

## *Micromeria acropolitana* (Lamiaceae) rediscovered in Athens (Greece)

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**Abstract.** *Micromeria acropolitana* (Lamiaceae) was first collected in 1906 from the Acropolis, Athens and considered extinct until its rediscovery in 2006, a hundred years later. Its greatest threat within the archaeological site is human disturbance. It has survived in its original habitat, the natural rock of the hill. Its correct name is confirmed and its affinities to other species demonstrated by illustrations.

**Key words:** Acropolis, archaeological site, extinction, flora, Greece, *Micromeria*, rediscovery, taxonomy

René C.J.E. Maire (1876–1949) and Marcel G.C. Petitmengin (1881–1908) were two French botanists and explorers who collected in the Peloponnese and Sterea Ellas during 1904 and 1906. It was during a visit to the Acropolis on 30 August 1906 that they discovered the plant later to be published by Halácsy as *Micromeria acropolitana*. Maire and Petitmengin's publications in 1907 and 1908 contain descriptions of new taxa, many new combinations and new records based on their specimens which are kept at the University of Montpellier (MPU) and University of Nancy, France (NCY). The 1908 article was issued twice with different pagination, as a separate publication and in a periodical. It is not clear which was published first.

Eugen von Halácsy (1842–1913) was an Austrian physician and botanist of Hungarian descent. He made two expeditions to Greece in 1888 and 1893, the results of which were published in a series of contributions, mainly in Austrian journals. His floristic work in Greece was summarized in 3 volumes of *Conspectus Florae Graecae* (1900–04, with supplements in 1908 and 1912); this is a careful and accurate work still a major source of information. His Greek herbarium is kept separately at the Uni-

versity of Vienna (WU); it includes his own specimens and many duplicates by other collectors.

Gregory Tsounis is a biologist interested in the flora and fauna of Greece. Together with his 17-year old son Lambros he started to investigate the Acropolis and the surrounding archaeological sites and areas: Filopappou hill, hill of the Nymphs, Arios Pagos, Plaka, the ancient Agora, Kerameikos, Temple of Olympian Zeus and the Ilissos River which runs partly underground through Athens but is dry in the summer.

Archaeological sites are often rich in anthropogenic species and sometimes the last bastion of rare and endemic taxa. The Acropolis of Athens has offered sanctuary to a small perennial labiate for more than 5000 years, long before the dawn of Greek civilisation. Its greatest threat is human intervention. Artemis Yannitsaros, former professor of botany at the University of Athens, writes in 1998: "Acropolis seems to have been deprived of at least one of its species, strictly endemic, that is of a unique species of this area only. This is *Micromeria acropolitana* or *Satureja acropolitana* (Halácsy) Greuter & Burdet, of the Labiatae family, which must be considered today as a species disappeared not

only from the Hellenic but from the global flora". These are dramatic statements, likewise echoed by Zervou & Yannitsaros (1999) and Phitos & al. (1995) in a Red Data Book of Greece. Theophanis Constantinidis, a botanist now at the University of Athens, wrote in the Greek newspaper 'Kathimerini' published on 31 August 2003, "The mysterious *Micromeria acropolitana* (*Micromeria* of Acropolis) is a small and humble perennial species growing exclusively in the rock of Acropolis, which, for about a century now, nobody has ever seen again, neither in the rock of Acropolis nor anywhere else". Thus despite floristic investigation of the area by Paterson (1979), Sarlis (1994), Zervou & Yannitsaros (1999) and other researchers, no one seems to have rediscovered the plant. It was declared under official protection (Presidential Decree 67 for protection of wild flora and fauna) as from 30 January 1981.

The *locus classicus* is the famed landmark of Greece, the Acropolis which is a limestone rock 156 m high. Its greatest length is 300 m and its greatest width c. 150 m. The rock is trapezoid in shape and its surface fairly level with a slight inclination from east to west. The ancient Greeks often built their cities on hills, protected by strong walls and the Acropolis was thus the fortified part and highest point of old Athens. The first inhabitants settled on the Acropolis in 4000 BC and during the Mycenaean period (1600–1100 BC) the Acropolis and the city of Athens were the centres of political power. The Acropolis hill is mainly of limestone. Rainwater over the centuries has dissolved away the softer parts to form clefts and small caves. The open cracks and fissures on the hill especially at the archaeological site have now been sealed with cement to reduce erosion from acid rain.

