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ГЛАСНИК ОДЈЕЉЕЊА ПРИРОДНИХ НАУКА, 23, 2019.

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THE GENUS *SIDERITIS* L. (FAM. LAMIACEAE) IN THE FLORA OF THE RN MACEDONIA

Sažetak

У оквиру пројекта Флора Републике Сјеверна Македонија финализиран је рад генуса *Sideritis* (Fam. Lamiaceae). У раду наводе се 6 врсте које су регистроване на територији Републике Македоније, кључ за њихову детерминацију, списак локалитета на бази литературних и хербариумских података као и мапа о њиховој дистрибуцији на истражуваном простору.

Кључне ријечи: *Sideritis*, Lamiaceae, flora, taxonomija, хорологија, Република Сјеверна Македонија

Abstract

Within the project Flora of the Republic of North Macedonia, the work of the genus *Sideritis* (Fam. Lamiaceae) has been finalized. The paper lists six species registered on the territory of the Republic of North Macedonia, the key of their determination, a list of localities based on literary and herbarium data as well as maps on their distribution in the investigated area.

Keywords: *Sideritis*, Lamiaceae, flora, taxonomy, chorology, Republic of North Macedonia

INTRODUCTION

The studies of the flora of the Republic of Macedonia (now Republic of North Macedonia) have a long tradition and they started from the middle of the XIX

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century, with the research of German botanist August von Grisebach (1843–44) [1]. The current critical processing of the flora of the Republic of N. Macedonia resulted in the publication of 7 books [2], [3], [4], [5], [6], [7], [8]. In the floristic literature for N. Macedonia, there is more data of the presence of some taxa from the genus *Sideritis* (Fam. Lamiaceae), which are part of various floristic or vegetation studies dedicated to some *parts* of its territory. They are critically revised and aligned with current taxonomic and nomenclature solutions.

MATERIAL AND METHODS

All literature data regarding the presence of all the taxa of the genus *Sideritis* on the territory of N. Macedonia were collected. At the same time, a rich herbarium material of this genus from the researched territory was collected. It is deposited in the Herbarium collection of the Institute of Biology at the Faculty of Natural Sciences and Mathematics in Skopje, which is a good basis for completing the work on this genus on the territory of the NR Macedonia. During the work, the taxonomic and nomenclature solutions of the genus *Sideritis* presented in Flora Europaea [9], Mountain Flora of Greece [10], Euro + Med Plant Base [11], Plant List [12], and others were taken into account.

RESULTS AND DISCUSSION

The results of the taxonomic and horological research of the genus *Sideritis* presented in this paper are part of the taxonomic studies of the *Lamiaceae* family that will be published in the next edition of the Flora of the Republic of N. Macedonia (2/2). The paper presents a description of the genus *Sideritis*, a key for determining the species and subspecies taxa, synonymy, diagnostic description of the taxa, and data for the distribution in the investigated area.

Family LAMIACEAE

Genus *Sideritis* L.

Annual or perennial herbs or small shrubs. Verticillasters 2-to many flowered. Calyx campanulate or tubular-campanulate, 10-veined, 5-toothed; theet equal or the upper larger than the 4 lower. Corolla usually yellow; tube not exeding calyx; upper lip patent, more or less flat, entire to 2-fid; lower lip 3-lobed. Stames included in corolla-tube. Nutlets rounded at apex (According Flora Europaea) [9].

KEY FOR DETERMINING SPECIES

1. Calyx \pm 2-lipped, the upper tooth longer and wider than the 4 lower teeth; annual. 2
- Calyx \pm actinomorphic, the teeth all aequal. 3

