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Seseli hartvigii* (Apiaceae), a new name for *S. ramosissimum* Hartvig & Strid, with carpological and ecological notes on this species*Abstract**

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The new name *Seseli hartvigii* replaces the illegitimate later homonym *S. ramosissimum* of 1987 for a species hitherto only known from the type collection originating from the Çalbalı Dağı W of Antalya, Turkey. New material allows the description and scanning electron micrographs of the previously unknown fruit, and suggests placing *S. hartvigii* close to the Greek *S.* (sect. *Seseli*) *aromaticum*. Distribution (including three new localities) and ecosociology of this rare subalpine plant of wind-swept rocky habitats of the Beydağları (W Taurus Mts) are outlined.

Introduction

Seseli ramosissimum, collected on Çalbalı Dağı in the Taurus Mts W of Antalya, Turkey, was described as a species new to science by Hartvig & Strid in 1987. The description and skillful illustration were exclusively based on the type material lacking ripe fruits. There is no doubt about its specific rank; the name, however, is a later homonym of *S. ramosissimum* (Port. ex Spreng.) Ces. of 1836 and must be replaced. The name *S. hartvigii* is chosen here as a nomen novum.

The first author's recent field work on the mountain flora and vegetation of Turkey (for references see, e.g., Hein & al. 1998, Parolly 1998, Parolly & Hein 2000) has yielded the basic ecosociological records of hundreds of mountain plants, including *Seseli hartvigii*, and enables us to a more detailed contribution to the chorology and ecology of this species. The fruiting material now at our disposal (*Eren 6003*, H.-J. Greuter & al. 1561) brings the welcome addition to the original description.

Seseli hartvigii Parolly & Nordt, **nom. nov.** (Art. 58 ICBN) ≡ *S. ramosissimum* Hartvig & Strid in Bot. Jahrb. Syst. 108: 305. 1987, nom. illeg. [non: *S. ramosissimum* (Port. ex Spreng.) Ces. in Bibl. Ital. 82: 392. 1836 ≡ *Athamanta ramosissima* Port. ex Spreng. in Roemer & Schultes, Syst. Veg. 6: 496. 1820]. – Holotype: Turkey, C3 Antalya, Çalbalı Dağ, W side, 2100-2300 m, rocky

slopes, limestone, 36°48'N, 30°22'E, 19.7.1984, *Görk, Hartvig & Strid 23 728* (C). – Ic.: Hartvig & Strid 1987: 306; ic. nostr.: Fig. 1-2 (fruit).

Note. – Obviously overlooked by most authors and also omitted in “Index kewensis” (The Plant Names Project 1999), the combination *Seseli ramosissimum*, based on *Athamanta ramosissima* Portschl. ex Spreng., was validated already by Cesati in 1836 not only by Hieroe (1979: 1127). Since its original place of publication was and is all the more of very limited access, we additionally refer to a review article published by the same author a few months later in *Linnaea* to communicate “das vorzüglichste davon, und einige Bemerkungen, welche sich mir später aufgedrungen haben” (Cesati 1837: 316). Today, *Seseli ramosissimum* (Port. ex Spreng.) Ces. is mostly treated as *Portenschlagiella ramosissima* (Port. ex Spreng.) Tutin.

Eponymy

It is a particular pleasure to name this taxon after Dr Per Hartvig, Danish botanist, co-discoverer and co-author of *Seseli ramosissimum*, to whom we owe many stimulating works about *Apiaceae* in the East Mediterranean.

Description of the fruit

For a general description of the plant see Hartvig & Strid (1987). The material now available allows us to complete the Latin description with the words: “Nux subglobosa, 2.1-2.4 × 1.5-1.7 mm, pubescens, valleculis brunneis et jugis ochroleucis”.

Fruit subglobose, 2.1-2.4 × 1.5-1.7 mm, brown, occasionally flushed purplish, with moderately prominent, straw-coloured primary ridges and a whitish, pubescent indumentum with short, strongly sculptured hairs up to 70-90 µm. Styles 0.5-0.6 mm, deflexed, often flushed purplish, disc translucent whitish, calyx scales minute, brown to purple (Fig. 1). Mericarps in cross-section pentagonal, rounded, with large, long-ellipsoid oil ducts (vittae), 150-250 × 30-45 µm, 2 of them commissural and 4 dorsal (Fig. 2).

