Article

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Resolving nomenclatural and distributional issues in *Senecio macedonicus* (*Asteraceae*), a species endemic to the Balkan Peninsula

Abstract

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This paper discusses some aspects concerning the year of publication and the locus classicus of *Senecio macedonicus* Griseb. New data on the distribution of this species within the territory of the Republic of North Macedonia are given.

Key words: chorology, Balkan endemic, *Senecio*, North Macedonia.

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Introduction

Floristic research in the territory of the Republic of North Macedonia has a long tradition, dating back to the mid-19th century (Grisebach 1843-1844) and continuing to this day. Over nearly two centuries, numerous monographic publications and papers by many authors have been published in various scientific journals. These works were considered in the analytical treatment of the eight volumes of the *Flora of the Republic of Macedonia* (*Flora of North Macedonia*) (Micevski 1985, 1993, 1995, 1998, 2001, 2005; Matevski 2010, 2021), realized within the project activities of the Macedonian Academy of Sciences and Arts.

Recent research continues to increase our knowledge of the remarkably rich flora of this region, leading to the discovery of taxa new to science, as well as new data on the distribution of taxa previously unrecorded for the flora of North Macedonia. This includes discoveries from the past decades, such as several new species whose loci classici are situated within the country's borders (Blažek & Matevski 2021-2022; Teofilovski 2022, 2023; Sharovikj-Ivanova & al. 2025), as well as numerous species representing various floristic geoelements recorded for the first time in North Macedonia (e.g. Matevski 2016; Vladimirov & al. 2016; Niketić & al. 2017; Teofilovski 2021, 2022, 2023, 2024; Matevski & al. 2022; Nikolov 2023, 2024; Hristovski & al. 2025).

Senecio macedonicus was described by Grisebach from "Macedonia" based on herbarium material collected by the Hungarian scientist Imre Frivaldszky (1799-1870). Some uncertainty remains concerning the exact year of publication and provenance of the holotype.

The new data presented here confirm, for the first time, the presence of *Senecio macedonicus* in North Macedonia.

Material and Methods

Herbarium material was collected from Mt. Galičica and Mt. Bigla in southwestern part of North Macedonia. Literature pertaining to the taxonomy and chorology of this species in the Balkan Peninsula was consulted. During fieldwork, precise geographic data (GPS coordinates), photographs, habitat type, geological substrate and accompanying species were recorded. A distribution map was also prepared.

Nomenclature and taxonomy follow the Euro+Med (2006-) database. Voucher specimens are deposited in the Herbarium of the Institute of Biology, Faculty of Natural Sciences and Mathematics, Skopje (MKNH), and in the Archive of the Macedonian Academy of Sciences and Arts, Skopje.

Results and Discussion

Year of publication

Senecio macedonicus was published in Vol. 2, pages 221-222 which sets publication date as Jan 1846. In floristic literature, the publication year of *Senecio macedonicus* is usually cited as 1846 – Flora Europaea (1976), Mountain Flora of Greece (1991), Strid (2000), Euro+Med Plantbase (2006), Flora Bulgariae (2012).

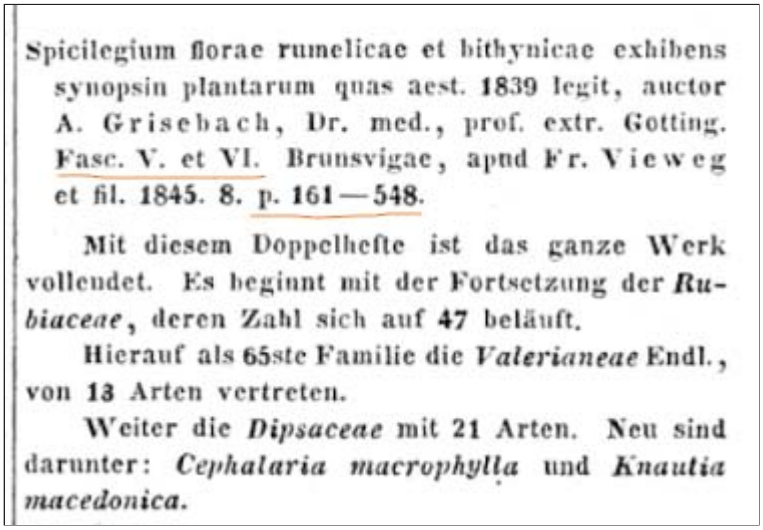
Spicilegium Florae Rumelicae et Bithynicae was published in two volumes (with six parts or fascicles). According to Stafleu & Cowan (1976: 1009) they were issued in March 1843, December 1843, July 1844, and January 1846. The splitting into fascicles for publication is well documented. Parts (fascicles) 2/3 were published on 22 March 1844 and parts (fascicles) 5/6 published on 27 March 1846. Fascicles 5/6 include pages 161-548 (see Fig. 1).

