

CORRESPONDENCE

## A new record for alien flora of Turkey: *Symphyotrichum pilosum* (Willd.) G.L. Nesom var. *pilosum*

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### Abstract

*Symphyotrichum pilosum* var. *pilosum* from Asteraceae family was collected from Ereğli region (Zonguldak province, NW Turkey) in 2016 and is reported here for Turkey for the first time. It is naturalized alien plant for Turkey. The description and photos of collected plants, as well as distribution map and new key for the genus *Symphyotrichum* in flora of Turkey are provided here.

**Keywords:** *Symphyotrichum pilosum*, Asteraceae, new record, alien plant, Turkey

### Introduction

The genus *Symphyotrichum* that belongs to Asteraceae family is mostly composed of perennial and herbaceous plants. There are about 100 species belonging to this genus in the world, most of which are distributed in the North, Central and South Americas. Some *Symphyotrichum* species occur in Europe as invasive plants (Tutin *et al.* 1976; Kubitzki 2007; Mohlenbrock 2015). In Turkey, there are known two species of *Symphyotrichum* – *S. laeve* (L.)

Á. Löve & D. Löve and *S. squamatum* (Spreng.) G.L. Nesom (Davis 1965–1985).

### Material and methods

During the floristic investigations in and around Ereğli district of Zonguldak province in Turkey, plant samples belonging to *Symphyotrichum pilosum* var. *pilosum* (Willd.) G.L. Nesom were collected in August – September 2016. Herbarium specimens of *S. pilosum* var.

*pilosum*, as well as specimens of *S. laeve* and *S. squamatum* (E00531253!, E00531250!, E00249092! and E00563223!) were used for comparative investigation and then they were deposited in the Herbarium of the Faculty of Forestry at the University of Düzce (DUOF).

The collected samples were checked according to the “Flora of Turkey” and its supplements as well as according to “A checklist of the Flora of Turkey (Vascular plants)” but they were not determined (Davis 1965–1985; Güner et al. 2000, 2012). After it was recognized that the collected samples belong to the *Symphyotrichum* genus, with the detailed review of literature it was determined that this is a new taxon for flora of Turkey *S. pilosum* var. *pilosum* originated from North America (Mohlenbrock 2015).

Morphological descriptions of the species in this paper are based on literature (Tutin et al. 1976; Davis 1988; Kubitzki 2007; Mohlenbrock 2015) and supplemented with observations of the collected plants. The nomenclature has been checked with Euro+Med Plant Base (Greuter 2006–2017). Distribution of the studied taxon within the territory of Turkey was mapped in a Davis grid system accepted in “Flora of Turkey”. Data on the abundance of species, condition of the populations and characteristics of *S. pilosum* var. *pilosum* habitats in Turkey are provided on the base of field observations.

## Results and discussion

The new taxon of *Symphyotrichum* is recorded for Turkey and considering that fact, it is necessary to present a new key for identification.

1. Annual or biennial plants ..... ***S. squamatum***

1\*. Perennial plants ..... **2**

2. Lots of cauline leaves more than 1 cm wide, leaves glaucous above ..... ***S. laeve***

2\*. Lots of cauline leaves not more than 1 cm wide, stem and leaves pubescent ..... ***S. pilosum* var. *pilosum***

***Symphyotrichum pilosum*** (Willd.) G.L. Nesom var. *pilosum*, *Phytologia* 77: 289. 1995. (Fig. 1).

**Basionym:** *Aster pilosus* Willd.

**Description:** Hemicryptophyte, characterized by rapid growth and formation of a strong taproot. Stem from 1 to several, erect or oblique; branches near to base, sparsely to densely hirsute; 100–180 cm tall. Leaves with ciliate margins, pilose, from linear to linear-lanceolate, 6–9 cm long, 2.8 cm wide; basal leaves absent in flowering time. Main inflorescence is open panicle with ascending to spreading branches gathering 40 or more heads; involucre bracts linear to subulate, involucre 3–5 mm long and 3–4 mm wide. Phyllaries in 4 or 5 series unequal, green apex innolled at the margin. Ligules white, often becoming purplish, 1.4 mm wide. Pappus white 3–4 mm (Mohlenbrock 2015).

**Distribution in Turkey (Figs 2 & 3):** Turkey (Western Black Sea Region): A3-Zonguldak, Ereğli district at elevation of 10–150 (200) m, at a roadside, field side and abandoned fields, 29.VII.2016, B. Tunçkol 4400 & H. Yaşayacak (DUOF 7023).

