

Symphyotrichum pilosum (Compositae) – New neophyte in the flora of Bosnia and Herzegovina

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Abstract

A new neophyte, *Symphyotrichum pilosum* (Willd.) G. L. Nesom was discovered in the late summer of 2024 during fieldwork in the vicinity of Zavidovići (Central Bosnia). It is native to North America, but it has been introduced to some areas beyond its natural range. This is the first record of this species for Bosnia and Herzegovina and Southeast Europe. Brief information is provided concerning this species' distribution in Bosnia and Herzegovina, as well as a discussion of its status as alien and invasive in the country. Judging from the literature and observations in the field this species should be considered a casual and non-invasive species in Bosnia and Herzegovina.

Keywords: casual alien, *Compositae*, distribution, new record, Southeast Europe

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Sažetak

Novi neofit, *Symphyotrichum pilosum* (Willd.) G. L. Nesom, zabilježen je u kasno ljeto 2024. godine tijekom terenskih istraživanja u okolini Zavidovića (srednja Bosna). Vrsta je porijeklom iz Sjeverne Amerike, ali je unesena u neka područja izvan svoje prirodne rasprostranjenosti. Ovo je prvi nalaz ove vrste za Bosnu i Hercegovinu i jugoistočnu Europu. Daju se kratki podaci o rasprostranjenosti ove vrste u Bosni i Hercegovini, kao i diskusija o statusu strane i invazivne vrste u zemlji. Sudeći prema literaturi i zapažanjima na terenu ovu vrstu treba smatrati slučajnom, neinvazivnom vrstom u Bosni i Hercegovini.

Ključne riječi: *Compositae*, rasprostranjenost, jugoistočna Europa, novi nalaz, povremena strana vrsta

Introduction

The genus *Symphyotrichum* Ness. belongs to the family *Compositae* Giseke, and was split off from the genus *Aster* L. mainly based on morphology (Nesom 1994, 1995). It comprises ca. 90 species, native to the Americas and Euroasia, of which 77 occur in North America. Many species are cultivated as ornamentals in Europe and some escaped from culture and became fully naturalized. Within the genus *Symphyotrichum*, 23 species have been recognized in Europe (Greuter 2006-onwards), however, there are still some incompatibilities between the European and American taxonomic concepts of the genus. For example, the species *S. parviflorum* still has a debatable status. According to Greuter (2003), the valid name of this species is *Symphyotrichum parviflorum* (Nees) Greuter, which is also accepted in the Euro-Med checklist (EURO+MED 2006). On the other hand, that species is only listed as a synonym of *Symphyotrichum tradescanti* (L.) G. L. Nesom in Plants of the World Online (POWO 2024), while in the Flora of North America it is not listed as a species but only as a variety, *Symphyotrichum subulatum* (Michaux) G. L. Nesom var. *parviflorum* (Nees) S. D. Sundberg (Brouillet et al. 2006). Other European authors list the species under the name *Aster parviflorus* Nees (synonym *A. tradescantii* L.) (Hoffmann 1996) or *A. tradescantii* L. (Botta-Dukát & Balogh 2008).

In the flora of Bosnia and Herzegovina only four species of the genus (*Symphyotrichum lanceolatum* (Willd.) G. L. Nesom, *S. novae-angliae* (L.) G. L. Nesom, *S. novi-belgii* (L.) G. L. Nesom and *S. squamatum* (Spreng.) G. L. Nesom) have been recorded (Beck Mannagetta et al. 1983, Maslo 2016, Maslo & Šarić 2017, Milanović et al. 2018).

Symphyotrichum pilosum (Willd.) G. L. Nesom, a native North American species has been reported in Europe in Austria, Belgium, France, Germany, Great Britain, Italy, Netherlands and Spain (Greuter 2006-onwards, Essl & Rabitsch 2002) and it was only recently recorded in Turkey, but not in the European part of the country (Tunçkol et al. 2017).

Material and methods

The field study was conducted in the middle of September 2024. An iPhone GPS app was used to capture digital photographs and GPS coordinates in the field. The identification of the specimens was made according to Brouillet et al. (2006) and Sell & Murrell (2006). The nomenclature follows the Euro-Med checklist (EURO+MED 2006-onwards). The voucher specimen from the locality Lovnica near Zavidovići is deposited in the Herbarium of the National Museum of Bosnia and Herzegovina (SARA, 54132).

Results and discussion

Symphyotrichum pilosum (Willd.) G. L. Nesom (syn. *Aster pilosus* Willd.) is a caespitose perennial with ascending to erect stems (Fig. 1a). The stems are 20-150 cm tall, much branched with spreading or ascending branches, pale yellowish-green and densely hairy. The lower stem leaves are sessile and typically deciduous at the time of flowering. Leaves are hairy, lanceolate or linear-lanceolate, 10-60 long and 5-15 mm wide. Capitulae numerous, 10-20 mm in diameter, in a large cymose panicle, on long peduncles with linear leaves. Involucral bracts in several rows, lanceolate, outer green, the inner whitish, with an elongate-diamond-shaped uniform green area at apex (Fig. 1b). Flowers of two kinds, the outer 20-35, 3-8 mm, ligulate, the ligules usually white, sometimes pink or pale blue (Fig. 1c), the inner 25-45, 2.5-5.0 mm, tubular, yellow becoming purple, with 5 triangular lobes at apex. Achenes 0.8-1.0 mm, pale brown, compressed, with one rib on each side; papus 2.0-3.5 mm, of a single whorl of minutely denticulate hairs. Detailed description of the species can be found in Chmielewski & Semple (2001), Brouillet et al. (2006) and Sell & Murrell (2006).

