



New species and new combinations in *Micromeria* (Lamiaceae) from the Canary Islands and Madeira

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Abstract

Based on recent molecular evidence, one new species and one new subspecies of *Micromeria* are described for the Canary Islands: *M. pedro-luisii* and *M. hierrensis* subsp. *incana*. Six new combinations are proposed: *M. canariensis*, *M. canariensis* subsp. *meridialis*, *M. gomerensis*, *M. rupestris*, *M. herpyllomorpha* subsp. *palmensis*, and *M. hierrensis*. Three new hybrids are described for La Gomera: *M. lepida* subsp. *bolleana* × *M. gomerensis*, *M. lepida* subsp. *bolleana* × *M. pedro-luisii*, and *M. lepida* subsp. *lepida* × *M. pedro-luisii*. A new name is also given to the taxon from Madeira: *M. maderensis*. A revised key to the species present in the Canary archipelago is provided.

Key words: Distribution, endemism, Lamiaceae, Macaronesia, *Micromeria*

Resumen

Sobre la base de nueva evidencia molecular, se describen una nueva especie y una nueva subespecie de *Micromeria* para las Islas Canarias: *M. pedro-luisii* y *M. hierrensis* subsp. *incana*. Se proponen seis nuevas combinaciones: *M. canariensis*, *M. canariensis* subsp. *meridialis*, *M. gomerensis*, *M. rupestris*, *M. herpyllomorpha* subsp. *palmensis*, y *M. hierrensis*. Se describen tres nuevos híbridos para La Gomera: *M. lepida* subsp. *bolleana* × *M. gomerensis*, *M. lepida* subsp. *bolleana* × *M. pedro-luisii*, and *M. lepida* subsp. *lepida* × *M. pedro-luisii*. Un nuevo nombre también es dado para el taxon de Madeira: *M. maderensis*. Se incluye una clave de identificación para las especies presentes en el archipiélago Canario.

Palabras clave: Distribución, endemismo, Lamiaceae, Macaronesia, *Micromeria*

Introduction

Micromeria Benth (1829: 1282) belongs to the mint family Lamiaceae, subfamily Nepetoideae, tribe Menthae, subtribe Menthinae (Harley *et al.* 2004). It is mostly distributed in the Macaronesian and Mediterranean regions, eastern Africa, India, and south China, and is composed of ca. 54 species (Bräuchler *et al.* 2008). *Micromeria* is characterized by a thickened margin to the leaves caused by a continuous sclerenchymatous vein, bracteoles always present, calyx lobes usually straight or spreading, posterior lip of the corolla emarginated and curved upwards (Bräuchler *et al.* 2008).

Macaronesia is a biogeographical region composed by five archipelagos located in the Atlantic Ocean: the Azores, Madeira, Selvagens, Canary Islands and Cape Verde. In this region, *Micromeria* is present in the Madeiran, Canarian and Cape Verde archipelagos. Molecular analyses showed that the species of *Micromeria* from the Canary Islands and Madeira constitute a monophyletic group while the species present in Cape Verde cluster with other species from the West Mediterranean region (Bräuchler *et al.* 2005). This study also showed that the species of *Micromeria* on each of the Canary Islands form monophyletic groups, except in La Gomera where several colonization events from Tenerife and Gran Canaria are suggested (Meimberg *et al.* 2006, Puppo *et al.* 2015).

According to the last revision of Macaronesian *Micromeria* (Pérez de Paz 1978), there are 16 species present in the Canary Islands and Madeira and most are single island endemics. Two species are present in two islands: *M.*

hyssopifolia Webb & Berthelot (1844: 72) in Tenerife and El Hierro, and *M. lasiophylla* Webb & Berthelot (1844: 74) in Tenerife and La Palma. Only one species, *M. varia* Benth (1834: 374), is distributed among all islands though different subspecies have been described for each, highlighting the morphological variation present in this species. Phylogenetic evidence (Puppo *et al.* 2014, 2015) however, suggests that *M. hyssopifolia* plants from Tenerife and El Hierro are not closely related. Similarly, it seems that individuals from La Palma referred to *M. lasiophylla* are not closely related to those from Tenerife and rather constitute two different taxa. In this sense, both *M. hyssopifolia* and *M. lasiophylla* would be endemic to Tenerife. Similarly, *M. varia* constitutes an endemic taxon from Tenerife and is not closely related to the plants from other islands of the Canary archipelago and Madeira with which it has been treated as conspecific (Meimberg *et al.* 2006, Puppo *et al.* 2014, 2015; Fig. 1–A). In La Gomera, two species were described: *M. lepida* Webb & Berthelot (1844: 74) with two subspecies: subsp. *lepida* and subsp. *bolleana* P. Pérez (1978: 154), and *M. varia* also with two subspecies: subsp. *varia* and subsp. *gomerensis* P. Pérez (1978: 179). However, molecular analyses revealed that each subspecies of *M. varia* present in La Gomera constitutes independent lineages (Puppo *et al.* 2015) deriving from different colonization events. *Micromeria varia* subsp. *gomerensis* and both subspecies of *M. lepida* most likely resulted from colonization from Gran Canaria while *M. varia* subsp. *varia* probably originated from Tenerife (Puppo *et al.* 2015).

In order to reconcile the taxonomic composition of *Micromeria* in the Canary Islands and Madeira with the new molecular evidence available, the present study revises several of these species proposing the recognition of one new species, one new subspecies, one new name, and six new combinations. Three new hybrids are described as well for the island of La Gomera. With the present revision, the total number of species of *Micromeria* present in these islands increases from 16 (Pérez de Paz, 1978) to 22 (Table 1; Fig. 2). A key to the species of *Micromeria* present in the Canary Islands is provided.

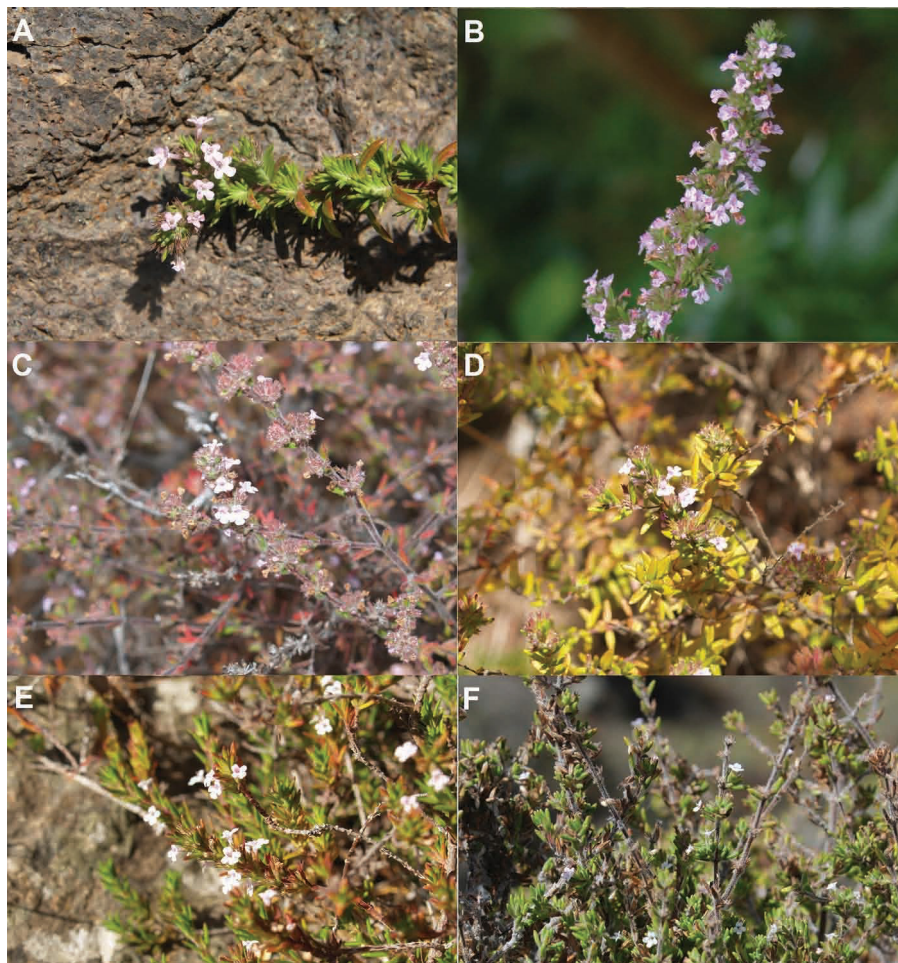


FIGURE 1. A. *Micromeria varia* (Tenerife). B. *Micromeria canariensis* subsp. *canariensis* (Gran Canaria). C. *Micromeria canariensis* subsp. *meridialis* (Gran Canaria). D. *Micromeria gomerensis* (La Gomera). E. *Micromeria pedro-luisii* (La Gomera). F. *Micromeria hierrensis* subsp. *incana* (El Hierro). Photos A, C, D, F from P. Puppo; B and E from P.L. Pérez de Paz.

