

NEW DATA ON THE DISTRIBUTION OF VIOLA ALBA BESSER SUBSP. ALBA (VIOLACEAE) IN THE REPUBLIC OF NORTH MACEDONIA

Agim HAZIRI^{1*}, Sheval MEMISHI^{1*}

^{1*}Department of Biology, Faculty of Natural Sciences and Mathematics, University of Tetova, Republic of North Macedonia

*Corresponding author e-mail: agim.haziri@unite.edu.mk

Abstract

Viola alba Besser subsp. *alba* in the flora of North Macedonia is described with the synonym *Viola alba* subsp. *scotophylla* (Jord.) Nyman. According to current data, this subspecies is known only for two localities: the surrounding of Skopje, in the village of Gorno Nerezi and Demir Kapija – in the valley of the Bošava River. During the floristic research in the northwestern region of North Macedonia, another new locality of *Viola alba* Besser subsp. *alba* was discovered, which represents a new record of the distribution of this subspecies in the flora of the Republic of North Macedonia. Examine specimens: Želino, over the village of Chiflik, in the locality known as the village vineyards: 512 m, 41° 57'5.195" N, 21° 7'6.626"E, April 2025.

Keywords: New locality, *Viola alba* Besser subsp. *alba*, *Violaceae*, Chiflik, Republic of North Macedonia.

1. Introduction

The genus *Viola* L., in the flora of North Macedonia, is represented by 41 species (Micevski, 1995). Among them are many endemic Balkan species (Dimopoulos, 2013; Mustafa, 1983), but also endemic species of Macedonian flora, with a very limited distribution (Haziri, 2019, 2022). Some species are characterized by quite pronounced polymorphism (Soška, 1939; Trinajstić, 1975). One such species is *Viola alba* Besser, Prim. Fl. Galic. 1: 171 (1809) (Hayek, 1927), commonly known as white violet. It is a perennial plant. Stemless 2 - 10 (20) cm high. Rhizome branched, at the top with 3 - 10 leaves, flowers, and 10 - 20 cm long, 1.5 mm thick, raised, non-rooting aboveground shoots, with consecutive triangular heart-shaped leaves and flowers at the top in the first year. Leaves with petioles, green or dark green, often overwintering and violet below, broadly heart-shaped to triangular heart-shaped or ovate, heart-shaped, with a deep and narrow cut at the base, finely on the edge, shallow dumb serrated, widest in the lower third, and narrowed upwards with an almost straight, rarely with a convex or concave edge at an acute point, 1.5 - 7.0 (9.0) cm long, 1.5 - 5.0 cm wide, up to 1.5 times longer than wide with 2 - 10 (15) cm long petioles, covered, especially on the petioles, with rough, turned back (up to 1.2 mm long) hairs, rarely almost naked. Stipules linear lance to linear, 1.2 - 2.0 cm long and about 2 mm wide, 6 - 10 times longer than wide, along the edge with lashes longer than half their width, bare or fibrous, pointed. Flower petioles 4 - 6 (8) cm long, naked or with backward bristles, with two bracts above the middle. Flowers 1 - 8, from the top of the rhizome, single in the axils of the rosette leaves or at the top of the shoots, broadly ovate, 1.5 - 2.0 (2.4) cm high and 1.2 - 1.8 cm wide, with an odor. Sepals oblong-ovate or oblong-elliptic, with appendages 4 - 7 mm long, 1.0 - 2.0 (2.5) mm wide, obtuse. Appendages rounded, 1 - (2) mm long. Petals white or purple, rarely red-purple or red; upper back ovate or broadly back ovate, 9 - 11 mm long, 6 - 7 mm wide, curved backwards and sideways; lateral back ovate, 9.0 - 10.5 mm long and 5 - 6 mm wide, at the base with few cilia directed forward and downward; lower petal oblong-ovate, spoon-shaped, incised, with spur 12 - 15 (17) mm long, 5 - 7 (8) mm wide,

narrowed at the base into 3 - 4 mm long grooved, ciliate claw inside, passing into the spur; spur directed upwards, 4 - 5 mm long, straight, obtuse, pale purple or whitish, 3 - 4 times longer than the calyx appendages. The ovary is fibrous; the style thickened from the base to the top; the stigma entire, straight or slightly curved beak, equal to or longer than the width of the style. Seeds pale yellow, ovoid, 2.0 - 2.5 mm long and about 1.5 mm wide; appendage about 1 mm long (Tutin, 1968), (Josifović, 1972). In the flora of North Macedonia, according to (Micevski, 1995), *Viola alba* Besser is represented by three subspecies: *Viola alba* subsp. *thessala*, *Viola alba* subsp. *dehnhardtii* and *Viola alba* subsp. *scotophylla*. *Viola alba* subsp. *scotophylla* is a synonym of *Viola alba* Besser subsp. *alba*, which is characterized with dark green leaves, sometimes with purple hues, which most often overwinter. The flowers are mostly white, rarely purple. It blooms from March to April.

