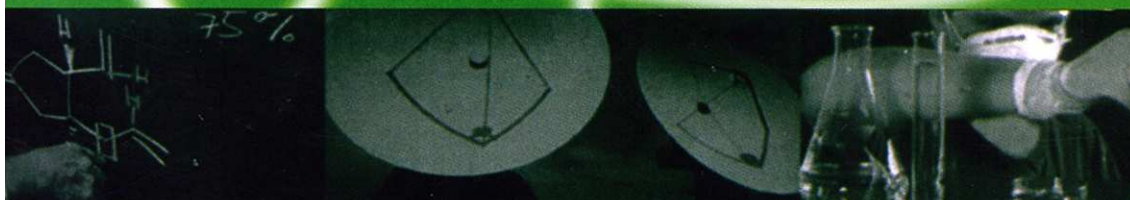


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DISTRIBUTION OF *SEDUM AMPLEXICAULE* SUBSP. *TENUIFOLIUM* IN ALBANIA

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Abstract

Sedum amplexicaule was found in Albania as a new species for the country. In this paper the European distribution of the species, its nomenclatural history and the differences between its subspecies are reviewed. All the collected data are listed and maps on the actually known Albanian distribution of the taxon are given. Additional information on habitat preferences and altitudes of occurrences are included as well.

Keywords: *Sedum amplexicaule*, taxon, mediterranean species.

Introduction

Distribution of the species: *Sedum amplexicaule* is a typical Mediterranean species according to t` Hart (2002) but Assyov & al. (2006) consider it as a Submediterranean taxon. This species is distributed in the surroundings of the Mediterranean Sea in Europe and in North Africa. It is reported from almost all the counties of Spain and Portugal (Castroviejo & Velayos 1997). In France the species is restricted to the southern regions (Coste 1903) and in Italy also to the southern half of the country (Pignatti 1982). It occurs in Sicily and Sardinia (Pignatti 1982) but it has no data from Corse (Jeanmonod & Gamisans 2007).

In the Balkan Peninsula *Sedum amplexicaule* is reported from more countries. It is widespread in Crete and Greece (t` Hart 2002), including the Northern Pindos and North Central floristic regions as well as the island of Corfu, which borders on Albania. In Macedonia the species has several known occurrences from the southern part of the country (e.g. Prilep, Bitola, Reseb, in Micevski 1998) and some localities near the Albanian border (Korab, Kičevo) as well. It is very rare in Bulgaria and reported only from the SW border of the country (Dolinata na Mesta floristical region, Jordanov 1970, Assyov et al. 2006). *Sedum amplexicaule* is also included in the checklist of the Croatian flora (Nikolić 1997).

The species is present from sea level, however, there are different data regarding the highest altitudes of its occurrences. This is only 800 m in Bulgaria (Assyov & al. 2006), 1600 m in Greece (t` Hart 2002), 1700 m in Macedonia (Micevski 1998), 1900 m in Italy (Pignatti 1982), but certain records are known

above 2000 m as well (Springate 1991, t' Hart 2002). According to t' Hart (2002) the species occurs generally above 800 m.