TABLE 1. Species and subspecies of *Micromeria* in the Canary Islands sensu Pérez de Paz (1978) and the present study showing new species and new combinations in bold.

Island	Sensu Pérez de Paz (1978)	After this study
Tenerife	<i>M. densiflora</i>	<i>M. densiflora</i>
	<i>M. glomerata</i>	<i>M. glomerata</i>
	<i>M. hyssopifolia</i>	<i>M. hyssopifolia</i>
	<i>M. lachnophylla</i>	<i>M. lachnophylla</i>
	<i>M. lasiophylla</i> subsp. <i>lasiophylla</i>	<i>M. lasiophylla</i>
	<i>M. rivas-martinezii</i>	<i>M. rivas-martinezii</i>
	<i>M. teneriffae</i>	<i>M. teneriffae</i>
	<i>M. varia</i>	<i>M. varia</i>
La Palma	<i>M. herpyllomorpha</i>	<i>M. herpyllomorpha</i>
	<i>M. lasiophylla</i> subsp. <i>palmensis</i>	<i>M. herpyllomorpha</i> subsp. <i>palmensis</i>
La Gomera	<i>M. lepida</i> subsp. <i>lepida</i>	<i>M. lepida</i> subsp. <i>lepida</i>
	<i>M. lepida</i> subsp. <i>bolleana</i>	<i>M. lepida</i> subsp. <i>bolleana</i>
	<i>M. varia</i> subsp. <i>varia</i>	<i>M. pedro-luisii</i>
	<i>M. varia</i> subsp. <i>gomerensis</i>	<i>M. gomerensis</i>
Gran Canaria	<i>M. benthamii</i>	<i>M. benthamii</i>
	<i>M. helianthemifolia</i>	<i>M. helianthemifolia</i>
	<i>M. lanata</i>	<i>M. lanata</i>
	<i>M. leucantha</i>	<i>M. leucantha</i>
	<i>M. pineolens</i>	<i>M. pineolens</i>
	<i>M. tenuis</i> subsp. <i>tenuis</i>	<i>M. tenuis</i> subsp. <i>tenuis</i>
	<i>M. tenuis</i> subsp. <i>linkii</i>	<i>M. tenuis</i> subsp. <i>linkii</i>
	<i>M. varia</i> subsp. <i>canariensis</i>	<i>M. canariensis</i> subsp. <i>canariensis</i>
<i>M. varia</i> subsp. <i>meridialis</i>	<i>M. canariensis</i> subsp. <i>meridialis</i>	
Lanzarote Fuerteventura	<i>M. varia</i> subsp. <i>rupestris</i>	<i>M. rupestris</i>
El Hierro	<i>M. varia</i> subsp. <i>hierrensis</i>	<i>M. hierrensis</i> subsp. <i>hierrensis</i>
	<i>M. hyssopifolia</i> subsp. <i>hyssopifolia</i>	<i>M. hierrensis</i> subsp. <i>incana</i>
Madeira	<i>M. varia</i> subsp. <i>thymoides</i>	<i>M. maderensis</i>
Total species	16	22

Taxonomic treatment

Micromeria canariensis (P. Pérez) Puppo, *comb. et stat. nov.*

Basionym:—*Micromeria varia* Bentham (1834: 374) subsp. *canariensis* P. Pérez (1978: 180). *Satureja ericifolia* (Roth) R.H. Willemse (1991: 83) subsp. *canariensis* (P. Pérez) R.H. Willemse (1991: 84); *Satureja varia* Webb & Berthelot ex Briquet in Engler & Prantl (1896: 299) subsp. *canariensis* (P. Pérez) A. Hansen & Sunding (1993: 7). Holotype:—SPAIN. Canary Islands: “Ex Insula Canaria Magna (G. Canaria dicta) in magno anfractu “Bco. Oscuro”, dictum, prope Tamadaba, versus 900 m. supra Mare”, 10 July 1974, P. Pérez 9 (TFC!).

Erect subshrub, 30–80 cm high, highly branched; branches persisting and entangled, shedding bark, basal parts of branches glabrate or densely puberulent, younger parts puberulent or canescent. Leaves sessile or inconspicuously petiolated; blades herbaceous 3–10 × 0.5–3 mm, reddish to green, all blades linear, revolute, densely puberulent to hirsute, or basal blades lanceolate, flat, glabrate on both sides, abaxially puberulent on the midrib, and upper blades linear, revolute, puberulent throughout. Cymes arranged on the tip of young branches, sessile or with peduncles up to 5 mm long. Calyx green to purple, puberulent to tomentose, up to 3.5 mm long; calyx apices lanceolate, subulate, acute, ciliate or not. Corolla light purple, up to 5 mm long, exerted. Anthers purple. Style slightly exerted.

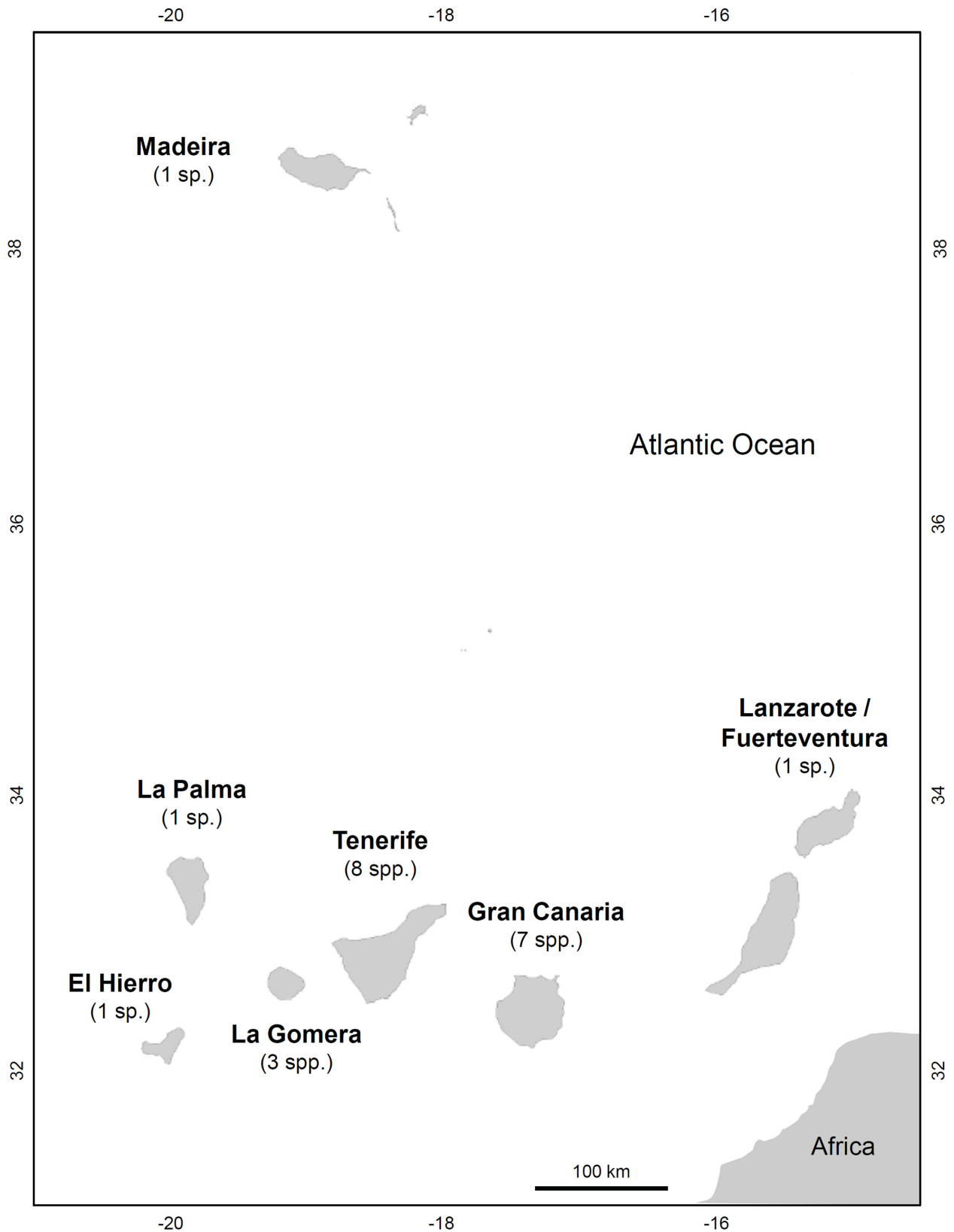


FIGURE 2. Map of the Canary Islands and Madeira showing number of species of *Micromeria* present in each island.