Volume 2 of the *Spicilegium* is dated 1844 on the title page, this is the starting date of publication of fascicle 4 (Fig. 2). The title page of the last fascicle is dated 1845. It was announced in January 1846 (https://books.google.fi/books?id=h8eEAAAAIAAJ) but advertised as having been published in 1845. A. Sennikov (Helsinki, pers. comm.) places its publication in December 1845.

Senecio macedonicus Griseb., Spicil. Fl. Rumel. 2: 221 (1845)
Lectotype (designated by Strid 2000: 274): Macedonia, *Frivaldszky* s.n. (G-150321! isolectotypes GOET-2380! K! LE, MO-5578157, WU-0068277!).

Provenance of the holotype

Grisebach based his description on material collected by Imre Frivaldszky, curator at the Hungarian National Museum (*Magyar Nemzeti Múzeum*) and member of the Hungarian



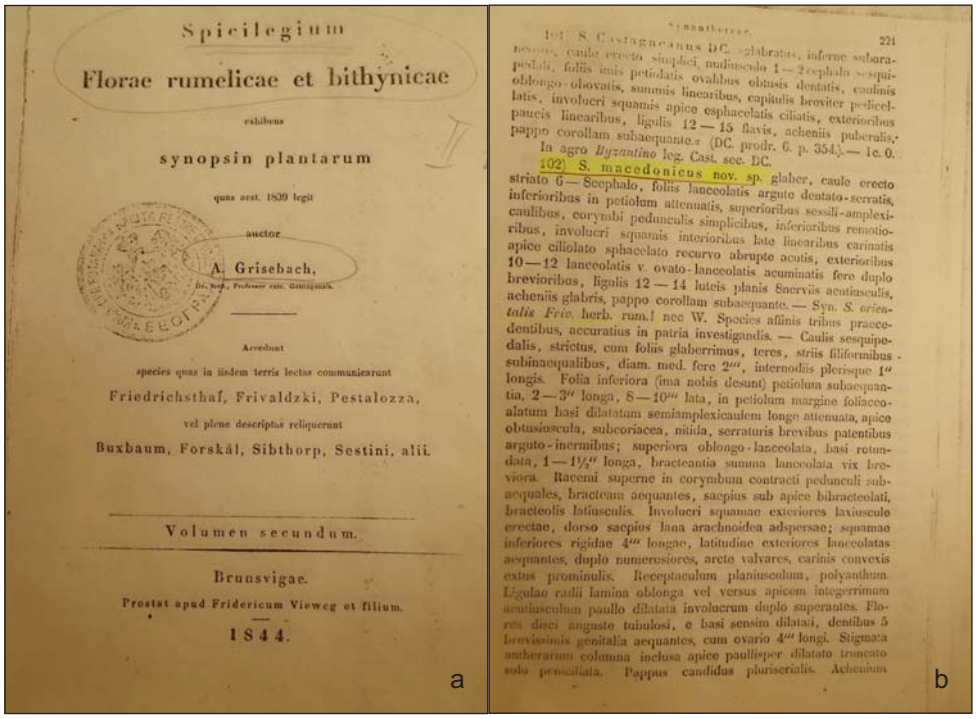
Spicilegium florae rumelicae et bithynicae exhibens synopsin plantarum quas aest. 1839 legit, auctor A. Grisebach, Dr. med., prof. extr. Gotting. Fasc. V. et VI. Brunsvigae, apud Fr. Vieweg et fil. 1845. 8. p. 161—548.