Distribution

The new records show that *Seseli hartvigii* is not confined to one mountain peak (Çalbalı Dağı), but distributed also on the nearby Bakırlı and Eren Dağı. The gathering from Tahtalı Dağı represents its southeasternmost station (Fig. 3). All substantiated records and field observations of *S. hartvigii* come from the endemic-rich eastern edge of the Beydağları. The phytogeographical importance of this probably never glaciated area has been discussed by Parolly & Hein (2000; cf. Davis 1971).

Habitat and synecology

The stout, 15-30 cm high *Seseli hartvigii* is a lithophytic perennial of the subalpine belt and recorded from altitudes between c. (1900) 2000 and 2550 m, always growing on limestone. It prefers sunny, exposed ridges and rocky flats in various exposures and often roots in rock clefts and fissures.

The species is able to enter step crevices colonised by the sub-units of a rock plant community classified phytosociologically as *Aethionemo lycii-Laserpitietum petrophili* Hein & al. 1998. This association is grouped into the *Silenion odontopetalae* Quézel 1973 alliance (rock crevice communities of the Western Taurus) and the *Silenetalia odontopetalae* Quézel 1973 order. The latter encompasses all of the basiphytic high mountain rock vegetation of Turkey and the eastern neighbouring areas (Hein & al. 1998, Quézel 1973). Within the rock communities, *Seseli hartvigii* grows jointly with *Aethionema lycium* I. A. Andersson & al., *Arabis alpina* subsp. *brevifolia* (DC.) Greuter & Burdet, *Arabis lycia* Parolly & P. Hein (Bakırlı Dağı), *Arenaria tmolea* Boiss., *Asyneuma linifolium* (Boiss. & Heldr.) Bornm. subsp. *linifolium*, *A. lycium* (Boiss.) Bornm., *Campanula cymbalaria* Sm., *Laserpitium petrophilum* Boiss. & Heldr., *Rosularia sempervivum* subsp. *pestalozzae* (Boiss.) Egli, *Scrophularia candelabrum* Heywood, *Silene odontopetala* Fenzl, *S. oreades* Boiss. & Heldr. and *Verbascum pestalozzae* Boiss. (Bakırlı Dağı).