- 2. Stem with short glandular hairs; upper calyx tooth narrowly lanceolate; corolla yellow with black upper and lower lip. 5. *S. lanata*
 — Stem without glandular hairs; upper calyx tooth ovate; corolla whitish 6. *S. curvidens*
- 3. Annual 4
 — Perennial 5
- 4. Leaves oblong-lanceolate, 2–8 mm wide 4. *S. montana*
 — Leaves ovate or elliptical, 8–15 mm wide 5. *S. lanata*
- 5. Middle and lower leaves rounded or cordate at base, semiampexicaul and often perfoliate. 3. *S. perfoliata*
 — Middle and lower leaves attenuate at base, not semiampexicaul and never perfoliate 6
- 6. Middle bracts usually equaling or shorter than flowers; Inflorescence interrupted, verticillasters usually distant. 1. *S. raeseri*
 — Middle bracts exceeding (1–3 times) the flowers; Inflorescence usually crowded to form a dense spike, rarely interrupted 2. *S. scardica*

1. *SIDERITIS RAESERI* Boiss. & Heldr. in Boiss,
 Diagn. Pl. Orient. 2, 4: 30 (1859)
 (Figures 1, 2)

Syn.: *Sideritis taurica* auct. pl. Fl. maced. non Willd.

Diagnosis

Perennial herbaceous plant, 10–70 cm, covered with greyish-white soft hairs. Stem vertically or raised from the base, usually unbranched. Lower leaves 15–80 mm x 8–20 mm, oblong-spathulate to oblong-obovate, whitish-lanate, subentire, attenuate at base; middle and upper leaves (15) 20–55 mm x 8–16 mm, subsessile, oblong-lanceolate to narrowly elliptic, acute. Inflorescence elongated, of 4–12 (15) verticillasters, many flowered, interrupted rarely the uppermost crowded. Bracts broadly ovate or elliptical-ovate, rounded in the base, dense lanate in their shape differ from the leaves; middle bracts (8) 10–18 (20) mm x 10–15 (18) mm, usually shorter, equaling or barely longer than flowers, glandular pubescens; acumen 2–4 mm. Calyx (6) 8–12 mm long, tubular-campanulate, velutinous and glandular pubescens, with 5 elongated lanceolate-triangular teeth, 2–4 mm long, shorter than tube. Corolla 8–15 mm, yellow, 2-lipped, lanate; upper lip 2-fid with two triangular parts, lower lip 3-lobed. Stamens included in corolla tube. Nutlets ovate, smooth.

On limestone rock, from 1000 to 2100 m.



FIGURE 1. *Sideritis raeseri*
— Galichica Mt.

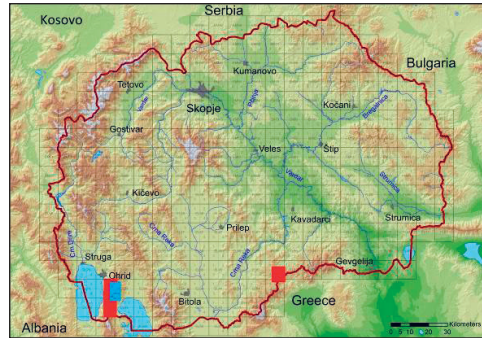


FIGURE 2. *Sideritis raeseri*
— map of distribution

■ Herbarium data ■ Literature data

Distribution in RN Macedonia:

Herbarium data (MKNH):

Galichica Mt-Preslap, Tomoros, Kazan, Petrina, v. Carina; Mariovo-v. Zivo-vo, v. Beshishte.

Literature data:

Ohrid-Ramno [13](sub *S. taurica*); Petrina, Leskoc, Cheganska Planina [14], [15]; Petrina, Stara Galichica, Poljce, Suvo Pole [16]; Galichica [17].

2. *SIDERITIS SCARDICA* Griseb, Spicil. Fl. Rumel. 2: 144 (1844) (Figures 3, 4)

Syn.: *Sideritis florida* Boiss. & Heldr. in Boiss, Diagn. Pl. Orient, 2 (4): 31 (1859); *S. raeseri* subsp. *florida* (Boiss. & Heldr.) Papanicolaou & Kokkini in Margaris et al., Arom. Pl. 119 (1982); *S. scardica* subsp. *longibracteata* Papanicolaou & Kokkini in Margaris et al., Arom. Pl. 116 (1982)