2. Materials and Methods

The floristic research on the distribution of *Viola alba* Besser subsp. *alba* was carried out during the years 2024-2025, in Dry Mountain, in the territory of Želino. During these researches, at the foot of the Dry Mountain, we found a new locality of the distribution of this subspecies, in the flora of North Macedonia. The new locality has been determined precisely through the latitude and longitude coordinates on Google Maps. The morphological and systematic description of this species is based on relevant taxonomic literature (Micevski, 1995). Plant nomenclature and taxonomy are consistent with Euro+Med Plantbase (Greuter, 2006).

3. Results and Discussion

Viola alba Besser subsp. *alba* (syn: *Viola alba* subsp. *scotophylla* (Jord.) Nyman) was found for the first time in the territory of the Republic of North Macedonia in the surroundings of Skopje, in the village of Gorno Nerezi (Degen & Dörfler, 1897) and later also in Demir Kapija – in the valley of the Bošava River (Soška, 1939). During the floristic research in the northwestern region of North Macedonia, in April 2025, another new locality of *Viola alba* Besser subsp. *alba* (Figure 2) was discovered, which represents a new record of the distribution of this species in the flora Republic of North Macedonia. Examine specimens: Želino, over the village of Chiflik, in the locality known as the village vineyards: 512 m, 41° 57'5.195" N, 21° 7'6.626"E, April 2025. (Figure 1).



Figure 1. Distribution of *Viola alba* Besser subsp. *alba* in the Republic of North Macedonia; (●) new locality in Želino, over the village of Chiflik and (■) the two previously known localities, in the village of Gorno Nerezi and Demir Kapija.



Figure 2. *Viola alba* Besser. subsp. *alba* (April 2025)

4. Conclusions

From what was said above, we can conclude that *Viola alba* Besser subsp. *alba* (syn: *Viola alba* subsp. *scotophylla* (Jord.), according to (Micevski, 1995), is known only for two localities: the surrounding of Skopje – in the village of Gorno Nerezi (Degen & Dörfler, 1897) and Demir Kapija – in the valley of the Bošava River (Soška, 1939). New locality of *Viola alba* Besser subsp. *alba*, in Želino, over the village of Chiflik, in the locality known as the village vineyards: 512 m, 41° 57'5.195" N, 21° 7'6.626"E, April 2025, represents a new record of the distribution of this subspecies in the flora Republic of North Macedonia.

Acknowledgements

I am grateful to my colleagues for their cooperation and support during the realization of floristic expeditions.

References

- [1] Degen A. & Dörfler I. 1897. Beiträge zur Flora Albaniens und Macedoniens. Ergebnisse einer von I. Dörfler im Jahre 1893 unternommenen Reise. Denkschr. Akad. Wiss. Math. Nath. Kl. 64: 701-747. Wien.
- [2] Dimopoulos P., Raus T., Bergmeier E., Constantinidis T., Iatrou G., Kokkini S., Strid A., & Tzanoudakis D. 2013. Vascular plants of Greece. An annotated checklist: 1-372. Botanic gardens and botanical museum Berlin-Dahlem, Berlin and Hellenic botanical society, Athens.
- [3] Greuter W. 2006. Source: Raab-Straube, E. von & Henning, T. 2018+: Violaceae. – In: Euro+Med Plantbase - the information resource for Euro-Mediterranean plant diversity. Published at <https://euoplusmed.org/>. [Accessed April 26, 2025].
- [4] Hayek A. 1927. Prodrum Florae peninsulae Balcanicae, 1. – Repertorium Specierum Novarum Regni Vegetabilis Beihefte 30(1): 1-1193.
- [5] Haziri A. 2022. Flora dhe Vegjetacioni i Maqedonisë së Veriut. ArbëriaDesign. Tetovë.

- [6] Haziri A. 2019. Botanika – Sistematika e bimëve. ArbëriaDesign. Tetovë.
- [7] Josifović M. 1972. Flora SR Srbije = Flore de la Republique Socialiste de Serbie 3. – Beograd. Academie Serbe des sciences et des arts.
- [8] Micevski K. 1995. Flora of Republic of Macedonia 1(3). – Skopje: Macedonian Academy of Sciences and Arts.
- [9] Mustafa D. 1983. Flora Ekskursioniste e Shqipërisë. Shtipia Botuese e Librit Shkollor. Tiranë.
- [10] Soška Th. 1939. Beitrag zur Kenntnis der Schluchtenfloren von Südserbien, III. – Glasnik SND 20(7).
- [11] Trinajstić I. (ed.) 1975. Flora analitica Jugoslaviae 2(1). – Zagreb: Institut za botaniku sveučilišta u Zagrebu.
- [12] Tutin T. G., Heywood V. H., Burges N. A., Valentine D. H., Walters S. M. & Webb D. A. 1968. Flora Europaea 2: 1-469. Cambridge: Cambridge University Press.