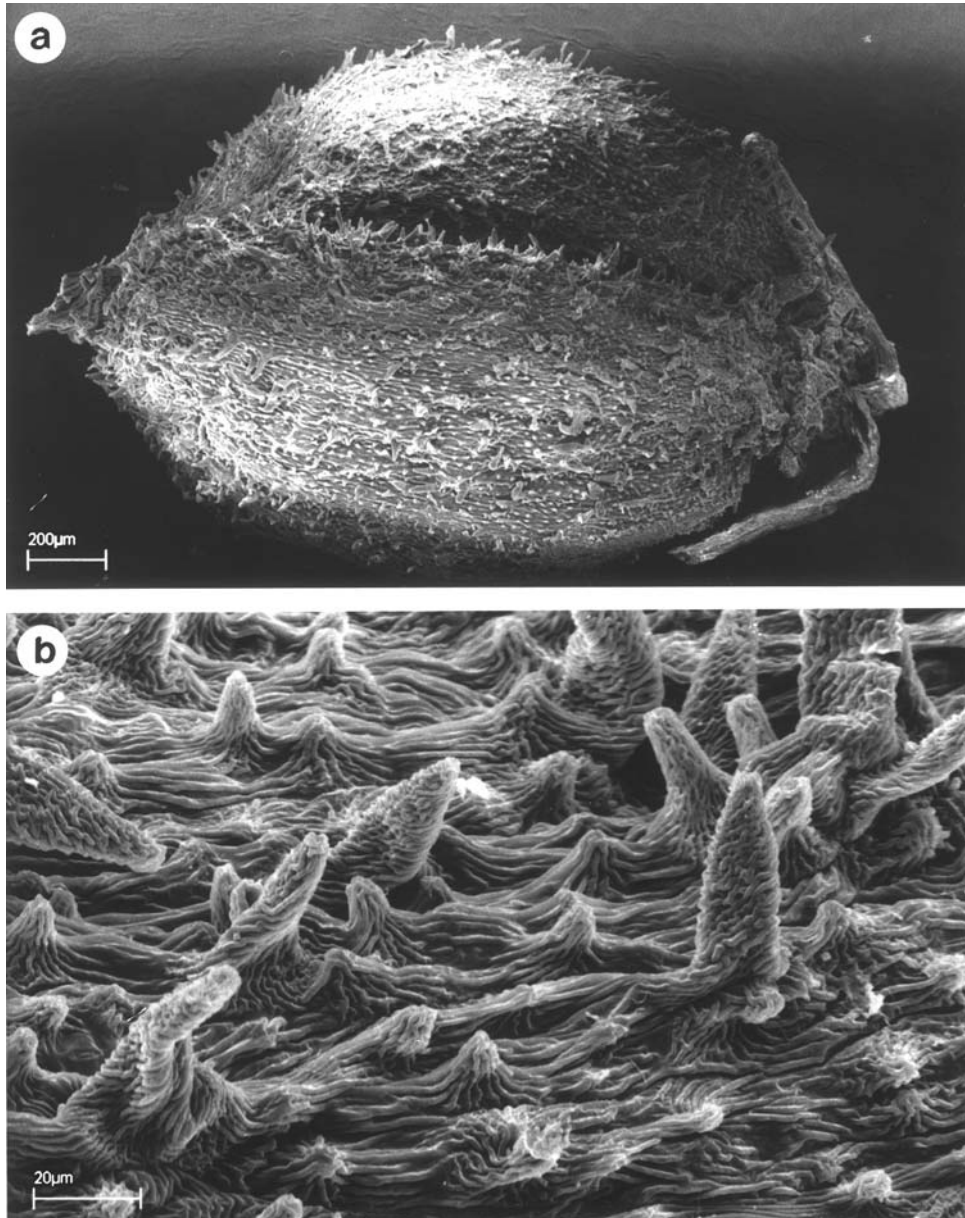


Fig. 1. Scanning electron micrographs of the fruit of *Seseli hartvigii* – a: overview; b: details of the indumentum. – Specimen: Bakırlı Dağı, 2250-2550 m, 8.1998, *Eren 6003* (B, herb. Parolly).

However, *Seseli hartvigii* is no true chasmophyte and much more often found within the wind-swept cushion communities of the *Drabo-Androsacetalia* Quézel 1973 order (*Astragalo-Brometea* class). This low-growing and gappy vegetation type develops along the highest mountain ridges and crests, on summit plateaux and, lower down, at wind-beaten, rocky flat inclines. It is generally composed of a mixture of chamaephytes and hemicryptophytes. Cushion plants, espe-

