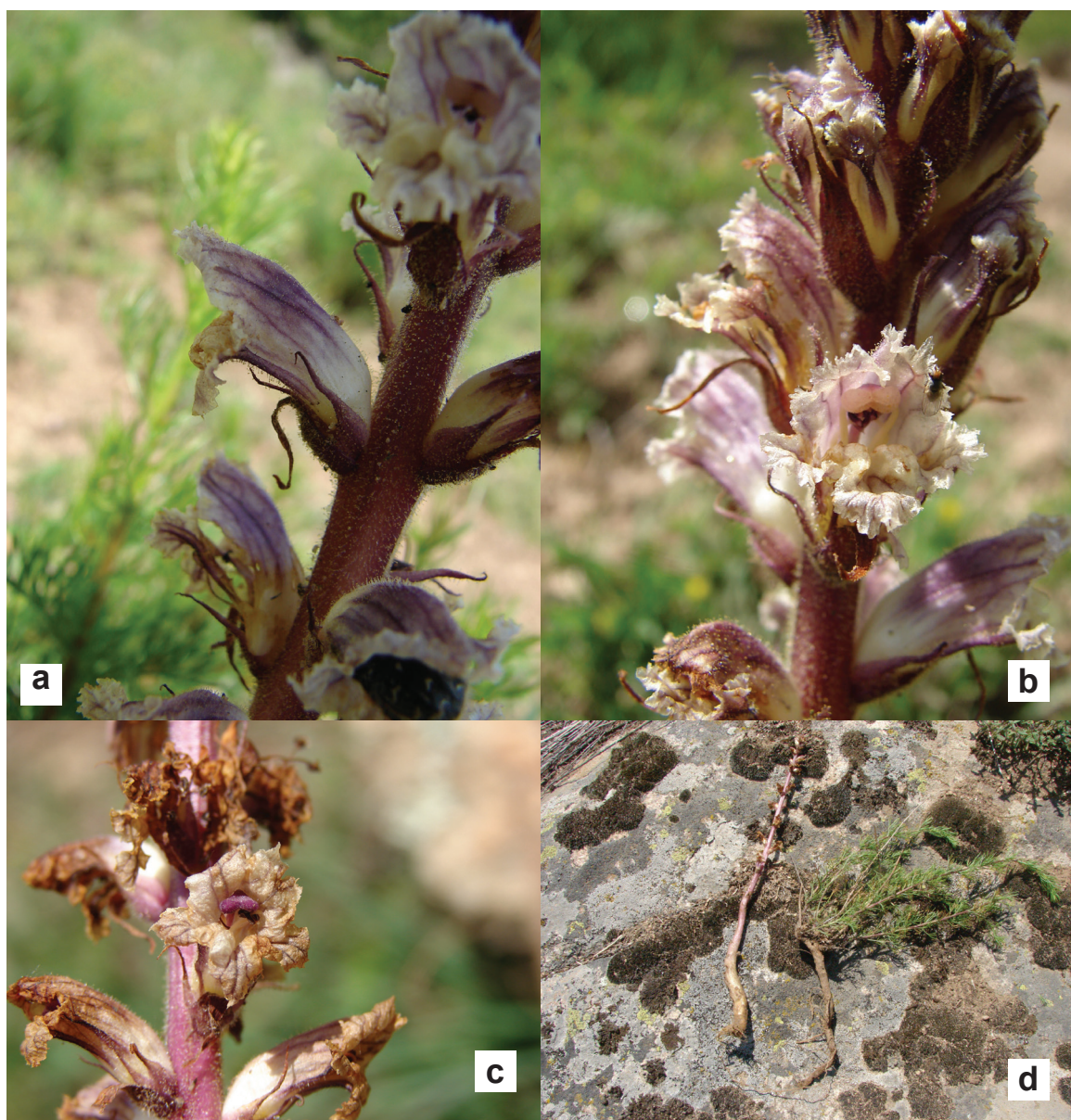


Fig. 2. *Orobanche artemisiae-campestris* Gaudin **a)** flower **b)** flower with whitish stigma **c)** flower with purple stigma **d)** parasitic plant with the host *Artemisia campestris* (Ogražden Mt., 03.06.2012; Photo: Z. Nikolov)