Diagnosis

Perennial herbaceous plant, 15–55 cm, densely whitish-tomentose. Stem vertically or raised from the base, branched or unbranched woody at base. Lower leaves 40–110 mm x 5–20 mm, oblong-spathulate, petiolate; middle and upper leaves 30–70 mm x 5–14 mm, lanceolate, linear-lanceolate narrowly elliptic-oblong or elliptical, acute, entire, pubescent. Inflorescence elongated. Verticillasters many flowered, crowded to form a spike-like inflorescence. Bracts broadly ovate or elliptical-ovate, suborbicular-cordate in the base, abruptly acuminate with acumen 2–4 mm, dense lanate in their shape differ from the leaves; middle bracts 15–35 mm (40) x 10–20 mm, 2–3 time longer than flowers, eglandular

or glandular-hairy. Calyx 8–12 mm long, tubular-campanulate, tomentose with glandular hairs at base and with 5 elongated lanceolate-triangular teeth, shorter than tube. Corolla (10) 12–15 (17) mm, lemon yellow, 2-lipped, lanate; upper lip 2-fid with two triangular parts, lower lip 3-lobed. Stamens included in corolla tube. Nutlets ovate, smooth.

Present in dry stony grasslands, rocky places, 500–2200 m.



FIGURE 3. *Sideritis scardica* — Galichica Mt.

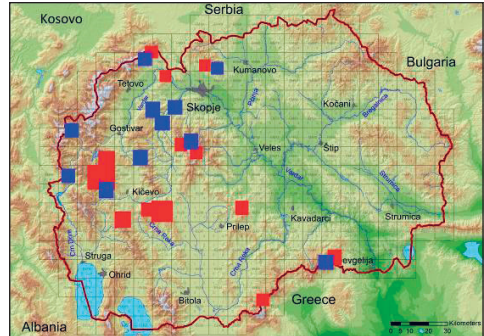


FIGURE 4. *Sideritis scardica*
— map of distribution

■ Herbarium data ■ Literature data

Distribution in RN Macedonia:

Herbarium data (MKNH):

Skopska Crna Gora-v. Banjani, v. Ljubanci; Jakupica-Solunska Glava, Dautica-Boro Pole, Zhedenska Gorge-Kolovozishte, v. Rashche; Shar Mt-Ljuboten; Bistra-v. Mavrovo, v. Galichnik, Maskarovec, Govedarnik, Rusin Brdo, Veli Vrv, Medenica, Suvo Pole; Kichevo-v. Golemo Crsko-Dabliche, Ramnishta, Baba Sach-v. Cer, Suvo Pole; Ilinska Planina-Liska, Kamna, Bigla; Prilep-Kozjak, Mariovo-Zmejca; Kozhuv- Dve Ushi, v. Sermenin, Smrdлива Voda.

Literature data:

Shar Mt-Ljuboten [1], [18]; Treska-Skopje [19], [20], [21]; Mirchevica Mt., Cheganska Mt. [14]; Huma [22]; Jakupica, Korab [23], [24], [25]; Skopska

Crna Gora [16], [27]; Treska, Kapina, Ocha, Boro Pole, Breznica, Orashje, Rogachevo, Sv. Ilija, Banjani, Bistra, Bukovich, Krchin [27], [28], [29], [30]; Bistra [31]; Rashche, Osoj [32], [33]; Vodno [34].

3. *SIDERITIS PERFOLIATA* L, Sp. Pl. 1: 575 (1753)

(Fig. 5)

Diagnosis

Perennial herbaceous plant, 20–45 cm, shortly glandular hirsute or lanate and densely puberulent. Stem simple. Basal leaves petiolate, 30–50 mm x 10–18 mm, elliptic to oblong, lanate or glabrescens, glandular-hirsute. Cauline leaves 30–70 mm x 10–20 (30) mm, subsessile, ovate to elliptic, serrate towards apex, lanate or glabrescens, glandular, rounded or cordate at base, semiamplexicaul and often perfoliate, rarely attenuate; upper cauline leaves and lower bracts amplexicaul. Inflorescence spike-like, crowded or rarely interrupted Verticillasters 10 or more, 6- to 15- flowered, distant. Middle bracts 18–25 mm x 11–15 mm, ovate cordate, acuminate, ciliate, exceeding flowers, long-tomentose and glandular-hairy. Calyx 9–11 mm, lanate and glandular-hirsute; teeth 4–5 mm, almost as long as tube. Corolla 11–14 mm, light yellow; upper lip with two brown stripes.