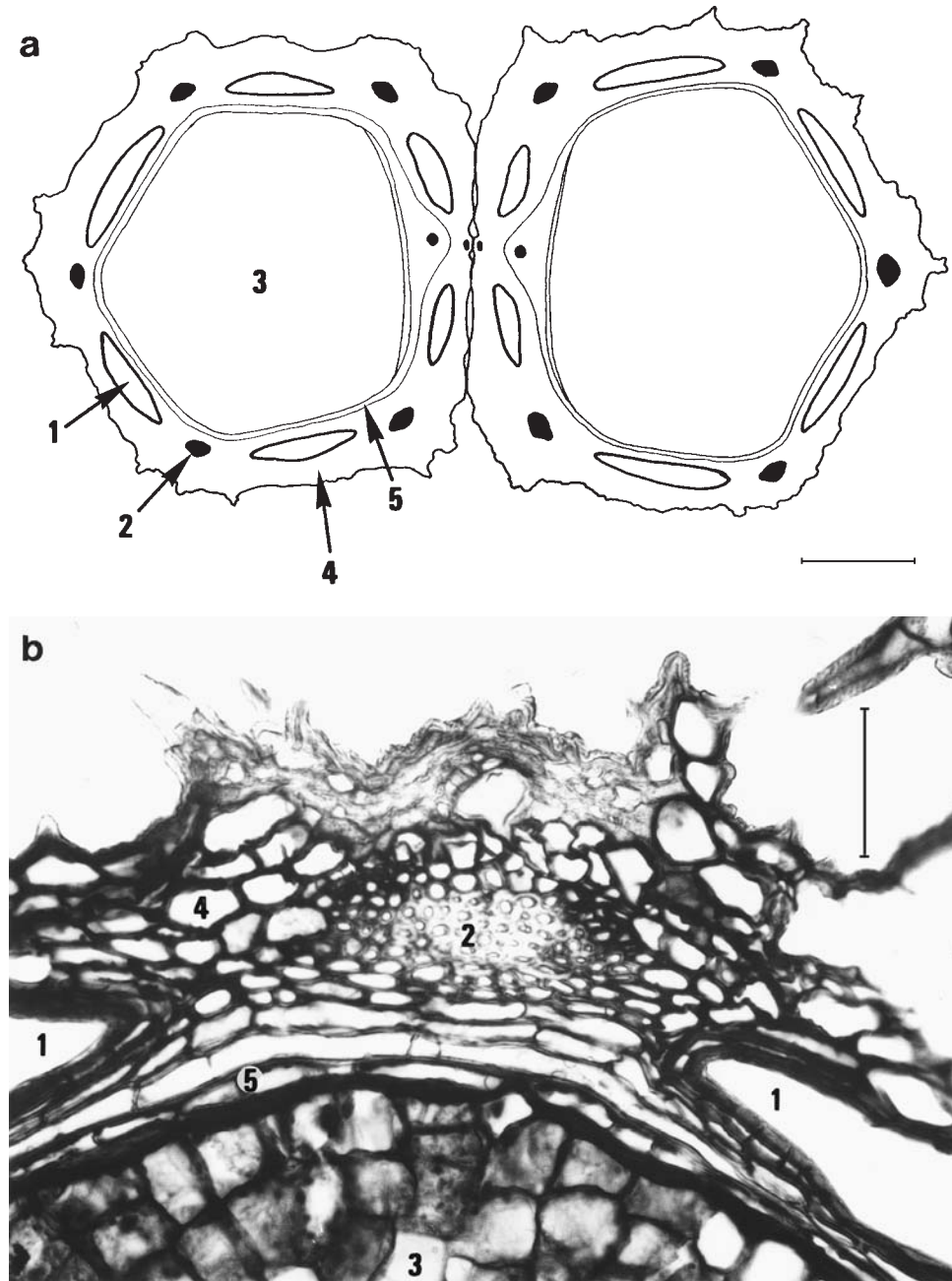


Fig. 2. Cross-sections of the fruit of *Seseli hartvigii* – a: overview; b: micrograph showing tissues around a vascular bundle in a ridge. – 1 = oil duct, 2 = vascular bundle, 3 = endosperm, 4 = pericarp, 5 = seed coat (testa). – Scale: a = 200 μ m; b = 50 μ m; specimen: Eran (= Eren) Dađı, 1900-1980 m, 7.6.1986, *H.-J. Greuter & al. 1561* (herb. Parolly).