During their wanderings on the site in 2006, two of the authors (GT and LT) found a small population of 50–60 plants which they thought must surely represent the long-vanished *M. acropolitana*. They kept the plants under observation for a year and noted that the main flowering period was May and June. No bees, wasps or butterflies were seen to pollinate the flowers but ants were observed carrying away the small dark reddish-brown seeds to their colonies in cracks and crevices with little soil and this is presumably how the plant spreads on the site. In June 2009 they thought it was time to confirm the identity of their plant, to see if it was indeed *M. acropolitana* Halácsy. A visit to the website of the Herbarium of the Institute of Botany at the University of Vienna gave them confidence as the plants they had

been observing these three years seemed identical to the type specimen of *M. acropolitana* deposited there. Nevertheless, they were eager for a concrete and scientific opinion. They decided to contact the botanist Kit Tan (KT) from the University of Copenhagen who was well-known for her research on the Greek flora. They were slightly apprehensive as no one has rediscovered *M. acropolitana* since Maire and Petitmengin in 1906 and it was now a hundred years later.

They sent three digital images of their plant to KT at Copenhagen. She responded immediately with a request to send specimens for further study as nothing critical can be identified from photographs. So they sent seven specimens to Copenhagen.

KT replied that six of them are a variant of *M. juliana* (L.) Benth. ex Rchb. but the seventh looked interesting and she would check further with four other taxa which are superficially similar. They soon received confirmation on 16 June 2009 that their plant was indeed the long-lost, elusive endemic of the rock of Acropolis. You can imagine their joy was tremendous at this good news. KT came to the site on 8 July 2009 together with Gert Vold from the Copenhagen Botanical Garden to see the plants herself.

A plant population of ca. 100 individuals monitored by GT and LT has remained steady all these years and showed a slight increase in numbers in 2009 due to the plentiful and prolonged winter rains. Wall crevices and broken marble with a little soil seem to be the favoured habitats. There were ca. 50 plants in frequently visited parts of the site, less than 30 cm away from being trodden. Careful searching also revealed plants on the northern, eastern, western and southern slopes of the natural rock. It is estimated that the total number of plants on the Acropolis must be at least 400. Certainly the greatest threat to survival on the archaeological site itself would be human activity, with constant trampling by tourists and constant cleaning of the stonework. It is amazing that the plant has indeed survived there longer than the dawn of Greek civilisation, longer than 5000 years. However, it is probable that the species will always survive on the natural rock of the hill (Fig. 1).

The Director of the archaeological site has promised to ensure the survival of this species. With 11,000 daily visitors at the opening of the new Acropolis Museum and thousands at the height of the tourist season he realized that the care of the Acropolis, the great historic monument to Greek civilisation, has to achieve a fine balance with the care for the monument's one and



Fig. 1. *Micromeria acropolitana* in its natural habitat (photo L. Tsounis).

only endangered endemic plant which should likewise be treated as part of the Greek natural heritage. When KT visited the site in summer, two women were busy weeding and cleaning near scaffolding and reconstruction work. They filled four large black sacks of vegetation in a short time. KT requested one of the sacks and took it away for examination. No *Micromeria*, not even the common species *M. juliana*, was present in the sack. The contents were plants easily determined by their familiarity. They include:

*Ailanthus altissima* (should be eradicated from the site), *Asplenium ceterach*, *Asplenium trichomanes*, *Aurinia saxatilis* subsp. *orientalis*, *Centaurea raphanina* subsp. *mixta*

*Chondrilla ramosissima*, *Convolvulus* sp. (perhaps *cantabrica* as seen on Mt Lycabettos)

*Convolvulus elegantissimus*, *Conyza albida*, *Cynodon dactylon* (introduced, seems to be first report for eparchia Pireos), *Digitaria ischaemum*, *Hyoscyamus albus*, *Minuartia attica* (probably), *Nicotiana glauca*, *Parietaria judaica* (in great quantities), *Peganum harmala* (now not so common in Greece but still existing at Acropolis as this is a “protected” area)

*Piptatherum miliaceum*, *Reichardia picroides*, *Scleranthus perennis* probably subsp. *marginatus*, *Scrophularia heterophylla*, *Umbilicus horizontalis*.