Notes:—This taxon was first described as one of the subspecies of *M. varia* present in Gran Canaria by Pérez de Paz (1978). Molecular studies (Meimberg *et al.* 2006, Puppo *et al.* 2015) showed that it is different to *M. varia* present in Tenerife and deserves specific status.

a. subsp. *canariensis*. Fig. 1–B, Fig. 3.

Subshrub up to 80 cm high; basal parts of branches glabrate, younger parts puberulent. Leaves blades 5–10 × 0.5–3 mm, green, basal blades lanceolate, flat, glabrate on both sides, abaxially puberulent on the midrib, upper blades linear, revolute, puberulent throughout. Cyme peduncles 2–5 mm long. Calyx green tinged with purple, puberulent, 2.5–3.5 mm long, calyx apices subulate, acute, ciliate. Corolla 3.5–5 mm long, exerted, lower lip projected upwards almost forming a 90° angle with the upper lip.

Representative Specimens Examined:—SPAIN. Gran Canaria: Bco. de los Tiles de Moya, 24 May 2011, *P. L. Pérez de Paz 674/C-2* (TFC); *P. Puppo et al. 330, 334* (TFC); Brezal de el Palmital, 24 May 2011, *P. L. Pérez de Paz 674/C-3* (TFC); *P. Puppo et al. 337, 338* (TFC); Fontanales, 24 May 2011, *P. L. Pérez de Paz 674/C-5* (TFC); *P. Puppo et al. 358, 360, 361, 362* (TFC).

Habitat and Geographical Distribution:—This subspecies is restricted to the island of Gran Canaria where it grows in several localities in the NE side of the island between 400–1000 m. It is especially abundant in rocky, humid areas, in the border of the Laurisilva forest and humid gorges.

Notes:—This subspecies grows in the humid northeast side of the island and is overall larger in size and less pubescent than subsp. *meridialis* from the drier zone.

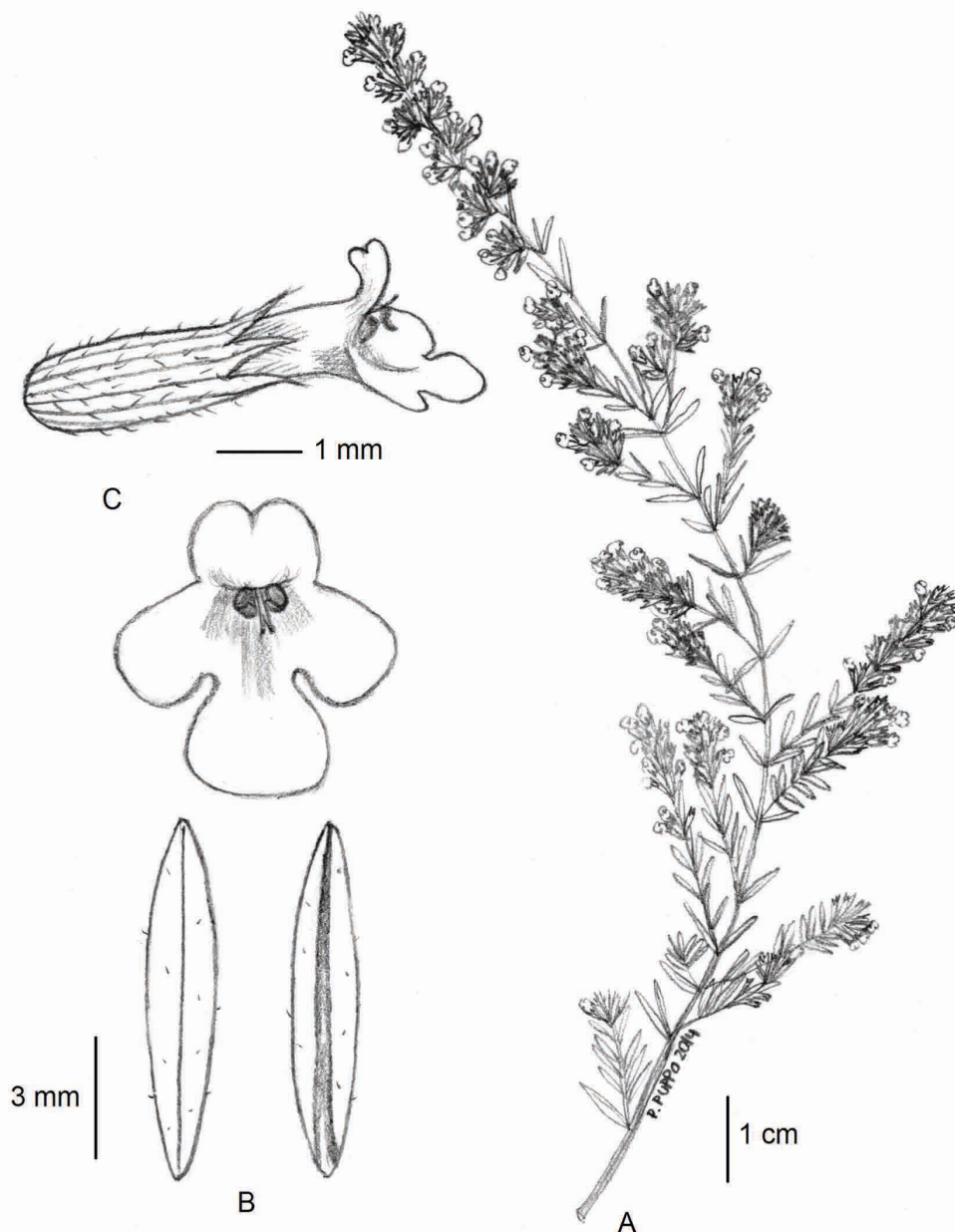


FIGURE 3. *Micromeria canariensis* subsp. *canariensis* flowering branch (A), leaf axial and abaxial (B) and flower, frontal and side view (C). Drawn by P. Puppo from *Puppo et al. 330* (TFC).

b. subsp. meridialis (P. Pérez) Puppo, *comb. nov.* Fig. 1–C, Fig. 4.

Basionym:—*Micromeria varia* Benth (1834: 374) subsp. *meridialis* P. Pérez (1978: 181). *Satureja ericifolia* (Roth) R.H. Willemse (1991: 83) subsp. *meridialis* (P. Pérez) R.H. Willemse (1991: 84); *Satureja varia* Webb & Berthelot ex Briquet in Engler & Prantl (1896: 299) subsp. *meridialis* (P. Pérez) A. Hansen & Sunding (1993: 7). Holotype:—SPAIN. Canary Islands, “In regione austral insulae Canarie Magnae (Gran Canaria dicta), in rupibus circumstantibus loco Fataga dicto, ubi est frequens”, 20 July 1974, P. Pérez 10 (TFC!).

= *Micromeria varia* Benth (1834: 374) f. *microphylla* Christ (1888: 134). Type:—SPAIN. Canary Islands: “In convallibus reg. marit. insular. fere omnium”, *Barker-Webb* (not traced, FI?).

