



SYMPHYOTRICHUM SQUAMATUM
– A NEW ALIEN PLANT IN ROMANIA

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Abstract: *Symphyotrichum squamatum* (Compositae) is reported as a new alien species to Romania. The species is native to South America and the way of introduction in Romania remains unknown. Data about habitat and population of the taxon are presented. The specimens of this plant were collected in Bucharest (Romania) and deposited in the Herbarium of the University of Bucharest (BUC).

Key words: alien species, invasive plants, Romanian flora, *Symphyotrichum squamatum*.

Received 15 November 2016

Accepted 22 November 2016

Introduction

Symphyotrichum is a genus with about 90 species native to the Americas and one species (*S. ciliatum*) native to Eurasia (Verloove 2016). Many of them are widely cultivated as ornamental plants in Europe and have become naturalised in many countries (Verloove 2016). In Romania, nine non-native species of the genus have so far been reported, many of them cultivated and naturalised in many regions of the country (Sîrbu & Oprea 2011).

In the present paper we report a new alien species for the flora of Romania, namely *Symphyotrichum squamatum* (Compositae), which is considered invasive in large parts of the Mediterranean area (Celesti-Grapow et al. 2009).

Material and methods

The species was recorded during our field works on alien plants, in Bucharest (Romania). The geographic coordinates were recorded using a handheld Garmin GPS model eTrex Legend C, using WGS84 system. Voucher specimens were deposited in the Herbarium of the Botanic Garden “D. Brandza”, University of Bucharest (BUC). The morphological characters of the species and ecological features were compared with data from the literature (Yeo 1976, Nesom 2005, Brouillet et al. 2006). The taxonomy and nomenclature of species follow The Euro+Med Plantbase (Greuter 2006+).

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Results and discussion

Symphytotrichum squamatum (Spreng.) G.L. Nesom belongs to the Asteraceae (Compositae) family, tribe Astereae, subtribe Symphyotrichinae and is native to South America (Nesom 1994, Greuter 2003, Nesom 2005, Hind 2011).

Nomenclature:

Symphytotrichum squamatum (Spreng.) G.L. Nesom, *Phytologia* 77(3): 292, (1994) 1995.

= *Conyza squamata* Spreng., *Syst. Veg.*, ed. 16, 3: 515, 1826.

= *Aster squamatus* (Spreng.) Hieron., *Bot. Jahrb. Syst.* 29(1): 19, 1900.

= *Aster barcinonensis* Sennen, *Bull. Acad. Int. Géogr. Bot.* 24: 242, 1914

= *Conyzanthus squamatus* (Spreng.) Tamamsch., *Fl. U.R.S.S.* 25: 186, 1959.

= *Symphytotrichum subulatum* var. *squamatum* (Spreng.) S. D. Sundb., *Sida* 21(2): 908, 2004

Type: URUGUAY. MONTEVIDEO.

Voucher specimen: Romania, Bucharest: Cotroceni (44°26'12.27"N, 26°4'0.82"E), 72 m alt., 28.10.2016, leg. E. Nagodă, G. Negrean, P. Camen-Comănescu; det. P. Camen-Comănescu [BUC 405988].

Description (Fig. 1): Annual or biennial plant, usually 30-100 cm height (Yeo 1976). The recorded specimens in Bucharest have 50-70 cm, except one which is 170 cm tall, very branched in the upper part. Erect and glabrous stems, often reddish, with lateral ascending branches. Leaves sessile, alternate, dark green, entire or distantly toothed. The lower leaves spatulate, 1.5 to 15 cm long, most of them dried during the flowering time. The leaves on the floral branches sessile, linear-lanceolate and scale-decreasing.

Inflorescences are elongated, with corymbiform to thyriform arrangement of heads and compound branching. Tiny heads, up to 500 to an individual of about 170 cm height. Involucres 3-4 x 5-7(-8) mm, with 3 to 5 rows of unequal bracts. Phyllaries 18-24(-30), subulate to lanceolate, hyaline margins and ± mucronulate, distinctly demarcated, with apical green zone and dark apex. Ray florets numerous (20-30), white or lavender. Disk florets (7-14) hermaphrodite, yellow. Achenes pubescent, 3-5-nerved, 1.5 to 3 mm long. Pappus 1-seriate, accrescent, hairs about 4-5 mm long, longer than ray corollas.

Symphytotrichum squamatum is tetraploid, $2n=20$ (Yeo 1976, Nesom 2005).

Distribution: Yeo (1976) indicated *Symphytotrichum squamatum* as widely naturalized in SW Europe and also in the C & E Mediterranean region (Azores, Balears, Corse, Kriti with Karpathos, France, Greece, Spain, Italy, Former Yugoslavia, Portugal, Sardinia). According to Nesom (2005), the species is naturalized in Australia, Japan, Iraq, Africa (Algeria, Egypt), France and probably other regions of the world. The species is listed as alien in Europe (DAISIE 2009) and widely distributed in many countries: Italy, France, Malta, Cyprus, Slovenia, Greece (Šajna 2014).

Nowadays, according to Greuter (2006+), in Europe it is spread in the west and south of the continent. Among neighbouring countries of Romania, until now, it has been reported only from Bulgaria (Dimitrov & Assyov 2003). Even in the Flora Europaea, *Symphytotrichum squamatum* is mentioned from Former Yugoslavia, there are data only for Slovenia (Greuter 2006+, Šajna 2014) and Croatia (Greuter 2006+), but not for Serbia, neighbouring country of Romania.

In 2015, we recorded four individuals of *Symphyotrichum squamatum* in Romania, Bucharest, on the Șoseaua Cotroceni Street. In 2016, over 100 individuals were recorded on the right side of the Dâmbovița River, between Cotroceni Bridge and Unirii Square, as well as alongside of Șoseaua Cotroceni Street.