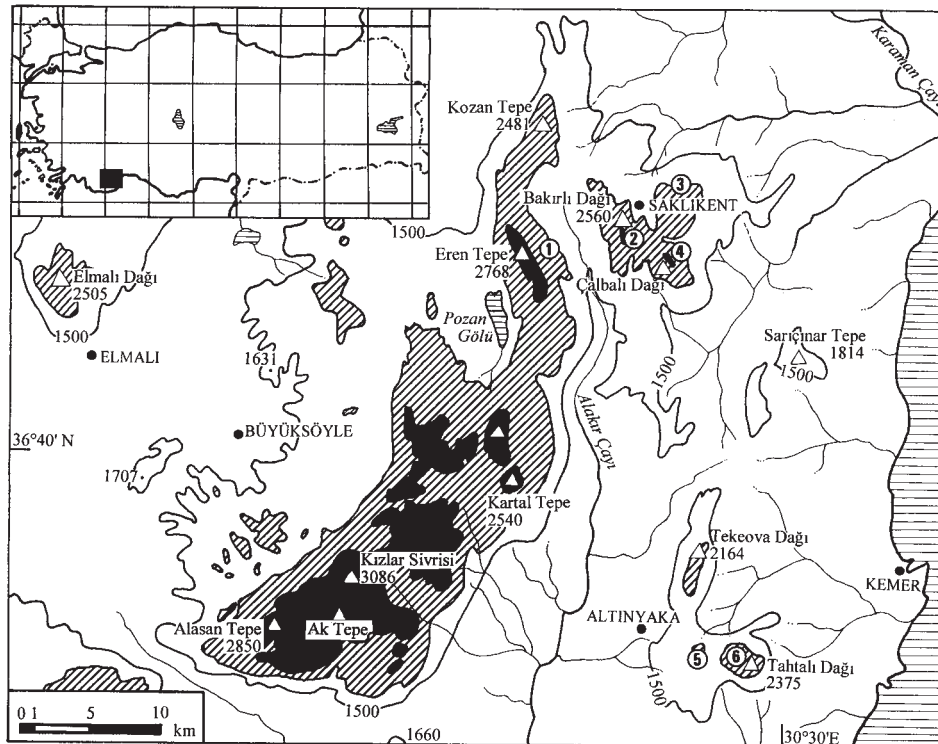


Fig. 3. Distribution of *Seseli hartvigii* (1-6: cited records and additional observations; land above 1500 m (white), above 2000 m (hatched) and above 2500 m (black) [base map: Topographical map of Turkey 1: 200 000, sheets Elmalı (H 4) and Kaş (I 4), Harita Genel Müdürlüğü, Ankara 1944/1951; re-drawn from Parolý (1995), altered; draft by Eckhard von Raab-Straube].

cially tragacanthic thorn-cushion species, are dominant. Phytosociologically, the communities of the W Taurus belong to the Paronychion lycicae Quézel 1973 alliance. The stands of the E Beydağları are marked, among others, by *S. hartvigii* and represent a well-defined, not yet described association. *S. hartvigii* occurs with scattered individuals but a high frequency within these stands on the Bakırlı Dağı and Tahtalı Dağı. They form only a very narrow belt along the rocky ridges, often merging already in a few meters distance into limestone swards and thorn-cushion communities (Tanacetion praeteriti Quézel 1973 alliance, Astragalo-Brometalia Quézel 1973 order). The stands of the rocky flats are much more extensive. All of these places are only moderately sloping and debris- to boulder-rich.

Within the local wind-swept cushion communities *Seseli hartvigii* has been found associated with more than 70 species. The most important and faithful components are *Acantholimon ulicinum* (Willd. ex Schult.) Boiss. s.l., *Alopecurus lanatus* Sm., *Alyssum condensatum* Boiss. & Hausskn. s.l., *Asperula stricta* subsp. *monticola* Ehrend., *Astragalus angustifolius* Lam. var. *angustifolius*, *A. hirsutus* Vahl s.l. (incl. *A. alindanus* Boiss.), *Centaurea bourgaei* Boiss., *C. drabifolia* subsp. *austro-occidentalis* Wagenitz, *C. pestalozzae* Boiss. (Tahtalı Dağı), *Draba brunifolia* var. *nana* (Stapf) Schulz, *Festuca pinifolia* (Hackel ex Boiss.) Bornm., *Minuartia erythrosepala* (Boiss.) Hand.-Mazz., *M. juniperina* (L.) Maire & Petitm., *M. leucocephala* (Boiss.) Mattf., *Onobrychis cornuta* (L.) Desv., *Paronychia chionaea* Boiss., *Pedicularis cadmea* Boiss., *Polygala pruinosa* subsp. *megaptera* Cullen, *Saponaria pumilio* Boiss., *Silene caryo-*

phylloides subsp. *eglandulosa* (Chowdh.) Coode & Cullen, *Thesium procumbens* C. A. Mey., and *Veronica caespitosa* Boiss. var. *caespitosa*. In phytosociological terms, *S. hartvigii* is therefore a local characteristic species of the Paronychion lycicae. In rock communities it should be treated as a transgressive differential species indicating wind-beaten sites.