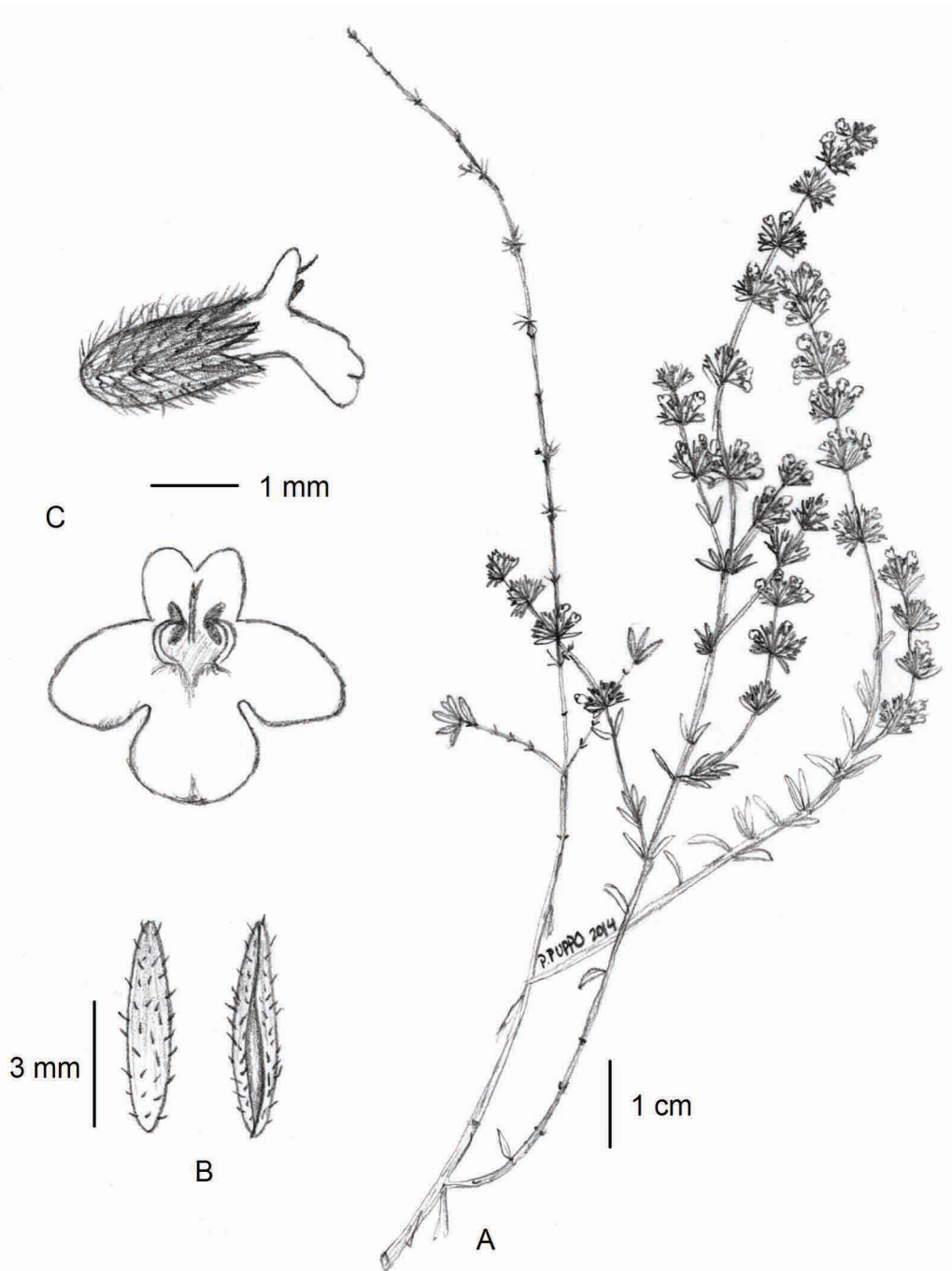


FIGURE 4. *Micromeria canariensis* subsp. *meridialis* flowering branch (A), leaf axial and abaxial (B) and flower, frontal and side view (C). Drawn by P. Puppo from *Puppo et al.* 419 (TFC).

Subshrub up to 30 cm high; basal parts of branches densely puberulent, younger parts canescent. Leaves blades 3–6 × 0.5–0.9 mm, reddish or green tinged with red, all blades linear, revolute, densely puberulent to hirsute. Cymes sessile or shortly pedunculated; peduncles less than 2 mm long when present. Calyx reddish or lilac, tomentose, less than 3 mm long; calyx apices lanceolate, acute. Corolla less than 3 mm long, barely exerted, lower lip projected downwards.

Representative Specimens Examined:—SPAIN. Gran Canaria: Bco. de Fataga, 25 May 2011, *P. L. Pérez de Paz 674/C-9* (TFC); *P. Puppo et al. 417, 419, 423* (TFC); sobre pueblo de Fataga, 25 May 2011, *P. L. Pérez de Paz 674/C-11* (TFC); Bco. de Arguineguin, cerca a Soria, 25 May 2011, *P. L. Pérez de Paz 674/C-13* (TFC); *P. Puppo et al. 467, 469, 470* (TFC); Carretera Tasarte-Mogán, sobre pueblo de Tasarte, 26 May 2011, *P. L. Pérez de Paz 674/C-18* (TFC); *P. Puppo et al. 508, 509* (TFC); Lomo Maguyo (Telde), sobre ciudad de Maguyo, 27 May 2011, *P. L. Pérez de Paz 674/C-20* (TFC); *P. Puppo et al. 528* (TFC).

Geographical Distribution:—This subspecies is widely distributed on the southern side of Gran Canaria from 100 m up to the highest areas in the island. This subspecies grows in dry areas and is especially common colonizing abandoned fields.

Notes:—This taxon was the other *M. varia* subspecies described by Pérez de Paz (1978) for Gran Canaria. *Micromeria canariensis* subsp. *meridialis* grows in the dry southeastern part of the island and is shorter and more pubescent than subsp. *canariensis*. The distinctiveness of subsp. *meridialis* was not supported by molecular studies since samples from both subspecies appear intermixed in phylogenetic analysis (Puppo *et al.* 2015). This, together with the limited morphological separation of these taxa led us to treat them at subspecific rank.

Micromeria gomerensis (P. Pérez) Puppo, *comb. et stat. nov.* Fig. 1–D, Fig. 5–A, B

Basionym:—*Micromeria varia* Bentham (1834: 374) subsp. *gomerensis* P. Pérez (1978: 179). *Satureja ericifolia* (Roth) R.H. Willemse (1991: 83) subsp. *gomerensis* (P. Pérez) R.H. Willemse (1991: 83); *Satureja varia* Webb & Berthelot ex Briquet in Engler & Prantl (1896: 299) subsp. *gomerensis* (P. Pérez) A. Hansen & Sunding (1993: 7). Holotype:—SPAIN. Canary Islands: “Ex Insula Junonia Minor (Insula Gomera dicta) in loco vulgo dicto “Ladera de Pilas” in anfractu “Bco. de la Villa”, juxta S. Sebastián”; May 1976, *P. Pérez 8* (TFC!; isotypes: TFC!, MA!).

= *Micromeria teneriffae* Bentham (1834: 378) var. *brevidens* Bornmüller in Fedde (1909: 2). Type:—SPAIN. Canary Islands: sine loco, Bornmüller, *Pl. exicc. Canar. 2719* (B†).

Erect subshrub 15–40 cm height, highly branched, branches ascending, glabrate to slightly strigose. Leaves shortly pedicelated; blades herbaceous less than 6 × 1 mm, bright green sometimes tinged with purple or yellow, lanceolate or linear, margins revolute, sparsely strigose throughout. Cymes shortly pedunculated arranged in the upper parts of the branches. Calyx green tinged with purple, strigose, ca. 2.5 mm long, calyx apices lanceolate, acute, ciliate. Corolla lilac to purple, 3–4 mm long, exerted, lower lip slightly projected upwards. Anthers purple, barely exerted, almost included. Style included.

Representative Specimens Examined:—SPAIN. La Gomera: Sobre Ayamosna, camino entre Ayamosna y Tagamiche, 16 June 2012, *P. L. Pérez 705-G5* (TFC); Mirador de La Laja, 16 June 2012, *P. L. Pérez 705-G6* (TFC); *P. Puppo 572.7* (TFC); Carretera Las Hayas-Cercado, 16 June 2012, *P. L. Pérez 705-G10* (TFC); *Puppo et al. 579.2, 579.3, 579.6, 579.7* (TFC); Pueblo de Arure, 16 June 2012, *P. L. Pérez 705-G11* (TFC); Mirador de El Rejo, PN Garajonay, 17 June 2012, *P. L. Pérez 705-G12* (TFC).

Geographical Distribution:—Restricted to the island of La Gomera where it grows abundantly throughout the island. It is especially frequent between 200–800 m.

Notes:—Pérez de Paz (1978) distinguished two subspecies of *M. varia* in La Gomera: subsp. *varia* and subsp. *gomerensis*. Molecular studies showed that these two taxa are not only morphologically and molecularly distinct but they have a different origin: subsp. *varia* probably colonized from Tenerife while subsp. *gomerensis* colonized from Gran Canaria (Puppo *et al.* 2015). Here, we propose a new combination and status placing subsp. *gomerensis* as a different species endemic to the island of La Gomera.

Hybrids between this species and *M. lepida* subsp. *bolleana* have been found in the field. This hybrid is formally described below.

Micromeria × toloensis Puppo & P. Pérez, *nothosp. nov.* (*Micromeria lepida* subsp. *bolleana* × *M. gomerensis*) Fig 5–C, D

Holotype:—SPAIN. La Gomera: Mirador de La Laja, 28°05'58,5"N, 17°11'05,6"W, Alt. 955 m, 16 July 2012, *P. Puppo, P. Pérez & F. Faure 573.2* (TFC).



FIGURE 5. *Micromeria gomerensis* flowering branch (A) and inflorescence (B). Drawn by P. Puppo from Puppo et al. 572.7 (TFC). *Micromeria* × *tolomensis* flowering branch (C) and inflorescence (D). Drawn by P. Puppo from Puppo et al. 573.2 (TFC).