Nomenclature: *Sedum amplexicaule* DC. was described by Augustin Pyramus de Candolle (1778–1841) from South France in 1808 (Candolle 1813). Sibthorp & Smith (1809) described a similar taxa under the name *Sempervivum tenuifolium* from Greece (Sterea Ellas). Strobl later transferred this species to genus *Sedum*, as *Sedum tenuifolium* (Sm.) Strobl (Strobl 1884), he published the taxon from Mount Etna (Sicily). Fröderström (1932) united *Sedum amplexicaule* and *S. tenuifolium* in one species and t' Hart (1974) – supposing the priority of the name *Sedum tenuifolium* (Sm.) Strobl – treats them as *Sedum tenuifolium* (Sm.) Strobl subsp. *tenuifolium* and *Sedum tenuifolium* (Sm.) Strobl subsp. *ibericum* t' Hart. Greuter (1981) – recognising the priority of the name *Sedum amplexicaule* DC., on the base of Stearn (1967, 1976) – made a new combination and status of *S. amplexicaule* DC. subsp. *tenuifolium* (Sm.) Greuter for the Greek plant (for this reason the name of the French species is *Sedum amplexicaule* DC. subsp. *amplexicaule*, so *Sedum tenuifolium* subsp. *ibericum* is the synonym of *Sedum amplexicaule* subsp. *amplexicaule*). Later Grulich (1984) divided the genus *Sedum* into more genera and described a new genus, *Petrosedum* Grulich. *Sedum tenuifolium* was transferred to this new genus as *Petrosedum tenuifolium* (Sibth. et Sm.) Grulich and *Sedum amplexicaule* as *Petrosedum tenuifolium* (Sibth et Sm.) Grulich subsp. *ibericum* (t' Hart) Grulich (Grulich 1984). Because this latter work did not take into consideration the priority of the name *Sedum amplexicaule* DC. contrary to *Sedum tenuifolium* Sm. (which was recognised by Greuter 1981) the correction of these denominations was necessary. Velayos (1989) made this correction, so the names of these two taxa are: *Petrosedum amplexicaule* (DC.) M. Velayos subsp. *amplexicaule* and *Petrosedum amplexicaule* (DC.) M. Velayos subsp. *tenuifolium* (Sm.) M. Velayos.

In our work, we use *Sedum amplexicaule* DC. subsp. *tenuifolium* (Sm.) Greuter as the name of the Albanian species, following the standpoint of t' Hart (2002) (but the name *Petrosedum amplexicaule* (DC.) M. Velayos subsp. *tenuifolium* (Sm.) M. Velayos is also valid).

Differences between the two subspecies of *Sedum amplexicaule*: *Sedum amplexicaule* subsp. *amplexicaule* is diploid, while *Sedum amplexicaule* subsp. *tenuifolium* is hexaploid or octoploid (t' Hart 2002).

The length of the stalks is between 0–4 cm of subsp. *amplexicaule* and between 0–30 of subsp. *tenuifolium* (t' Hart 1974, based only on Iberian plants). The propagules of subsp. *amplexicaule* are on the plant in suberect position, while of subsp. *tenuifolium* are prostrate, in an almost horizontal position (t' Hart 1974). The populations of subsp. *amplexicaule* are distributed in the West

Mediterranean (NW Africa, Spain, Portugal and South France), while subsp. *tenuifolium* occurs from Italy to SW Anatolia (t' Hart 2002), but earlier t' Hart (1974) published both subspecies from the Iberian Peninsula.

Material and methods

The occurrences of *Sedum amplexicaule* in Albania are listed below (see Results), arranged by districts, subsequently by mountain ranges and at last in alphabetic order. At each record the exact locality with coordinates, the date of observation, the observing persons and the altitude are listed. The coordinates were recorded with the aid of Garmin eTrex Legend GPS device in 2005 and by Garmin eTrex Venture cx GPS device in 2007. The names of localities are based on the Russian topographic maps of Albania of 1:50,000 scale (edited in Cyrillic letters), on the geographical map of Albania and on the work of Lafa & Cikuli (2002). From some localities specimens were collected and dried as well, these are deposited in the herbarium of the Hungarian Natural History Museum (BP) (in these cases the collection number of the specimen is indicated as well).

Results and Discussion

Sedum amplexicaule subsp. *tenuifolium* in Albania: *Sedum amplexicaule* is not included in the flora works of Albania (Demiri 1983, Papparisto & al. 1988, Vangjeli 2003), although outlining the area of *Sedum tenuifolium* t' Hart (1974) mentions it from Albania also based on Webb (1964), but in the referred paper Albanian occurrence is not included, so the citation is erroneous. The first occurrence of this species from the country is found in the Ostrovica Mts, near village Çemerica (Barina & al. 2006).