According to Brouillet et al. (2006) and Sell & Murrell (2006) *S. pilosum* is represented by two varieties: *S. pilosum* var. *pilosum* and *S. pilosum* var. *pringlei* (A. Gray) G. L. Nesom. Both varieties are very similar but *S. pilosum* var. *pilosum* is a distinctly hirsute hairy plant and *S. pilosum* var. *pringlei* is glabrous.



Figure 1. *Symphyotrichum pilosum* near the town of Zavidovići (a – habitat, b – involucre bracts, c – flowers, d – part of the stem (Photos Š. Šarić).

Slika 1. *Symphyotrichum pilosum* kod grada Zavidovića (a – stanište, b – ovojne brakteje, c – cvjetovi, d – dio stabljike (Fotografije Š. Šarić).

Specimens from Zavidovići are clearly hirsute hairy (Fig. 1d), so populations from Bosnia and Herzegovina obviously belong to *S. pilosum* var. *pilosum*.

The first finding of this species for Bosnia and Herzegovina was reported from Central Bosnia in the middle of September 2024, in the area of

Lovnica near the town of Zavidovići. Eleven specimens were observed on the right bank of the river Bosna along the Zavidovići-Zenica regional road (44° 25' 08" N; 18° 06' 56" E; elevation 236 m) (Fig. 2). In this locality, *S. pilosum* was accompanied by some other neophytes and ruderals: *Ambrosia artemisiifolia* L., *Erigeron canadensis* L., *Oenothera erythrosepala* Borbás, *Panicum dichotomiflorum*

Michx, *Setaria pumila* (Poir.) Schult., *Solidago canadensis* L. and *Xanthium strumarium* L. ssp. *italicum* (Moretti) D. Löve.

In the area of Zavidovići the plant is grown as an ornamental, and thus horticulture is considered to have been the source of the introduction. Following the framework proposed by Blackburn et al. (2011), we can consider *S. pilosum* a casual alien species in the territory of Bosnia and Herzegovina, currently in the C2 category (individuals surviving in the wild in the location where introduced, reproduction occurring, but population not self-sustaining).

To identify the species of the genus *Symphyotrichum* registered in Bosnia and Herzegovina we offer the key which is adjusted according to Yeo (1976), Brouillet et al. (2006), and Verloove (2014).

- 1 Annual or biennial. Ligulate flowers about as long as pappus***S. squamatum***
- 1 Usually perennial. Ligulate flowers much longer than pappus**2**
- 2 Inflorescences, branches, involucre bract and leaves glandular hairy***S. novae-angliae***
- 2 Inflorescences, branches, involucre bract and leaves not glandular hairy**3**
3. Plants densely hirsute-hairy throughout. Leaves often with axillary clusters, margins ciliate, basal and proximal leaves usually petiolate. Involucre bracts with apex involute, spine-like. Caespitose (plants appearing singly)***S. pilosum* var. *pilosum***
- 3 Plants sparsely hairy to subglabrous. Involucre bracts flat at apex, never spine-like. Colonial (plants appearing in dense stands)**4**
- 4 Cauline leafbases cuneate usually not or only slightly clasping the stem, slightly rounded or auriculate, margins serrulate or entire. Involucre bracts very unequal***S. lanceolatum***

- 4 Cauline leaf bases cuneate, slightly clasping the stem, margins often serrate. Involucre bracts subequal***S. novi-belgii***

The distribution and invasion history of the genus *Symphyotrichum* in Bosnia and Herzegovina is insufficiently known. According to our current knowledge, *S. novae-angliae*, *S. novi-belgii* and *S. squamatum* appear to be the most widely dispersed species of the genus in Bosnia and Herzegovina, while *S. squamatum* is included in the preliminary checklist of invasive alien plant species (IAS) in Bosnia and Herzegovina (Maslo 2016, 2023). All species of this genus recorded so far in Bosnia and Herzegovina are colonial (plants appearing in dense stands), mostly in riparian habitats, and can be considered potentially invasive. On the other hand, the newly recorded species *S. pilosum* is a caespitose plant that grows singly without forming colonies, so it is unlikely that the plant will show invasive behavior in the near future.

Conclusion

The exact origin of this species from Bosnia remains uncertain, but it is most likely that some seeds obtained from nearby gardens were dispersed by wind or perhaps included in garden waste discarded at random. This species is grown as an ornamental plant, so horticulture is considered the most possible source of introduction.

Judging from the literature and field observations, it can be concluded that this species can also become naturalized in Bosnia and Herzegovina. However, at least in the Bosnian locality, it does not show invasive behavior. Therefore, it should currently be considered a casual, non-invasive species. This is in line with observations from other parts of Europe (e.g. Verloove 2014). The potentially invasive behavior of this species should be monitored in the coming years.



Figure 2. The recent finding of *Symphyotrichum pilosum* in Bosnia and Herzegovina (the distribution map was made by Aldin Boškailo).

Slika 2. Recentni nalaz *Symphyotrichum pilosum* u Bosni i Hercegovini (kartu rasprostranjenosti izradio Aldin Boškailo).

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