*Symphyotrichum pilosum* var. *pilosum* has been recorded in ruderal habitats, in out parts of main road. It is quite widespread on southern slopes in Ereğli in lengthwise areas of about 10–200 m elevation. The species is a constituent of the ruderal vegetation of *Rubus sanctus* Schreb., where it is an almost dominant. There are three populations of *S. pilosum* var. *pilosum* in Ereğli district (Fig. 3) separated by short interruptions with about 30–40 individuals in each. Individuals of all stages of development, from early vegetative, flowering, and up to late stage of fructification were recorded. Besides *S. pilosum* var. *pilosum*, following taxa were recorded in that habitats: *Rubus sanctus*, *Artemisia vulgaris* L., *Solanum nigrum* L., *Clinopodium nepeta* Kuntze subsp. *glandulosum* (Req.) Govaerts and *Lactuca serriola* L.

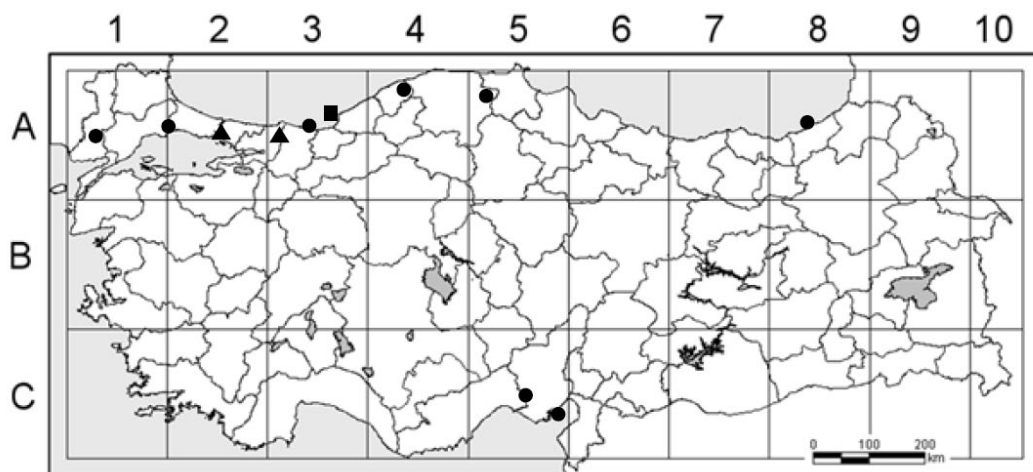
*Symphyotrichum pilosum* var. *pilosum* is native to the eastern part of North America and several southern provinces of Canada. However, it is anthropogenically spread to almost all parts of North America (Chmielewski & Semple 2001). As a naturalized species, it was recorded in India, where it inhabits ruderal





**Fig. 1.** General appearance of *Symphotrichum pilosum* var. *pilosum*: **A** – habitus; **B** – inflorescence; **C** – capitula, **D** – stem, **E** – basal leaves (DUOF 7023).





**Fig. 2.** Distribution of *Symphyotrichum* in Turkey: ■ – *S. pilosum* var. *pilosum*; ● – *S. laeve* (Davis 1988; Güner et al. 2012); ▲ – *S. squamatum* (Davis 1988; Güner et al. 2012).



**Fig. 3.** Distribution of *Symphyotrichum* in Ereğli district.

areas along the roadsides (Kaul 1975). It was also recently reported as naturalized neophyte for flora of Piemonte in Italy (Conti et al. 2005; Celesti-Grappo et al. 2010). In Europe, this species occurs in different habitats, mostly in agricultural and ruderal, along the coastline, at roadsides, in vine yards, gardens, city parks, on meadows, orchards, trash dumps and roads embankments.

In the study on the weed distribution in Zonguldak conducted by Cimalová (2012),

*S. pilosum* var. *pilosum* is not mentioned. However Cimalová (2012) noticed that there are 69 other taxa belonging to 24 families, and Asteraceae is one of the most represented families (10.14%).

Interruption of nature, urbanization and climate changes cause the deterioration of the natural vegetation and spread of alien plant species. In the last checklist of alien flora of Turkey with a taxonomic composition and ecological attributes, two other *Symphyotrichum*

species (*S. laeve* and *S. squamatum*) are mentioned as naturalized (Uludağ *et al.* 2017). Hence, *S. pilosum* var. *pilosum* is a new alien taxon reported here, which also seems to be naturalized in Turkey. This new finding seems not to be the last, and a lot of new observations can be made there. According to Aksoy (2014), up to 242 alien taxa are represented in the flora of Turkey. However, in later investigation of Uludağ *et al.* (2017) already 340 alien taxa were mentioned for Turkey. This shows the importance of local and regional investigations of flora for the new records of alien taxa and further monitoring of their populations.

There are many studies on flora and vegetation conducted in Turkey, but the number of alien plants in Turkey is constantly increasing. These species start their spreading mostly in disturbed and unnatural areas, and then they invade the natural sites. Thus, there should be detailed studies about how these alien species come, which areas they occupy, how they compete and how interact with a native flora.

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