During our field works in Albania in 2005 and 2007, many other new occurrences of this species were discovered. The localities are restricted to the SE part of Albania, to Kolonjë, Korçe and Skrapar districts (Fig. 1), between 946 and 1688 m above sea level. Contrary to earlier observations (e.g. t' Hart 2002) we found that our *Sedum* prefers the serpentine or conglomerate substrates, where it occurs usually in open grasslands in shallow soil layer, including forests with open herb layer.

List of records of *Sedum amplexicaule* subsp. *tenuifolium* in Albania

District of Kolonjë (Rrethi i Kolonjës)

1. c. 3 km east-northeast of town Leskovik, at the northwestern foot of Mount Hoxha (1288.6 m), c. 1.8 km northwest of the peak; in pine forest; Lat.: 40.165190° N, Long.: 20.638710° E, alt.: 1034 m a.s.l.; 21.04.2007; coll.: Z. Barina, D. Pifkó, A. Csóka, B. Pintér; 11228.

District of Korçë (Rrethi i Korçës)

2. c. 3.0 km west-northwest of village 'Vithkuq', above the valley of river 'Osum'; in dry grassland, on serpentine; Lat.: 40.542990° N, Long.: 20.554150°, alt.: 1440 m a.s.l.; E; 27.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh, 11877.
3. c. 3.3 km east-northeast of village Gjergjevicë and c. 3.2 km south of village Voskopojë, on the eastern slope of mount of the peak of '1523 m', towards the valley of brook 'Xomori'; in pine forest, on serpentine; Lat.: 40.603080° N, Long.: 20.588670° E, alt.: 1364 m a.s.l.; 19.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.
4. c. 3.4 km northeast of village Gjergjevicë and c. 2.4 km south of village Voskopojë, in the valley of brook 'Xomori'; in rocky grassland, on serpentine base rock; Lat.: 40.610360° N, Long.: 20.586180° E, alt.: 1343 m a.s.l.; 19.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.
5. c. 3.4 km northeast of village Gjergjevicë and c. 2.6 km south of village Voskopojë, in the valley of brook 'Xomori'; in rocky grassland, on serpentine base rock; Lat.: 40.608560° N, Long.: 20.587270° E, alt.: 1325 m a.s.l.; 19.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.
6. c. 3.4 km south of village Voskopojë, near the road towards village Gjergjevicë, in dry grassland; Lat.: 40.600430° N, Long.: 20.596750° E, alt.: 1466 m a.s.l.; 19.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.
7. c. 4.5 km south of village Voskopojë, c. 700 m west of Mount 'Mustafalari' (1466 m), near the road towards village Gjergjevicë; in semi-dry grassland on serpentine base rock; Lat.: 40.592220° N, Long.: 20.598640° E, alt.: 1460 m a.s.l.; 19.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.
8. c. 5.8 km south of village Voskopojë, and 2.4 km east of village Gjergjevicë, near the valley of brook 'Kora', western part of mount of the peak of '1506 m'; in pine forest on serpentine base rock; Lat.: 40.5806105° N, Long.: 20.584570° E, alt.: 1387 m a.s.l.; 19.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.
9. c. 1.1 km south of the pass between villages 'Boboshticë' and 'Dardhë'; at the edge of beech forest, on conglomerate; Lat.: 40.509370° N, Long.: 20.793350° E, alt.: 1567 m a.s.l.; 21.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.
10. c. 3.9 km southwest of village Dardhë, at the northern foot of Mount 'Mali Kuk' (1790.7 m), near a small, shallow lake; in mountainous pasture; Lat.: 40.500540° N, Long.: 20.789190° E, alt. 1474 m a.s.l.; 21.05.2007; collector: Z. Barina, D. Pifkó, Cs. Németh.

11. c. 400 m south of the pass between villages 'Boboshticë' and 'Dardhë'; at the edge of beech forest, on conglomerate; Lat.: 40.515900° N, Long.: 20.796350° E, alt.: 1657 m a.s.l.; 21.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.