Plants from Ogražden Mt. match the description by Gaudin (1829), Beck (1890, 1930, sub *O. loricata*), Hayek (1929, sub *O. loricata*), Kreutz (1975, sub *O. artemisiae-campestris*), Uhlich, Pusch & Barthel (1995, sub *O. loricata*), Pusch (2009, sub *O. artemisiae-campestris*). The stem is $\pm$ purplish, with dense, glandular hairs. The corolla is 18-20 mm long, whitish to yellowish, the dorsal line of the flower is somewhat even (flat) in the middle (Fig. 2, a). Then, the calyx segments are lower of the middle or almost to the base, unequally bidentate (Fig. 2, a). The filaments are pubescent at the broaden base, but to the anthers, they are almost glabrous. And, the stigma is dominantly purplish (Fig. 2, c), rarely whitish (Fig. 2, b).

Taxonomically, *O. artemisiae-campestris* stands close to *O. picridis-hieracioides* (= *O. picridis*). In addition to the different host, in comparison with *O. picridis-hieracioides* (= *O. picridis*), *O. artemisiae-campestris* "has rather robust spikes with fewer, larger flowers, rather yellowish in colour, with reddish markings" (Rumsey & Thorogood, 2023).

Pywowarczyk (2012), in her work, emphasizes the morphological similarity of *O. pi-*

cridis-hieracioides (= *O. picridis*) with *O. minor* and *O. artemisiae-campestris*. She noted that "the calyx segments of *O. picridis-hieracioides* (= *O. picridis*) are usually divided up to $\frac{1}{2}$ into two similarly sized parts, while in *O. artemisiae-campestris*, they are divided up to the base"

The host of *O. artemisiae-campestris* is *Artemisia campestris* (Asteraceae) (Fig. 1, 2, d, 4). During the excavation, we managed to preserve the connection between the host and the parasite (Fig. 2, d; 4). On the Ogražden Mt., *O. artemisiae-campestris* grows in sunny, rocky slopes, along the road, that leads from the town Strumica to the town Berovo (Fig. 3).

The only data, for *O. artemisiae-campestris*, on the territory of North Macedonia, we find in the work of Beck (1930), for the relatively unknown locality 'Lundzi', in the vicinity of the city Gevgelija. This data of Beck (1930) was taken over in the work of Uhlich, Pusch & Barthel (1995). The locality on Ogražden Mt. is the second one in North Macedonia where the presence of this species has been confirmed.



Fig. 3. *Orobanche artemisiae-campestris* Gaudin - habitat (Ogražden Mt., 03.06.2012; Photo: Z. Nikolov)



Fig. 4. *Orobanche artemisiae-campestris* Gaudin - voucher specimen

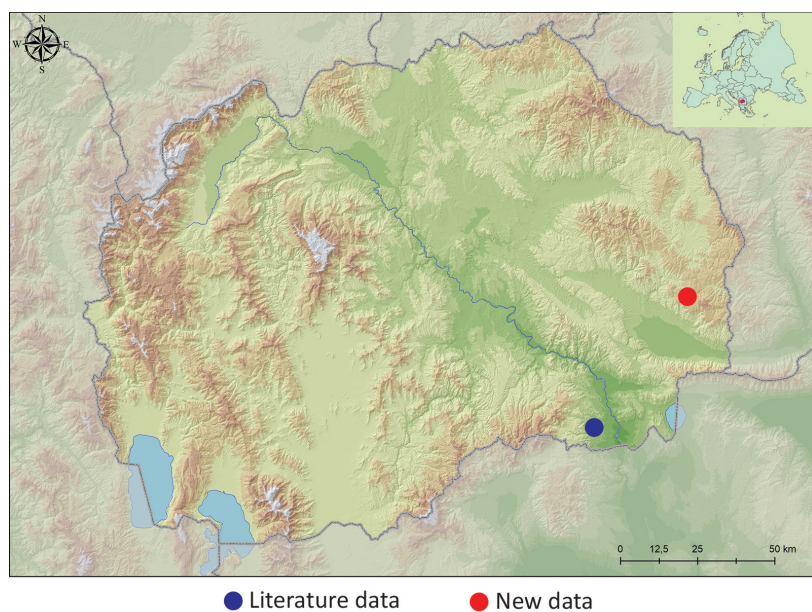


Fig. 5. Distribution of *O. artemisiae-campestris* Gaudin in N. Macedonia

Conclusion

- *Orobanche artemisiae-campestris* is a very rare species in the Macedonian flora,
- The find on the Ogražden Mt. is new, for this species, on the territory of North Macedonia.

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