Key to subspecies:

1. Stems densely glandular-hirsute. Leaves greenish, glabrescent
 subsp. *perfoliata*
 — Stems lanate and glandular-hirsute. Leaves greyish-lanate. . . subsp. *athoa*

subsp. *perfoliata* — not present on the territory of RN Macedonia

Sideritis perfoliata subsp. *athoa* (Papanicolaou & Kokkini) Baden in Strid & Tan, Mountain Flora of Greece, 2: 91 (1991)

Basionym: *Sideritis athoa* Papanicolaou & Kokkini, in Margaris, Aromatic plants: 104 (1892)

Literature data:

N. Macedonia-mountains near Bitola, Hartmann s. n. (B, det. Raus). The relevant specimens (two sheets) were grown in 1919 from seed that had been collected by Hartmann at the end of the First World War in what is today S. Yugoslavia (“Berge b. Monastir”). The matter is discussed in detail by Bornmüller [15], who provisionally labelled the material as “*Sideritis peloponnesiaca* Boiss. et Heldr.”. A renewed examination of the plants has shown that they clearly

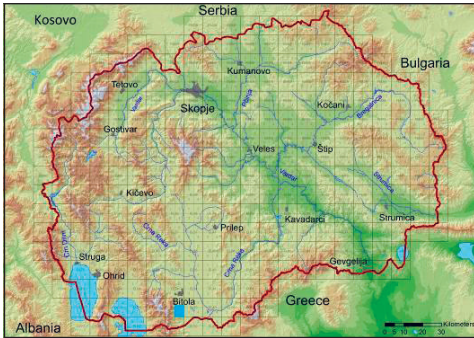


FIGURE 5. *Sideritis perfoliata* — map of distribution (literature data)

represent *Sideritis athoa* as circumscribed by Papanicolaou & Kokkini [35], who listed only Greek and Anatolian localities-but had failed to study the *Sideritis* material kept in B. [36].

4. **SIDERITIS MONTANA** L, Sp. Pl. 1: 575 (1753)
(Figures 6–9)

Syn.: *Sideritis comosa* (Bentham) Stankov & Taliev, Opred. Vysš. Rast. Evr. Casti SSSR, 861 (1949); *S. montana* subsp. *comosa* (Bentham) Soó in Acta Bot. Acad. Sci. Hung. 10: 371 (1964); *S. montana* f. *comosa* Boiss, Fl. Orientalis 4: 707 (1879); *S. montana* var. *xanthostegia* Post, Fl. Palest. 642 (1896)

Diagnosis

Annual plant, (5) 10–35 (50) cm, sparsely to densely villous lanate. Stem vertically or rises, usually branched, semi-patent or patent-villous. Leaves (5) 8–35 (50) mm x (1) 2–8 mm, oblong-lanceolate, linear to elliptical, dentate. Inflorescence elongated, interrupted or more or less crowded, verticillasters usually 6-flowered. Calyx 6–8 mm, tubular-campanulate, teeth 3–4 mm, ovate, aristate with arista 1–2 mm long. Corolla shorter than to about equalling calyx, yellow or dark brown to black with yellow lower lip. Stamens included in corolla tube. Nutlets ovate, brown, smooth.

Present on dry grasslands, abandoned fields, degraded forests, from the belt of the hilly pastures to subalpine pastures, on limestone, silicate, clay, 250–1800 m.