Mit diesem Doppelhefte ist das ganze Werk vollendet. Es beginnt mit der Fortsetzung der *Rubiaceae*, deren Zahl sich auf 47 beläuft.

Hierauf als 65ste Familie die *Valerianeae* Endl., von 13 Arten vertreten.

Weiter die *Dipsaceae* mit 21 Arten. Neu sind darunter: *Cephalaria macrophylla* und *Knautia macedonica*.

Fig. 1. Extract from Bot. Zeit. 4: 226–228 (27 March 1846).



Spicilegium

Florae rumelicae et bithynicae

exhibens

synopsin plantarum

quas aest. 1839 legit

auctor

A. Grisebach,

Accedunt

species quas in iisdem terris lectas communicarunt

Friedrichsthal, Frivaldzki, Pestalozza,

vel plene descriptas reliquerunt

Buxbaum, Forskål, Sibthorp, Sestini, alii.

Volumen secundum.

Brunsvigae.

Prostat apud Fridericum Vieweg et filium.

1844.

a

Synantherae. 221

b) S. Castagnaeanus DC. glabratus, inferne subarachnoideus, caule erecto simplici, radicisco 1—2cephalo sesquipedali, foliis imis petiolatis ovalibus obtusis dentatis, caulinis oblongo-obovatis, summis lineariibus, capitulis breviter pedicellatis, involucri squamis apice cephalacelatis ciliatis, exterioribus paucis linearibus, ligulis 12—15 flavis, achaniis puberulis, pappo corollam subaequante. (DC. prodr. 6. p. 354.). — Ic. 0.

In agro *Byzantino* leg. Cast. sec. DC.

102) S. macedonicus nov. sp. glaber, caule erecto striato 6—8cephalo, foliis lanceolatis argute dentato-serratis, inferioribus in petiolum attenuatis, superioribus sessili-amplexicaulibus, corymbi pedunculis simplicibus, inferioribus remotioribus, involucri squamis interioribus late linearibus carinatis apice ciliolato sphacelato recurvo abrupte acutis, exterioribus 10—12 lanceolatis v. ovato-lanceolatis acuminatis fere duplo brevioribus, ligulis 12—14 luteis planis Sacrviis acutiusculis, achaniis glabris, pappo corollam subaequante. — Syn. *S. orientalis Frio.* herb. rum.! nec W. Species affinis tribus praecedentibus, accuratius in patria investigandis. — Caulis sesquipedalis, strictus, cum foliis glaberrimus, teres, striis filiformibus subinaequalibus, diam. med. fere 2‴, internodiis plerisque 1″ longis. Folia inferiora (ima nobis desunt) petiolum subaequantia, 2—3″ longa, 8—10‴ lata, in petiolum margine foliaceo-alatum basi dilatatum semiamplexicaulem longe attenuata, apice obtusiuscula, subcoriacea, nitida, serraturis brevibus patentibus argute-inermibus; superiora oblongo-lanceolata, basi rotundata, 1—1½″ longa, bracteantia summa lanceolata vix breviora. Racemi superne in corymbum contracti pedunculi subaequales, bracteam aequantes, saepius sub apice bibracteolati, bracteolis latiusculis. Involucri squamae exteriores laxiuscule erectae, dorso saepius lana arachnoidea adspersae; squamae inferiores rigidae 4‴ longae, latitudine exteriores lanceolatas aequantes, duplo numerosiores, arcte valvares, carinis convexis extus prominulis. Receptaculum planiusculum, polyanthum. Ligulae radii lamina oblonga vel versus apicem integerrimum acutiusculum paullo dilatata involucrum duplo superantes. Flores disci angusto tubulosi, e basi sensim dilatati, dentibus 5 brevissimis genitalia aequantes, cum ovario 4‴ longi. Stigmata antherarum columna inclusa apice paullisper dilatato truncato solo penicillata. Pappus candidus pluriserialis. Achenium

b

Fig. 2. a. Title page of *Spicilegium Florae Rumelicae et Bithynicae*, Vol. 2 (1844) and b. the original description of *Senecio macedonicus* Griseb. on p. 221.