Similar to *Micromeria lepida* subsp. *bolleana* in the leaves densely arranged in younger branches and calyx apices slightly oriented outwards, and similar to *M. gomerensis* in ascendant habit, erect branches and lilac corolla.

Subshrub, 20–40 cm high; branches ascendant and erect, puberulous or glabrous, basal part of branches shedding bark. Leaves sessile, ericoids, arranged in the upper parts of young branches; blades 5–8 × 0.8–1 mm, sublinear, revolute, puberulous adaxially, abaxially densely strigose. Cymes pedunculated, densely arranged on younger branches; peduncles 3–5 mm long; bracts 1–2 mm long, subulate, puberulous or velutinous; flowers shortly pedicelated, pedicels less than 1 mm long; bracteoles less than 1 mm long, subulate, puberulous or velutinous. Calyx tubular, green tinged with violet, puberulous with glandular trichomes, 3–4 mm long, calyx apices slightly oriented outwards. Corolla lilac to violet, slightly exerted, lower lip projected downwards. Anthers white, included. Style included.

Etymology:—The epithet of this new hybrid refers to Tolomeo, Claudius Ptolemy (100–178 AD), one of the first authors to mention La Gomera in his Geographical Guide.

Paratypes:—SPAIN. La Gomera: Mirador de La Laja, 28°05'58,5"N, 17°11'05,6"W, 955 m, 16 July 2012, *P. Puppo, P. Pérez & F. Faure 573.3* (TFC); *P. Puppo et al. 573.4* (TFC).

Geographical Distribution:—This hybrid has been observed only in the type locality, Mirador de La Laja, where both parents occur. It grows on rocky slopes with little soil and in shrub vegetation near 950 m elevation.

Notes:—*M. × toloensis* presents an intermediate habit between both parents. The younger branches resemble those in *M. lepida* subsp. *bolleana* (see Fig. 10–C, D) with larger, densely arranged leaves, though the general size of the hybrid plants is larger, in keeping with *M. gomerensis*. The cymes are conspicuously pedunculated and the calyx apices are subulate as in *M. lepida* subsp. *bolleana* though the flowers are of an intermediate size between the parents. Likewise, the corolla of *M. × toloensis* is lilac or violet while in *M. lepida* subsp. *bolleana* it is white and in *M. gomerensis* it is purple. All the hybrid specimens examined had stamens and styles that showed normal development. *Micromeria × toloensis* was found growing in a large population composed of both parents in Mirador de La Laja. In this locality, flies (probably Syrphidae) were found visiting the flowers of the different individuals. These bee-like flies are known to feed on flower nectar and are probably contributing to the occurrence of these hybrids.

Micromeria rupestris (Webb & Berthelot) Puppo, *comb. et stat. nov.* Fig. 6

Basionym:—*Micromeria varia* Benth (1834: 374) subsp. *rupestris* (Webb & Berthelot) P. Pérez (1978: 182). *Micromeria varia* Benth (1834: 374) f. *rupestris* (Webb & Berthelot) Christ (1888: 133); *Micromeria thymoides* (Solander ex Lowe) Webb & Berthelot (1844: 71) var. *rupestris* Webb & Berthelot (1844: 71); *Satureja ericifolia* (Roth) R.H. Willemse (1991: 83) subsp. *rupestris* (P. Pérez) R.H. Willemse (1991: 84); *Satureja varia* Webb & Berthelot ex Briquet in Engler & Prantl (1896: 299) subsp. *rupestris* (P. Pérez) A. Hansen & Sunding (1993: 7). Lectotype:—SPAIN. Canary Islands, “in rupibus Lancerotta septentrionum”, *J. M. Despréaux #28a* (designated by P. Pérez 1978: 183, FI000234!, labeled “*Micromeria thymoides*”, left hand individual in lower part of sheet).

Small subshrub 5–20 cm height, highly branched; branches short, curved inwards, semi prostrated, basal parts of branches glabrate, shedding bark, younger parts densely strigose to tomentose. Leaves sessile or inconspicuously petiolated, petiole less than 1 mm long.; blades herbaceous, 3–7 × 1–3 mm, green sometimes tinged with purple, minutely pubescent on both surfaces, shortly strigose on midrib abaxially, basal blades ovate, slightly revolute, upper blades linear, revolute. Cymes densely covering the tip of the branches, almost sessile to pedunculated, peduncle up to 2 mm long. Calyx green, puberulent to shortly strigose, 2.5–3.5 mm long, calyx apices shortly lanceolate, densely white-ciliate. Corolla dark purple, 3–4 mm long, barely exerted. Anthers purple, barely exerted. Style barely exerted.

Specimens Examined:—SPAIN. Lanzarote: Alrededores de las Peñitas del Chache, 25 March 1976, *P. Pérez & J. R. Acebes s.n.* (TFC); Altos del Bco. de la Madre del Agua, 23 February 1994, *Wolfredo Wildpret de la Torre et al. s.n.* (TFC); San Bartolomé, Tomaren, 24 February 1995, *J.A. Reyes-Betancort s.n.* (TFC); Tinajo, Caldera Blanca, 24 April 1996, *J. A. Reyes-Betancort s.n.* (TFC). Fuerteventura: M^a de Tindaya, La Oliva, 29 March 1975, *P. Pérez & J. R. Acebes s.n.* (TFC); Risco del Carnicero, 30 March 1975, *P. Pérez & J. R. Acebes s.n.* (TFC); M^a de los Cardones, Gran Tarajal, 31 March 1975, *P. Pérez & J. R. Acebes s.n.* (TFC); Entre Picos de la Zarza y de la Palma, Jandía, 31 May 2003, *Stephan Scholz s.n.* (TFC); Castillejo Alto, Jandía, 17 April 2003, *Stephan Scholz s.n.* (TFC).

Geographical Distribution:—This species is only present in the islands of Lanzarote and Fuerteventura and its distribution is scattered in small populations throughout the islands.

Notes:—Pérez de Paz (1978) designated subsp. *rupestris* as the subspecies of *M. varia* present in Lanzarote and Fuerteventura. Molecular evidence (Meimberg *et al.* 2006, Puppo *et al.* 2015) has shown that *M. varia* (sensu Pérez de Paz 1978) is polyphyletic so this new combination and status is proposed to elevate the former subsp. *rupestris* to species level.

Micromeria hierrensis (P. Pérez) Puppo, *comb. et stat. nov.*

Basionym:—*Micromeria varia* Benth (1834: 374) subsp. *hierrensis* P. Pérez (1978: 184). *Satureja ericifolia* (Roth) R.H. Willemse (1991: 83) subsp. *hierrensis* (P. Pérez) R.H. Willemse (1991: 84); *Satureja varia* Webb & Berthelot ex Briquet in Engler & Prantl (1896: 299) subsp. *hierrensis* (P. Pérez) A. Hansen & Sunding (1993: 7). Type:—SPAIN. Canary Islands: “Ex Insula Hierro dicta, in rupibus abruptis super pagum Sabinosa dictum proclivibus ad nebulas diurnas exposistis”, July 1973, *P. Pérez II* (TFC!; isotypes: TFC!, MA, TFMC).