12. c. 1.7 km west-southwest of village Pirgu, c. 750 m west of the peak of Mount 'Aruni' (1259 m), in oak-bushland, on conglomerate; Lat.: 40.780570° N, Long.: 20.683480° E, alt.: 1235 m a.s.l.; 26.05.2007; coll.: Z. Barina, D. Pifkó.

13. c. 350 m south of village Pirgu, on the northern slope of the mount of height '1043 m', in overgrazed grassland, on conglomerate; Lat.: 40.780710° N, Long.: 20.707670° E, alt.: 946 m a.s.l.; 26.05.2007; coll.: Z. Barina, D. Pifkó, 11774.

14. c. 450 m south of village Pirgu, on the northern slope of the mount of height '1043 m', in overgrazed, bushy grassland, on conglomerate; Lat.: 40.780570° N, 20.707490° E, alt.: 949 m a.s.l.; 26.05.2007; coll.: Z. Barina, D. Pifkó.

15. c. 750 m southwest of village Pirgu, on Mount 'Aruni' (1259 m), in open, acidophilous grassland, on conglomerate; Lat.: 40.780710° N, Long.: 20.696650° E, alt.: 1045 m a.s.l.; 26.05.2007; coll.: Z. Barina, D. Pifkó.

16. c. 1.7 km east-northeast of village 'Osnat', c. 700 m south-southwest of the peak of Mount 'Guri i Kamjës' (1461 m), near the peak of Mount of a height '1353' m; in open, acidophilous grassland, on conglomerate; Lat.: 40.831190° N, Long.: 20.613160° E, alt.: 1358 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.

District of Pogradec (Rrethi i Pogradecit)

17. c. 1.8 km northeast of village 'Osnat', c. 300 m south of Mount 'Bari Kunes' (1538 m); in open, dry grassland, on conglomerate; Lat.: 40.841480° N, Long.: 20.602250° E, alt.: 1507 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.

18. c. 1.8 km northeast of village 'Osnat', c. 300 m south of Mount 'Bari Kunes' (1538 m); in open, dry grassland, on conglomerate; Lat.: 40.839600° N, Long.: 20.606760° E, alt.: 1537 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.

19. c. 2.0 km north of village 'Osnat', c. 1.1 km southwest of Mount 'Maja e Rzhanit' (1588.3 m); in open, dry grassland, on conglomerate; Lat.: 40.844710° N, Long.: 20.592060° E, alt.: 1478 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.

20. c. 2.1 km north of village 'Osnat', c. 1.3 km west-southwest of Mount 'Maja e Rzhanit' (1588.3 m); in open, dry grassland, on conglomerate; Lat.: 40.845550° N, Long.: 20.588110° E, alt.: 1521 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh

21. c. 2.5 km northeast of village 'Osnat', c. 400 m north-northeast of the peak of Mount 'Guri i Kamjës' (1461 m); in open, acidophilous grassland, on conglomerate; Lat.: 40.841110° N, Long.: 20.617450° E, alt.: 1365 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.

22. c. 2.5 km north-northeast of village 'Osnat', c. 500 m south of Mount 'Maja e Rzhanit' (1588.3 m); in dry, open grassland, on conglomerate; Lat.: 40.848350° N, Long.: 20.6013705° E, alt.: 1453 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh.

23. c. 2.85 km northeast of village 'Osnat', c. 700 m northwest of the peak of Mount 'Guri i Kamjës' (1461 m); in open, acidophilous grassland, on conglomerate; Lat.: 40.8429005° N, Long.: 20.6195505° E, alt.: 1346 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó, Cs. Németh, 11677.

Vallamare Mountains (Mali i Vallamares)

24. c. 2.8 km north-northeast of village Nikollarë and 2.3 km southwest of village Shales on the eastern slope of mount of a height '1785 m', towards maja e Lenies (2012.2 m); in dry, opened grassland; Lat.: 40.727730° N, Long.: 20.4718405° E, alt.: 1688 m a.s.l.; 24.05.2007; coll.: Z. Barina, D. Pifkó.