The field observations document *Seseli hartvigii* as an entomophilous species visited by small "muscoïd" *Diptera*. In terms of blossom-guilds (a grouping of the species according to their function as a food source for flower visiting insect pollen vectors) this points clearly to the fly-guild, which is often dominant in mountain habitats (Kreisch 1996).

Affinities and taxonomic position

The fruit characters (Fig. 1-2) confirm Hartvig & Strid's (1987) generic assignment. Not strongly compressed fruits with prominent ridges are carpologically typical of *Seseli*. The joint occurrence of solitary dorsal vallecular and two commissural vittae represents the prime type of a *Seseli* fruit. The vittae, however, are fairly large and cover the greatest portion of the valleculae (Fig. 2). Together with, e.g., the Spanish *S. farrenyi* Molero & Pujadas, they mark the upper end of the range of size (cf. Arenas & García 1993, Hartvig 1983) observed for oil ducts in this genus.

The precise position of *Seseli hartvigii* in this taxonomically difficult genus must be left to a much needed large-scale revision, but the features in total place it in *S.* sect. *Seseli*. Within a group of chiefly Balkan species discussed by Hartvig (1983), *S. hartvigii* may well be related to *S. aroanicum* Hartvig, a rare chasmophyte of the S Greek Chelmos Mt. Distinguishing features of the latter include the much narrower ultimate leaf segments of the 3- to 4-pinnate lamina (3-pinnate in *S. hartvigii*), stalked (not sessile) primary segments, shorter, subequal rays up to 2.5 cm (not 6 cm), glabrous faces of the bracteoles, much longer pedicels (up to 4 mm not 0.5 mm). Judging from the young fruit of *S. aroanicum* (2-3 mm) the larger mericarps are \pm ellipsoid and bear distinctly longer, spreading-erect styles up to 1.5 mm (0.4 mm long and deflexed in *S. hartvigii*). For descriptions and illustrations see the protologues of both species (Hartvig 1983, Hartvig & Strid 1987).

Specimens

TURKEY, C3 ANTALYA: Çalbalı Dağ, 2300, 10.7.1949, *Davis 15087* (K); *ibid.*, 2100-2200 m, *Davis 15210* (K); *ibid.*, 2000 m, 14.7.1949, *Davis 15409* (K) [the specimens from Çalbalı Dağı are all in young bud, pers. comm. B. L. Burt]; Beydağları, Bakırlı Dağı above Saklıkent, summit region, 36°49'60"N, 030°20'22"E, c. 2460-2550 m, rocky slopes, limestone, wind-swept cushion community on rocky flats and along ridges, 10.7.1999, *Döring, Parolly 6494 & Tolimir* (flowering; B, ISTE, herb. Parolly); *ibid.*, 2200-2550 m, rocky slopes, wind-swept cushion communities, limestone, 8/1998, *Eren 6003* (flowering and fruiting; Akdeniz University Antalya, B, GAZI, herb. Parolly); Eran (= Eren) Dağı bei Feşlikan, 1900-1980 m, offene Dornpolsterfluren, 7.6.1986, *H.-J. Greuter & al. 1561* (flowering, some fruits of the previous year; herb. Parolly); d. Kemer, Beydağları, Tahtalı Dağı, W side (ascent from Yukarı Beycik), summit region above timberline, 36°32'59"N, 30°25'95"E, 2200-2350 m, rocky slopes, limestone, wind-swept cushion community, rock crevices and clefts, 8.7.1999, *Döring, Parolly 6470 & Tolimir* (flowering; B, ISTE, herb. Parolly); *ibid.* (Takhali Dagh), 2000-2300 m, on summit ridge, fls. disty white, 19.8.1947, *Davis 14117* (E, K).

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G. Edinburgh) for linguistic corrections and for providing the additional records by P. H. Davis (det. Burtt, as *S. ramosissimum*) cited above, and to Dr N. Kilian (Berlin) for checking the Latin.

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