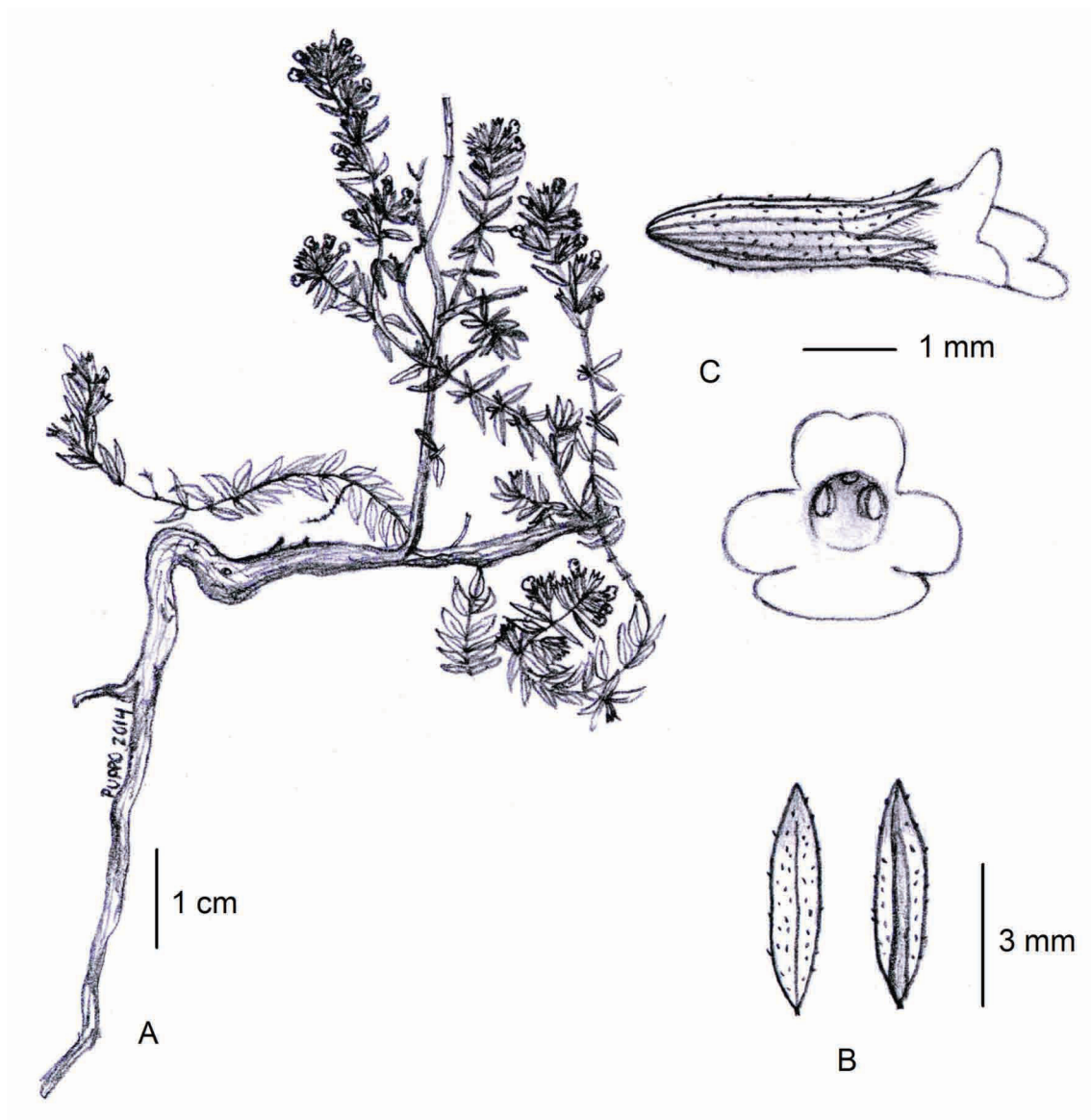


FIGURE 6. *Micromeria rupestris* flowering branch (A), leaf axial and abaxial (B) and flower, frontal and side view (C). Drawn by P. Puppo from P. Pérez & J.R Acebes s.n. (TFC).

Subshrub, 10–60 cm high, highly branched; branches persisting and entangled, semi prostrated or ascending, tomentose, villous, incanous or lanuginose. Leaves sessile or inconspicuously petiolated; blades herbaceous 2–5 × 0.5–2 mm, green sometimes tinged with red, glabrate, sparsely strigose or lanate, linear to ovate, revolute. Cymes sessile or shortly pedunculated arranged on the tip of young branches; peduncles less than 2 mm long when present. Calyx more or less rounded, tubular to slightly campanulate, green or tinged with purple, pubescent to sparsely pilose, up to 3 mm long, calyx apices lanceolate to subulate, acute, ciliate or not. Corolla white or slightly pink, 2.5–3.5 mm long, barely exerted. Anthers slightly pink or lilac, included or barely exerted. Style included or exerted.

Notes:—Pérez de Paz (1978) recognized two taxa in El Hierro. One he described as a new subspecies of *M. varia* (subsp. *hierrensis*), as it presents green leaves, reduced pubescence, and slightly pink flowers. This taxon is restricted to both extremes of El Hierro, growing in two localities: Sabinosa and Mirador de la Peña. Pérez de Paz identified the second taxon as *M. hyssopifolia* due to the morphological similarities between it and plants from Tenerife also referred to this species. This taxon has a grayish appearance due to the pubescence of its branches and leaves, imbricate branches, white flowers, and is distributed throughout the island (i.e. Costa de Valverde, La Restinga, Malpaso). Molecular studies (Meimberg *et al.* 2006, Puppo *et al.* 2015) have shown that both *M. varia* and *M. hyssopifolia* are endemic to Tenerife and specimens growing in El Hierro constitute different taxa. These studies also suggest a single lineage in El Hierro. Here, we propose a new combination and status for subsp. *hierrensis*, raising it to the rank of a species, endemic to the island of El Hierro. We recognize two subspecies to reflect the two morphological forms found

in the island: subsp. *hierrensis* (former *M. varia* subsp. *hierrensis*) and subsp. *incana* (former *M. hyssopifolia* from El Hierro).

a. subsp. *hierrensis*

Subshrub 10–15 cm high; branches semi prostrated, densely incanous to tomentose. Leaves sessile; blades green sometimes tinged with red, glabrate throughout, blades linear, revolute. Calyx more or less rounded 2–2.5 mm long, calyx apices subulate. Corolla slightly pink. Anthers slightly pink, included. Style barely exerted.

Specimens Examined:—SPAIN. El Hierro: Risco de Bascos, Mirador, 15 September 2011, *P. L. Pérez de Paz H-5A, H-5B, H-5C, H-5D, H-5E, H-5F* (TFC).

Geographical Distribution:—This subspecies is restricted to the western and eastern extremes of El Hierro, in the surroundings of Sabinosa and Mirador de la Peña.

Notes:—This subspecies corresponds to *M. varia* subsp. *hierrensis* recognized by Pérez de Paz (1978). It presents green leaves with little pubescence and slightly pink flowers which differentiates it from the other subspecies present in the island.

b. subsp. *incana* Puppo, *subsp. nov.* Fig. 1–F, Fig. 7

Holotype:—SPAIN. El Hierro: Los Cangrejos, Costa de Valverde, UTM 214503-3079961, Alt. 130 m, 14 September 2011, *P. L. Pérez de Paz H-1* (TFC).

= *Micromeria hyssopifolia* sensu Pérez de Paz (1978) pro parte quoad plants from El Hierro.

Differing from subsp. *hierrensis* in the larger habit, up to 60 cm high; leaves that are sparsely strigose adaxially and abaxially lanate; calyx tubular or slightly campanulate; and white corolla.

Subshrub, up to 60 cm high; branches ascending, basal part of branches tomentose to villous, younger parts incanous to lanuginose. Leaves sessile or inconspicuously petiolated; blades green, sparsely strigose adaxially, abaxially lanate, basal blades linear to ovate, upper blades linear. Calyx tubular to slightly campanulate, calyx apices lanceolate to subulate, ciliate. Corolla white. Anthers lilac, included or barely exerted. Style included or exerted.

Etymology:—The name of this subspecies alludes to the grayish appearance of the plants due to the indumentum in branches and leaves.

Specimens Examined:—SPAIN. El Hierro: La Restinga, 15 September 2011, *P. L. Pérez de Paz H-2A, H-2B, H-2C, H-2D, H-2E, H-2F, H-2G* (TFC); El Pinar, 15 September 2011, *P. L. Pérez de Paz H-3A, H-3B, H-3C, H-3D, H-3E, H-3F, H-3G* (TFC); Brezal de La Llanía, 15 September 2011, *P. L. Pérez de Paz H-4A, H-4B, H-4C, H-4D, H-4E, H-4F, H-4G* (TFC); Arenales de El Julan, 15 September 2011, *P. L. Pérez de Paz H-6A, H-6B, H-6C, H-6D, H-6E, H-6F, H-6G* (TFC); Cumbre de Malpaso, 17 September 2011, *P. L. Pérez de Paz H-7A, H-7B, H-7C, H-7D, H-7E, H-7F, H-7G* (TFC).

Geographical Distribution:—This subspecies is distributed throughout El Hierro, from sea-level up to the highest points. Large populations are found in some zones where the individuals cover vast areas forming “tomillares” (patches of thymes).

Notes:—Pérez de Paz identified this taxon as *M. hyssopifolia* from El Hierro alluding to the similarities between this taxon and plants present in Tenerife. Molecular studies (Meimberg *et al.* 2006, Puppo *et al.* 2015) have shown that *M. hyssopifolia* is endemic to Tenerife and that specimens growing in El Hierro are distinct. *Micromeria hierrensis* subsp. *incana* is the common form of the taxon present in this island. It is larger than subsp. *hierrensis*, up to 60 cm high, presents a grayish aspect due to the pubescence in branches and leaves, and has white corollas.