Key to subspecies

- 1. Corolla black or brownish-black, usually with yellow lower lip. Plant sparsely to moderately villous-lanate subsp. *montana*
- — Corolla yellow. Plant densely villous-lanate subsp. *remota*

Sideritis montana subsp. *montana*

(Figures 6, 7)

Distribution in RN Macedonia:



FIGURE 6. *Sideritis montana* subsp. *montana* — Prilep: Pletvar

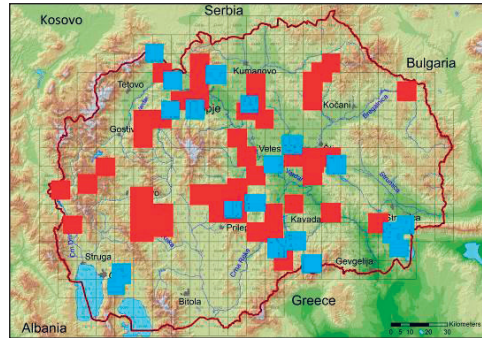


FIGURE 7. *Sideritis montana* subsp. *montana* — map of distribution
 ■ Herbarium data ■ Literature data

Herbarium data (MKNH):

Skopje-Gazi Baba; Vodno-v. Rakotinci, v. Sopishte, v. Shishevo, v. Ljubin, Treska gorge, v. Nova Breznica; Zhedenska gorge-v. Radusha, v. Orashje, v. Rashche; Suva Gora; Skopska Crna Gora-monastery “St. Ilija”; Katlanovo-Katlanovska spa, v. Dolno Konjare; Taorska gorge-Rajko Zhinzifov; Kumanovo-v. Proevci, v. Slatina-r. Pchinja, Krasta, v. Ljubodrag, Kratovo-v. Trnovac, v. Kuklica, v. Shopsko Rudare, v. Filipovci, v. Konju, v. Ketenovo; Veles-v. Rashtani, Groot, v. Ivankovci, v. Nogaevci, Babuna river gorge-Peshti; Shtip; Negotino-Krivolak, v. Ulanci, v. Eneshevo, Solena Reka; Demir Kapija, v. Barovo, v. Besvica; Delchevo-v. Todorovci, Probishtip-v. Lesново; Valandovo-monastery “St. Gjorgi”; Kavadarci: Raec River gorge, v. Mrzen v. Dradnja, Ljubash; Prilep-v. Trojaci, Mal Kozjak, Pletvar, Sivec, v. Debreshte; Mariovo-Selechka Mt., v. Beshishte, v. Dunje-Velot, Rasim Bej Most, v. Melnica, v. Orle-Bobishte, v. Grunishte; Kichevo-Ilinica, v. Cer, Baba Sach, Suvo Pole, v. G. Crsko; Demir Hisar-v. Dolenci; Ilinska Mt-Kamna; Bistra-Veli Vrv, v. Galichnik; Struga-v. Modrich; Debar-v. Banishte.

Literature data:

Ljuboten [1]; Skopje-Dolno Vodno [18]; Ohrid, Bitola [13]; Gradsko, Pletvar, Baba Planina, Crnichani [14]; Strumica-v. Borisovo [37], [38]; Mariovo-Labinica [39]; Gradsko, Vrsakovo, Ovche Pole [40]; Valandovo, Tartarli, Kajali, Prilep, Trojaci [41]; Shishevo, Radusha, Štip [28], [42]; Skopska Crna Gora, Treska river gorge [43], [26]; Petrina [16], Skopje-Gumalevo [44]; Katlanovo [45]; Peshtani [46] (sub *Sideritis montana* s. l); Skopje-Vodno; Treska river gorge-v. Shishevo, v. Radusha, Zelenikovo, Dojran, Nikolich, Valandovo, Asanli, Dudica-Konjsko, Alshar, Lubenica=Labinica [15], [47], [48], [34]; Katlanovo, Zelenikovo, Drenovo, Alshar, Bel Kamen, Careva Kula, Valandovo [49], [50]; Ohrid-Sveti Naum, Galichica [45], [17] (sub *Sideritis montana* var. (f) *comosa*); Rashche, Dvorce [32] (sub *Sideritis montana* var. *comosa* f. *xanthostegia*).