25. c. 3.3 km north-northeast of village Nikollarë and 1.9 km southwest of village Shales on the northern slope of mount of a height '1785 m', faced to the valley of brook Lenies, towards maja e Lenies (2012.2 m); in dry grassland, on limestone; Lat.: 40.730920° N, Long.: 20.474390° E, alt.: 1607 m a.s.l.; 15.08.2007; coll.: Z. Barina, D. Pifkó, 12595.

District of Skrapar (Rrethi i Skraparit)

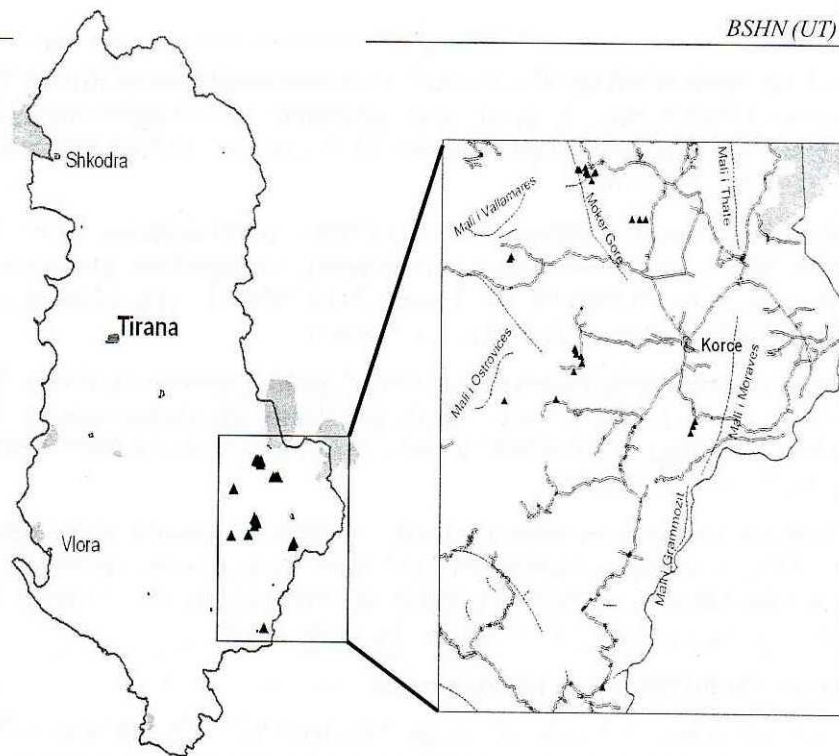


Fig. 1: Distribution of *Sedum amplexicaule* DC. subsp. *tenuifolium* (Sm.) Greuter in Albania.

▲ occurrences of the species

26. Ostrovica Mountains (Mali i Ostrovices), c. 1 km west of village Çemericë, Mount Komorru; in a beech forest clearing; Lat.: 40.540630° N, Long.: 20.464010° E, alt.: 1493 m; 06.07.2005; collection number: 8582; collector: Z. Barina, D. Pifkó, D. Schmidt.

Sedum amplexicaule DC. (subsp. *tenuifolium* (Sm.) Greuter) is a new species for the flora of Albania. During our field trips in 2005–2007 we found this taxon in 26 localities altogether in the SE part of the country and this gives us the opportunity to record the actually known distribution of the species in Albania. The occurrence of this species in Albania is not surprising, because it is known from the adjacent parts of Greece and Macedonia as well. This taxon will likely be recorded also from other parts of Albania, due to the fact that there are data from the Macedonian part of Korab Mts and from the island of Corfu as well.

We documented occurrences mainly from open grasslands on serpentine and conglomerate baserock, however, other works record the species from various substrates (e.g. t' Hart 2002). The listed occurrences range from 946 m to 1688

m altitudes, but in other countries this species is known from the sea level up to 2000 m.

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