Micromeria herpyllomorpha Webb & Berthelot (1844: 72)

≡ *Micromeria varia* Benth (1834: 374) f. *herpyllomorpha* (Webb & Berthelot) Christ (1888: 133); *Satureja herpyllomorpha* (Webb & Berthelot) Briquet in Engler & Prantl (1896: 299). Lectotype (designated by P. Pérez 1978: 238):—SPAIN. Canary Islands, “In ins. Palma”, *Barker-Webb s.n.* (FI000222!), labeled “*Thymus herpylloides* Nob.”).

= *Micromeria serpyllomorpha* Webb, Benth in De Candolle (1848: 217); erroneous for *M. herpyllomorpha*.

= *Micromeria perezii* Bolle (1860: 282); *Satureja perezii* (Bolle) Briquet in Engler & Prantl (1896: 299). Holotype:—SPAIN. Canary Islands, “In Caldera ins. Palmae”, Sep, *Bolle* (B†).

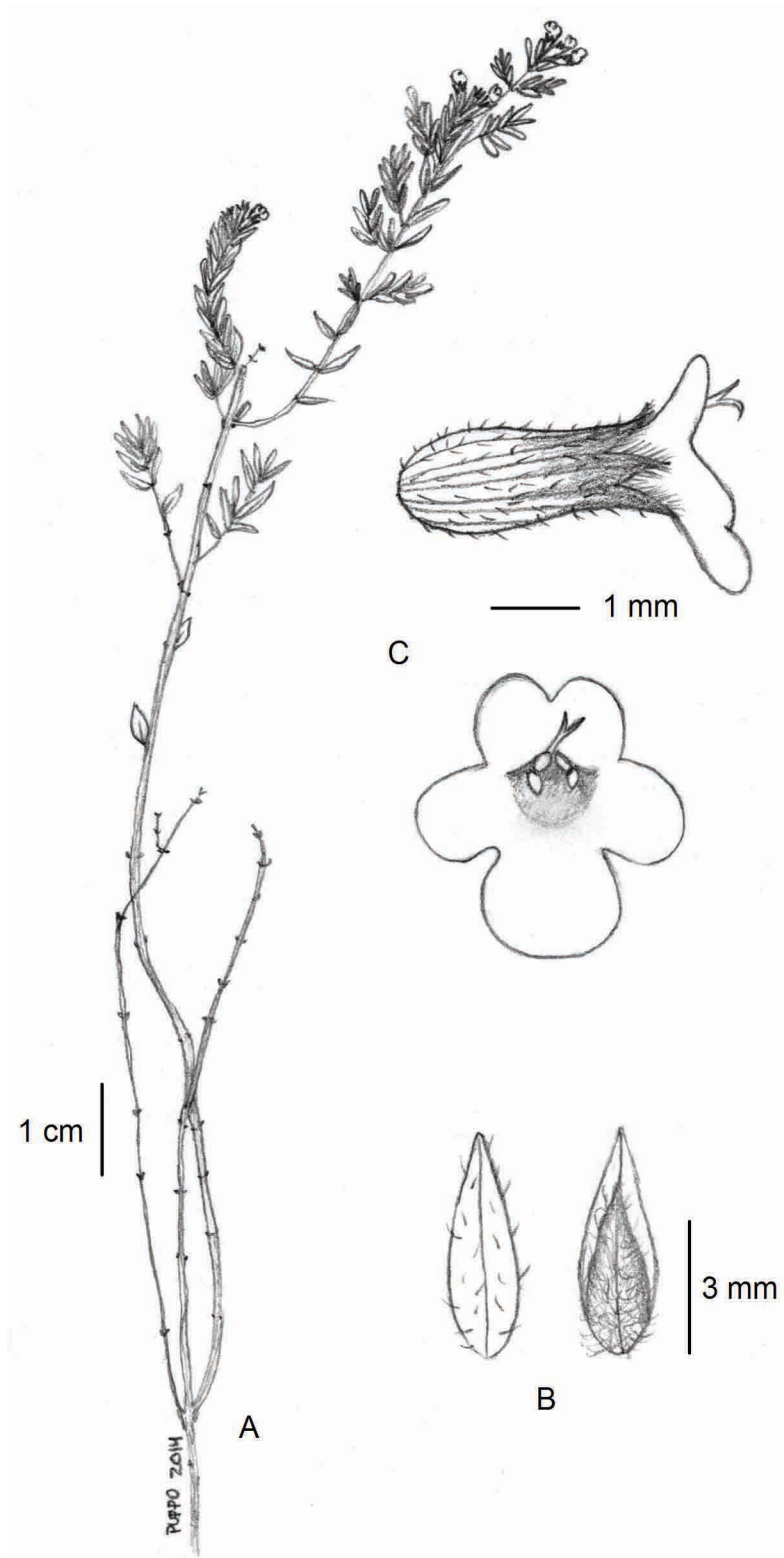


FIGURE 7. *Micromeria hierrensis* subsp. *incana* flowering branch (A), leaf axial and abaxial (B) and flower, frontal and side view (C). Drawn by P. Puppo from the holotype.

Subshrub up to 70 cm high, highly branched; branches persisting, basal parts of branches shedding bark, puberulous, strigose or velutinous, younger parts villous. Leaves sessile or inconspicuously petiolated; blades herbaceous 5–11 × 1–4 mm, green, blades linear or ovate-lanceolate, flat or slightly revolute, pilose, strigose, villous or lanuginose on both sides. Cymes arranged throughout the upper part of the branches; sessile or with peduncles ca. 1 mm long. Calyx green to purple, somewhat strigose, 2.5–3.5 mm long, calyx apices subulate or lanceolate. Corolla white to pink or purple, 3–7 mm long, exerted, straight or slightly curved downwards. Anthers purple, slightly exerted. Style exerted.

Notes:—This species presents ample morphological variation, presumably associated with the variation in humidity and elevation present in the different localities where it grows. The typical *M. herpyllomorpha* grow in open areas, especially in the laurisilva and fayal-brezal ecological zones. At lower elevations, the plants present sparsely leaves and larger internodes while specimens at the highest elevations are smaller in size and densely pubescent.

a. subsp. *herpyllomorpha*

Subshrub up to 70 cm high; basal parts of branches strigose or velutinous. Leaves inconspicuously petiolated; basal blades flat, sparsely pilose or strigose on both sides, abaxially densely villous on the midrib, upper blades linear, revolute, villous adaxially, lanuginose abaxially. Calyx green tinged with purple. Corolla white to light purple, 3–6 mm long, slightly curved downwards.

Specimens Examined:—SPAIN. La Palma: Casa Camineros, Tiguerorte, Mazo, 18 June 2010, *P. L. Pérez 32* (TFC); Entre Montaña del Viento y Montaña Lagi, Fuentecaliente, 18 June 2010, *P. L. Pérez 33* (TFC); Barranco de Las Palmas, Jedey, El Paso, 18 June 2010, *P. L. Pérez 34* (TFC); Camino de Las Angustias, Los Llanos de Aridane, 18 June 2010, *P. L. Pérez 35* (TFC); Barranco de La Galga, Los Sauces, 19 June 2010, *P. L. Pérez 36* (TFC); Barranco Seco, Puntallana, 19 June 2010, *P. L. Pérez 37* (TFC).

Geographical Distribution:—This species is abundantly distributed throughout the island of La Palma, especially between 50–1500 m.

b. subsp. *palmensis* (Bolles) Puppo, *comb. nov.*

≡ *Micromeria lasiophylla* Webb & Berthelot (1844: 74) subsp. *palmensis* (Bolles) P. Pérez (1978: 265); *Micromeria palmensis* (Bolles) Lid (1968: 152); *Micromeria julianoides* Webb & Berthelot (1844: 78) var. *palmensis* Bolles (1860: 283). Lectotype (designated by P. Pérez 1978: 266):—SPAIN. Canary Islands, “Cumbre von Inseln Palma, über von Caldera. 1852, August”, *Bolle* (Z!), labeled “*Micromeria lasiophylla* Webb”.

Small subshrub up to 20 cm high; branches short, older parts of branches puberulous, younger parts densely villous. Leaves sessile; blades herbaceous up to 5 × 2 mm, densely villous to lanuginose throughout, basal blades ovate-lanceolate, slightly revolute, upper blades linear, revolute. Cymes sessile. Calyx purple, 3–3.5 mm long, calyx apices lanceolate. Corolla light pink to purple, 4–7 mm long, slightly exerted, straight.

Specimens Examined:—SPAIN. La Palma: Entre Morro Negro y Pico de La Cruz, 15 June 2010, *P. L. Pérez 28* (TFC); Mirador Degollada, Bco. de Franceses, 15 June 2010, *P. L. Pérez 29* (TFC); Inmediaciones Pico de La Nieve, 16 June 2010, *P. L. Pérez 30* (TFC); Espigón de El Roque, 17 June 2010, *P. L. Pérez 31* (TFC).