## Taxonomy and affinities to other species

The correct name for the species is *Micromeria acropolitana* Halácsy and not *Satureja acropolitana* (Halácsy) Greuter & Burdet. The main difference between *Micromeria* and *Satureja* can be briefly summarized as follows.

*Micromeria*: leaves with sclerenchymatous, thickened, ± entire margin.

*Satureja*: leaves without thickened margin.

Based on this easily observed generic character, *M. acropolitana* is a “true” *Micromeria*; this is also borne out by other correlating characters of calyx, corolla lip, staminal length, etc.

Bräuchler (2008: 367) states that the correct name should be *M. acropolitana* Halácsy ex Maire & Petitmengin but this is not correct. Maire & Petitmengin (1908) clearly indicate Halácsy as the sole author of *M. acropolitana* (Fig. 2). They reproduced the original description made by Halácsy who first thought to name the species *M. athenae* n. sp. (Fig. 3) but later chose *acropolitana* as a more suitable epithet. Halácsy prepared the description for publication in the *Conspectus* (1908) and considers himself as the sole author as he makes no reference to Maire & Petitmengin as having contributed to the description in any way (Fig. 4). Maire & Petitmengin’s article (May 1908) was issued before Halácsy’s *Conspectus* (June 1908) but the intent of Maire & Petitmengin to ascribe authorship to Halácsy is apparent and they did so. Maire & Petitmengin’s article was also issued as a separate publication with a different pagination, again Halácsy was cited as the sole author. It is important to note that in the Maire & Petitmengin articles the authorship of ALL taxa are cited, ascribed to the person who had first described it. All taxa published by themselves as new have their own names as joint authorship with the exception of *M. acropolitana* and a few others.

Bräuchler (2008: 367) writes “Nowhere in the treatment ... is stated that Halácsy contributed to the description[s] in any way. The authorship therefore has to be attributed to Maire & Petitmengin”. In this

*Micromeria acropolitana* Hal. nov. sp. (Typus in Herb. Univ. Nanceiensis et in Herb. Halácsy).

Suffruticosa, caulibus erectis, ramosis, crispule adpresseque pubescentibus; foliis subsessilibus, minutis, 5 mm. longis, 1-2 mm. latis, oblongis, obtusis, pubescentibus; cymulis pedunculatis, 2-5 floris, racemum laxum formantibus; floribus singulis pedi-

Fig. 2. Maire & Petitmengin, Matér. étude fl. geogr. bot. Orient. 4: 179 (1908).

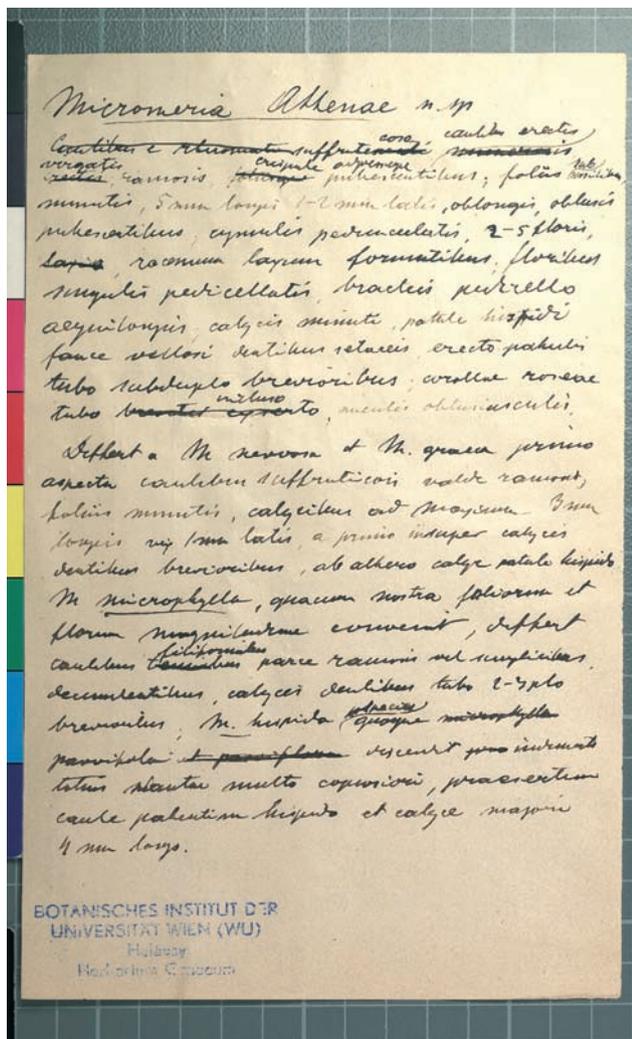


Fig. 3. *Micromeria athenae* n. sp. as described by Halácsy (file WU-Halácsy Graecum 0040407).