Sideritis montana* subsp. *remota

(Figures 8, 9)

***Sideritis montana* subsp. *remota* (Dum.-Urville) P. W. Ball** in Bot. J. Linn. Soc. 65: 355 (1972) Basionym: *Sideritis remota* Dum.-Urville, Mém. Soc. Linn. Paris 1: 322 (1822)

Syn: *Sideritis montana* var. *intermedia* Stoj, Fl. B√lg. 2: 856 (1933)

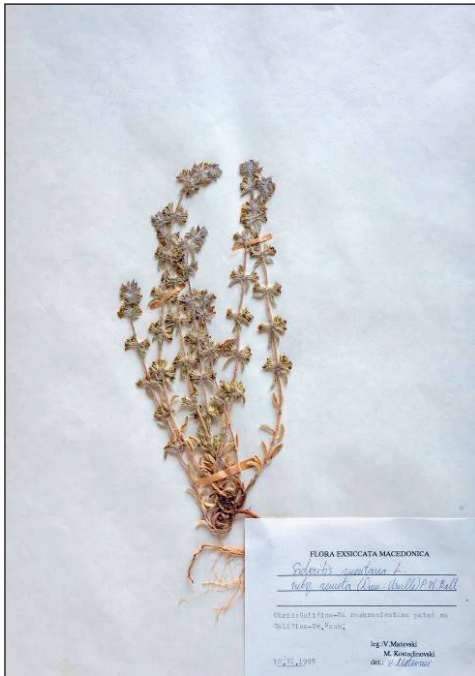


FIGURE 8. *Sideritis montana* subsp. *remota* — Ohrid: Galichica

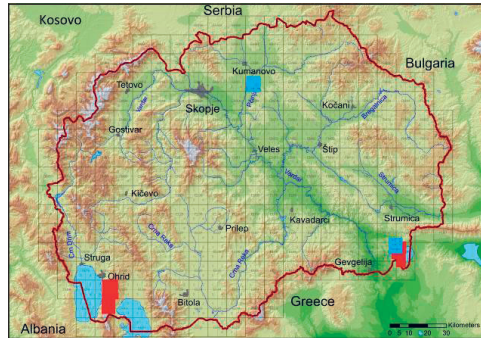


FIGURE 9. *Sideritis montana* subsp. *remota* — map of distribution
 ■ Herbarium data ■ Literature data

Distribution in RN Macedonia:**Herbarium data (MKNH):**

Dojran-Nov Dojran: Gjurangja, v. Asanli, between Nov and Star Dojran, v. Nikolic; Galichica Mt.-v. Trpejca, v. Peshtani, Petrino, v. Elshani, v. Velestovo, Glajsho, Mal Osoj, Krstec, Tomoros, Baba.

Literature data: Nov Dojran- Asanli, Kumanovo-v. Pchinja [51] (sub *S. montana* var. *intermedia*).

5. *SIDERITIS LANATA* L, Fl. Palaest. 22 (1756)
(Figures 10, 11)

Diagnosis

Annual plant, 8–35 cm high. Stem villous or hirsute, with short glandular hairs, unbranched or branched at base. Leaves 8–30 (35) mm x 8–18 mm, ovate or elliptical, crenate or crenate-dentate, villous. Inflorescence elongated, interrupted, verticillasters usually 6-flowered. Calyx 5–7 (8) mm long, tubular-campanulate, more or less 2-lipped, upper tooth lanceolate, longer than other 4 lower teeth. Corolla yellow with black lips, about as long as calyx. Stamens included in corolla tube. Nutlets ovate, smooth.

Present on dry, grassy and stony places, ruderal places along roads, hilly pastures, river gorges, on silicate background, 300–950 m.

Distribution in NR Macedonia:**Herbarium data (MKNH):**

Kochani-Kochanska River Tal, v. Orizari, v. Istibanja; Strumica-v. Sushica; Mariovo- Rasim Bej Most, v. Manastir, v. Beshishte, v. Makovo, v. Chanishte, v. Rapes, v. Grunishte, v. Budimirci.

Literature data: Crna Reka-Smradlivec, Rasim Bej Most [15], [52], [41].