Biology, ecology: The species flowers from June to October, fruiting until November. It produces up to 70.000 seeds/plant (Šajna 2014), efficiently dispersed by wind and with high germination rates.

The typical habitat is represented by salt marshes, brackish marshes (Brouillet et al. 2006, Šajna 2014) and prefers soft climates along the sea surface or over lowlands (Invasive Plants in Portugal 2016).

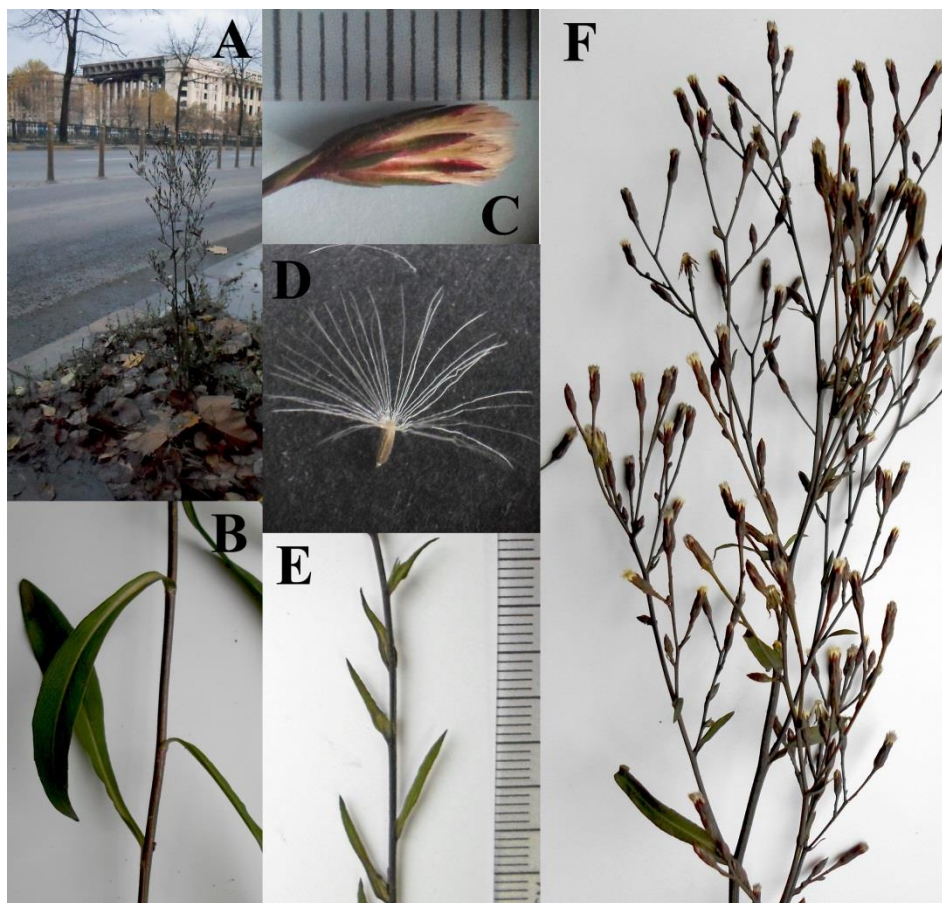


Fig. 1. *Symphyotrichum squamatum*. A - habitat; B - basal leaves; C - floral head; D - achene; E - upper leaves; F – inflorescences (photos: Camen-Comănescu Petronela).

Symphyotrichum squamatum is an urbanophile species and can be found in wet crops, waste ground, roadsides, abandoned gardens, ruins, harbours (Nesom 2005). It

presents great ecological resilience, adapting to different conditions as long as soil humidity is assured. Therefore it is presented as a successful weed in the disturbed saline marshes (Zelnik 2012, Schembri & Lanfranco 1996), but also in anthropogenic habitats (Šajna 2014).

In Bucharest, we found *Symphyotrichum squamatum* on the roadsides, near the fences, between concrete and fences, around the trees cultivated alongside of the streets.

Some sources indicate its **introduction** in European countries as accidental: in agriculture for Portugal (Silva et al. 2008), sometimes brought by ships for Slovenia, Ireland and England (Green 2007, Šajna 2014). Schembri & Lanfranco (1996) indicate the Argotii Botanic Garden as the way of introduction for *Symphyotrichum squamatum* in the Maltese Islands.

For Romania, the way of introduction is unknown. *Symphyotrichum squamatum* is spread around the Botanic Garden “D. Brandza”, but the species is neither in the collections of this garden, nor as spontaneous here. Moreover, checking the seed exchanges for the last five years, we found out that *Symphyotrichum squamatum* was not subject for exchange.

Symphyotrichum squamatum is reported as invasive in different countries of Europe: Portugal (Bernez et al. 2006), Italy (Pace & Tammara 2001), Slovenia (Zelnik 2012), Montenegro (Stešević & Caković 2013), Spain, Malta and Greece (EPPO 2016).

The high salt tolerance, the huge number of achenes dispersed by wind and adaptability to anthropogenic habitats, are reasons that this species to be able to expand in a short period of time.

Our field observations defend the idea expressed by Invasive Plants in Portugal (2016) that the plant has a „strong invasive behaviour, able to expand and colonise new habitats in a short period of time”.

Conclusions

A new alien plant species is reported from Romania. At the moment, *Symphyotrichum squamatum*, could be considered naturalised, but able to become invasive. Given its high dispersion capacity and the success even in natural habitats such as saline marshes, the early detection and control of *Symphyotrichum squamatum* is very important.

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