Academy of Sciences. Frivaldszky was a pioneer in floristic and faunistic research in the Balkans and western Anatolia during the 19th century. The species epithet refers to the geographical area 'Macedonia' in the Ottoman period.

Herbarium specimens collected and labeled by Frivaldszky sometimes bear imprecise localities. This is the case for the herbarium specimen of *Senecio macedonicus*, "in Macedonia, *Friv*."

In his account, Kadereit (in Strid & Tan 1991: 465) had not stated the specimen at G as the holotype. It was later lectotypified by Strid (2000).

The precise locality in "Macedonia" from where the species was collected is unknown. Frivaldszky's travel within the Balkan Peninsula provides some answers. Significant information can be found in the work of Bálint & Abadjiev (2006), which presents "An annotated list of Imre Frivaldszky's publications and the species-group and infraspecies names proposed by him for plants and animals (Regnum Plantare and Animale)." The paper gives an overview of the localities in the Balkan Peninsula (and beyond) visited by Frivaldszky, including both historical geographical names and their modern official equivalents, as well as an indication of their present locality.

From this publication, it is noted that the herbarium specimens collected by Frivaldszky (Friv.) from the territory *In Macedonia*! mainly originate from the area of Thessaloniki, Mt. Chortiatis and the Athos Peninsula. None of the localities correspond to any toponym situated within the borders of present-day Republic of North Macedonia or former Republic of Macedonia. Thus, the provenance of *Senecio macedonicus* is undoubtedly in Greece.

Distribution in the Balkan Peninsula

The general distribution of this species includes Bulgaria, Greece and Turkey, with earlier literature suggesting its probable occurrence in former Yugoslavia (southern Yugoslavia, i.e., Macedonia) (Chater & Walters 1976; Kadereit in Strid & Kit Tan 1991: 465; Strid 2000).

Balkan Peninsula – general distribution

Bulgaria, Macedonia, Thessaly, Greece (Hayek 1931).

Mountain woods and rocky slopes; eastern Balkans – Bulgaria, Greece, ?Yugoslavia, Turkey (Chater & Walters, 1976).

Greece

Peloponnese: Mts Erimanthos, Chelmos, Killini, Kallifoni, Oligirtos, Saitas, Taigetos, Parnonas; Sterea Ellas: Mts Parnitha, Pastra, Pateras, Kitheronas, Parnassos, Iti, Vardousia, Timfristos; Southern Pindos: Mt. Koziakas; Northern Pindos: Katara Pass, Kipi (both in prefecture of Ioanninon); North Central: Olympus, Vermion, Siniatsiko, Voras (Kajmakčalan), Prespa area; Northeast: Pangeo, Menikio, Vrondous, Orvilos, Falakro, Chortiatis, Ag. Pnevma, Silo, Rhodopi.

Bulgaria

Western Stara Planina, Sofia region, Znepole region, Slavyanka (Ali Botush), central and eastern Rhodopes, Thracian plain, Tundzha lowlands, 200–1600(1800) m; in open xerophilous forests, scrublands, dry rocky and grassy places, on limestone (Vladimirov 2012).

Turkey

In the text referring to *Senecio castagneanus* in the Flora of Turkey, Matthews (1975) states that this species from western Anatolia is related to *Senecio euboeus* from Greece and *S. macedonicus* from the eastern Balkans. She notes that there is an herbarium specimen of *S. castagneanus* from Turkey, collected by Sintenis [Balikesir: Mt. Ida (Kaz Da.), Sint. 1883:628!], which was misidentified as *Senecio macedonicus* by Ascherson. She also points out that there are no subsequent records confirming the presence of *S. macedonicus* in Turkey. The distinguishing characters for *Senecio macedonicus* and *Senecio castagneanus* show that although the two species are very similar, they are not identical.