FIGURE 10. *Sideritis lanata* — Strumica: Sushica

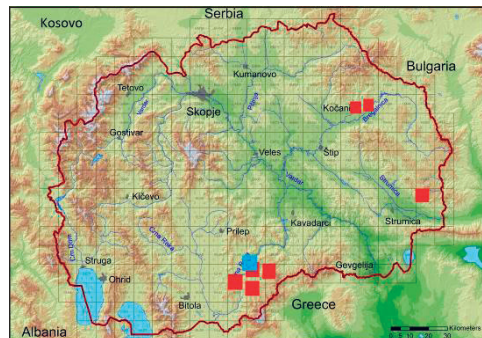


FIGURE 11. *Sideritis lanata* — map of distribution

■ Herbarium data ■ Literature data

6. *SIDERITIS CURVIDENS* Stapf, Denkschr. Kaiserl. Akad. Wiss. Math. —
Naturwiss. Kl. 50: 100 (1885)
(Figures 12, 13)

Syn.: *Sideritis romana* L. subsp. *curvidens* (Stapf) Halmböe, Bergens Mus. Skr. ser. 2, 1 (2): 153 (1914)

Diagnosis:

Annual plant, 5–15 (30) cm. Stem usually branched from the base, dense patent-villous, without glandular hairs. Lower leaves 10–20 mm x 5–10 mm, oblong-ovate, dentate, villous-lanate. Upper leaves and bracts ovate-elliptical, shortly petiolate or sessile; basal leaves in rosette, during flowering are dried. Verticillasters usually 6-flowered. Calyx 7–10 mm, tubular, 2-lipped, without prominent veins, strongly saccate at base; teeth curved in fruit, acute not pungent, usually ending in a recurved awn; upper calyx tooth ovate. Corolla white, 6–10 mm, about as long as calyx. Nutlets ovate, brown, about 1.5 mm long.

Present on hilly pastures and rocky stones, on limestone, 200–220 m.

Distribution in RN Macedonia:

Herbarium data (MKNH):

Dojran: v. Nikolich, between v. Nikolich and Nov Dojran.

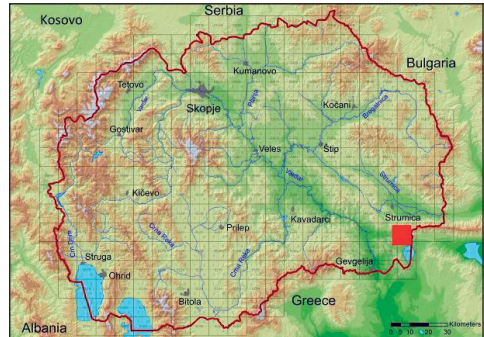
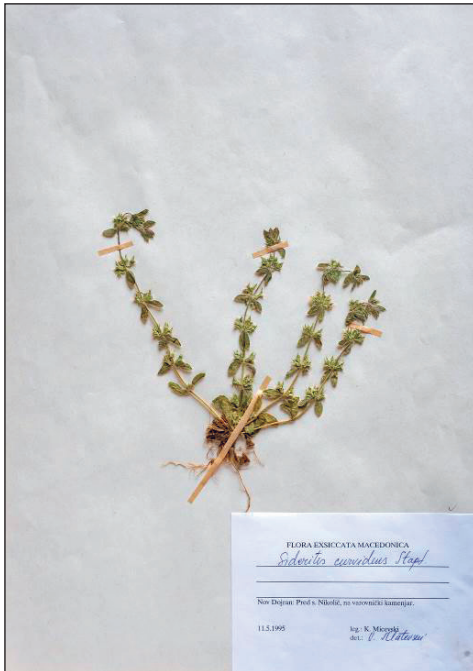


FIGURE 13. *Sideritis curvidens*
— map of distribution

■ Herbarium data ■ Literature data

FIGURE 12. *Sideritis curvidens*
— Nov Dojran: Nikolich

CONCLUSION

The paper presents six species of the genus *Sideritis* — *S. curvidens*, *S. lanata*, *S. montana* (subsp. *montana* and subsp. *remota*), *S. perfoliata* subsp. *athoa*, *S. raeseri* and *S. scardica*, registered on the territory of the Republic of N. Macedonia. Diagnostic descriptions of the established taxa were made on original, representative herbarium specimens collected in the investigated area, while their precise distribution, represented on distribution maps, is based on revised literature and herbarium data.

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