549

Post *Micromeria graeca* insere:

5\*. *Micromeria acropolitana*. — Exsicc.: Maire et Petitmeng. miss. bot. or. a. 1906 n. 1073.

Caulibus e rhizomate suffruticoso numerosis, virgatis, ramosis, crispule adpresseque pubescentibus; foliis subsessilibus, minutis, obtusis, pubescentibus; cymulis pedunculatis, 2—5 floris, racemum laxum formantibus; floribus singulis pedicellatis, bracteis pedicello aequilongis; calycis minuti, patulae hispidae, fauce villosi dentibus setaceis, erecto-patulis, tubo subduplo brevioribus; corollae roseae tubo incluso. — Differt a *M. nervosa* et *M. graeca* caulibus suffruticosis valde ramosis,

Fig. 4. Halácsy, Consp. Fl. Graec. Suppl. 1: 87 (June 1908).

Bräuchler is quite erroneous for not only did Halácsy contribute to the description, he wrote all of it and Maire & Petitmengin reproduced his text most faithfully in their publication as well as indicating clearly that Halácsy was sole author. The description of *M. athenae* by Halácsy as filed in herbarium WU-Hal. leaves no doubt that Maire &

Petitmengin was aware of it as it is identical to the description published by them.

Perhaps the designation of the specimen in WU-Hal as a lectotype by Bräuchler (2008: 367) is somewhat superfluous. Maire & Petitmengin (1908) states “Typus in herb. Univ. Nanceiensis et in herb. Halácsy”. Bräuchler writes that the NCY ‘syntype’ could not be traced so far ... and the WU ‘syntype’ after several fruitless efforts found by H. Rainer & W. Till ...”. But the specimens are not ambiguous syntypes. Both are duplicates of the same gathering, namely Maire & Petitmengin no. 1073 collected from the Acropolis in 1906. The fact that the NCY specimen could not be traced so far does not negate its potential as the holotype with the isotype being the duplicate specimen deposited at WU. As the specimen was collected by Maire & Petitmengin, we see no reason to doubt that Halácsy would have refused them their own material to be deposited in NCY. It would be logical to follow what is cited in the publication, that NCY has the holotype (first citation) and WU-Hal the isotype (next citation).

Bräuchler & al. (2008: 367) considered *M. acropolitana* (Fig. 5a) to be conspecific with or very similar to four closely related species. He said that “it seems very similar to the type of *M. sphaciotica* Boiss. & Heldr. ex Benth. and thus might not be specifically distinct from *M. microphylla* (d’Urv.) Benth.”. *M. microphylla* (Fig. 5b) was originally described from Malta and *M. sphaciotica* Boiss. & Heldr. (Fig. 5c) is endemic to Crete. As evident from the illustration (Fig. 5), the three species differ in details of stem indumentum, leaves and calyx structure. Next Bräuchler (2008: 372) equates *M. carpatha* Rech. fil. (endemic to Karpathos) with *M. sphaciotica* which he had considered as conspecific with *M. microphylla*. *M. carpatha* (Fig. 5d) is an entirely different taxon from *M. sphaciotica*, the differences are clear from their stem indumentum, leaf and calyx structure. Finally Bräuchler (2008: 387) considers *M. hispida* Boiss. & Heldr. from Crete (Fig. 5e) to be



Fig. 5: a, *Micromeria acropolitana*; b, *M. microphylla*; c, *M. sphaciotica*; d, *M. carpatha*; e, *M. hispida*.

conspecific with *M. microphylla*, again the difference in stem indumentum is apparent from the illustration. The conclusion reached by the authors of this article is that *M. acropolitana* is a distinct species and not identical to the four taxa named.

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