North Macedonia

There are no previous records of this species in any of the republics of the former SFR Yugoslavia (Southern Yugoslavia, Republic of Macedonia) nor in any of the states that emerged following its dissolution. The record by Hayek (1931) referring to the territory of "Macedonia" is undoubtedly based on Grisebach (1844), and the area belongs to present-day political Greece.

However, the species was recently discovered in two localities on Mts Galičica and Bigla.

Mt. Galičica: Tomoros summit, subalpine pastures on limestone, 40.989722° N, 20.880000° E, 1661 m, 17.07.2018, *V. Matevski, M. Kostadinovski & R. Ćušterevska* s.n. (MKNH) (Figs. 3a & 4)

Mt. Bigla: between Golem Kamen and Karagjurgica peaks, on silicate substrate, 41.1471700°N, 21.08386635° E, 1504 m, 08.07.2025, *V. Matevski & R. Ćušterevska* s.n. (MKNH) (Figs. 3b & 4)

On Mt. Galičica, *Senecio macedonicus* occurs on subalpine limestone pastures at c. 1660 m, at the summit of Tomoros peak (Fig. 3a). The habitat is somewhat destroyed with the remains of First World War trenches and modern telecommunication antennae. Scattered individuals were observed on the southern and southeastern slopes toward the Prespa Basin, together with numerous endemic and rare taxa such as *Alkanna noneiformis, Astragalus mayeri, Asphodeline taurica, Bupleurum mayeri, Centaurea tomorosii, Convolvulus althaeoides* subsp. *tenuissimus, Cynoglottis barrelieri* subsp. *serpentinicola, Cytisus procumbens, Erodium guicciardii, Genista januensis* var. *macedonica, Genista subcapitata, Helichrysum zivojinii, Laserpitium ochridanum, Prunus prostrata, Sideritis raeseri*, etc.

On Mt. Bigla, *Senecio macedonicus* was recorded at the edge of beech forests adjacent to mountain pastures (Fig. 3b). Unlike Mt. Galičica, the geological substrate is mainly silicate, and thus the vegetation is entirely different. As on Mt. Galičica, only a few individuals were noted, at c. 1500 m, north of the peak Golem Kamen (Piramida), within the transitional zone between the upper dry grassland belt and the subalpine belt. The vegetation is dominated by species such as *Allium flavum, Anthoxanthum odoratum, Asphodelus albus, Bromus hordeaceus, Campanula persicifolia, Centaurea deusta, Cerastium petricola, Dactylorhiza sambucina, Dianthus cruentus, Digitalis lanata, Eryngium campestre, Fritillaria gussichiae, Hypochaeris maculata, Linaria genistifolia, Phleum phleoides, Potentilla canescens, Potentilla detommasii* var. *holosericea, Pteridium aquilinum, Ranunculus psilostachys, Senecio ensifolia, Sedum amplexicaule, Silene viscaria, Stachys scardica, Teucrium chamaedrys*, etc.

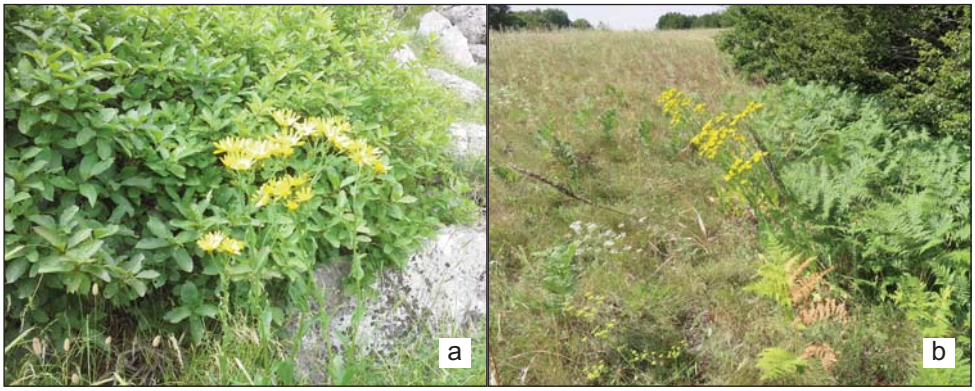


Fig. 3. *Senecio macedonicus*: a. on Galičica, Tomoros summit, on limestone; b. on Mt Bigla, on silicate (photos by V. Matevski).

The discovery of *Senecio macedonicus* in North Macedonia completes the known distribution range of this species in the Balkan Peninsula, with the new localities lying c. 80–100 km north of the nearest Greek locality on the Greek side of Mt. Kajmakčalan.

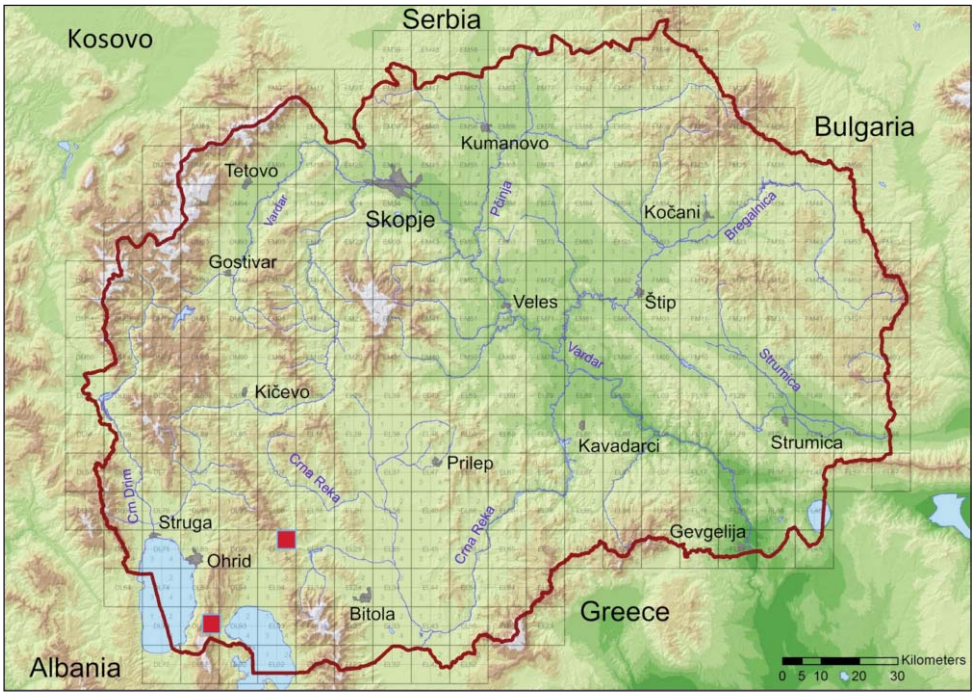


Fig. 4. Distribution map of *Senecio macedonicus* in North Macedonia.

Description of* Senecio macedonicus *based on herbarium material from Mt. Bigla

Perennial, 50–120 cm tall. Stems erect, simple or branched only at inflorescence, glabrous or sparsely arachnoid-pubescent. Leaves abruptly smaller up the stem; basal and lower cauline leaves 13–22 × 2.5–6 cm, ovate, narrowly ovate, broadly elliptical to oblong-lanceolate, subentire, shallowly and remotely dentate, attenuate at base, with petiole 5–15 cm; upper cauline leaves subamplexicaul, ovate-lanceolate or lanceolate, rounded at base, glabrescent or arachnoid-pubescent near margin. Capitula 4–18 in a simple corymb. Involucre 8–9 × 10–12 mm, with 18–20 inner black-tipped phyllaries and 8–12 supplementary arachnoid-pubescent bracts (outer phyllaries) c. 2/3 as long as involucre. Ligules 10–14, 14–21 × 2–3.5 mm, yellow. Achenes 3–5 mm, cylindrical, shortly hairy; pappus white.

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