Geographical Distribution:—This subspecies is abundant in the higher parts of the island between 2000–2400 m.

Notes:—This subspecies constitutes the highest elevation extreme form of *M. herpyllomorpha* being shorter in size and more pubescent than the typical form. Pérez de Paz (1978) described this taxon as a subspecies of *M. lasiophylla* alluding to the similarities between plants from high elevation habitats from Tenerife and La Palma. Molecular studies (Meimberg *et al.* 2006, Puppo *et al.* 2015) suggest that there is only one lineage present in La Palma and thus we place subsp. *palmensis* under *M. herpyllomorpha*.

Micromeria pedro-luisii Puppo, *sp. nov.* Fig. 1–E, Fig. 8

Holotype:—SPAIN. La Gomera: Sobre Ayamosna, camino entre Ayamosna y Tagamiche, UTM 286523-3110078, Alt. 780–800 m, 16 June 2012, *P. Puppo 568.2* (TFC).

= *Micromeria varia* subsp. *varia* sensu Pérez de Paz (1978) pro parte quoad plants from La Gomera.

Differing from *M. gomerensis* in the larger habit, up to 50 cm high; leaves sessile, minutely pubescent adaxially, lanuginose abaxially; cymes sessile; larger calyx, 3–5 mm long., minutely pubescent; larger corolla, 4–6 mm long., white, lower lip projected downwards.

Subshrub, up to 50 cm high, highly branched; branches persisting and entangled, basal part of branches glabrous shedding bark, younger parts glabrate to velutinous, buds densely lanuginose. Leaves sessile arranged in fascicles in the upper parts of the branches; blades herbaceous less than 6 × 1.5 mm, linear, revolute, green sometimes tinged with red, minutely pubescent adaxially, lanuginose abaxially. Cymes sessile arranged on the tip of young branches, with

few flowers. Calyx slightly campanulate, green tinged with purple, minutely pubescent, 3–5 mm long, calyx apices lanceolate to subulate, densely white-ciliate. Corolla white, 4–6 mm long, exerted, lower lip projected downwards. Anthers lilac, included or barely exerted. Style included.

Etymology:—This new species is dedicated to Professor Pedro Luis Pérez de Paz as a recognition for his contribution to the knowledge of genus *Micromeria* throughout the years.

Conservation Status:—This new species is abundant and has a wide area of distribution in La Gomera so it is considered as LC according to the categories of the IUCN (2012).

Paratypes:—SPAIN. La Gomera: Entre Ayamosna y Tagamiche, 16 June 2012, *P. L. Pérez 705-G5* (TFC); *Puppo et al.* 568.3 (TFC).

Other Specimens Examined:—SPAIN. La Gomera: Túneles de Aguajilva, Bco. de Aguajilva, 15 June 2012, *P. L. Pérez 705-G1* (TFC); Carretera Agulo-Las Rosas, 15 June 2012, *P. L. Pérez 705-G2* (TFC); Presa El Garabato, El Tion, 15 June 2012, *P. L. Pérez 705-G3* (TFC); Epina, 15 June 2012, *P. L. Pérez 705-G4* (TFC); Entrada Bco. de Benchijigua, desde Las Torres, 16 June 2012, *P. L. Pérez 705-G7* (TFC); Arure, 16 June 2012, *P. L. Pérez 705-G11* (TFC); *Puppo et al.* 580.2 (TFC); *Puppo et al.* 580.5 (TFC); El Rejo, 17 June 2012, *P. L. Pérez 705-G12* (TFC); *Puppo et al.* 582.3 (TFC).

Geographical Distribution:—This species grows throughout La Gomera island being especially frequent in the northern part where it grows from the sea level up to the higher parts of the Garajonay National Park.

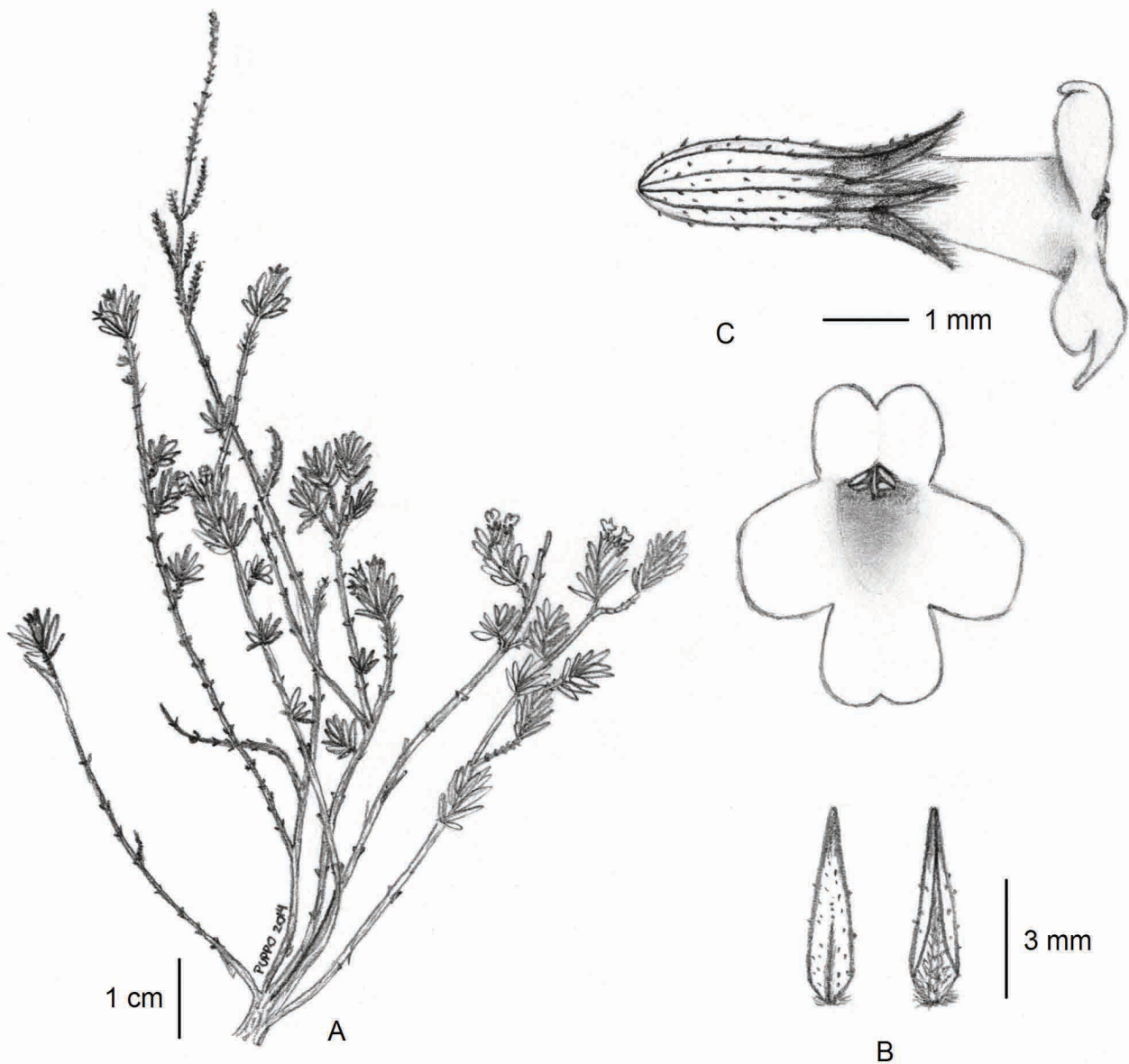


FIGURE 8. *Micromeria pedro-luisii* flowering branch (A), leaf axial and abaxial (B) and flower, frontal and side view (C). Drawn by P. Puppo from the holotype.

Notes:—This species was formerly identified as *M. varia* subsp. *varia* in the revision of Pérez de Paz (1978) but molecular data shows that these Gomeran plants are different from *M. varia* from Tenerife so a new species is described. Morphologically, *M. pedro-luisii* possesses leaves that are minutely pubescent adaxially and lanuginose abaxially, a calyx that is slightly campanulate with ciliate apices, and a style that is included, while in *M. varia* the leaves are puberulous throughout, the calyx is tubular, the apices are not ciliate, and the style is exerted.

At higher elevations, *M. pedro-luisii* can be found in sympatry with the other taxa present in the island: *M. gomerensis*, *M. lepida* subsp. *lepida* and subsp. *bolleana*. Intermediate specimens between some of these taxa and *M. pedro-luisii* have been observed. These hybrids are being formally described below.

Micromeria* × *garajonayii Puppo & P. Pérez, *nothosp. nov.* (*Micromeria lepida* subsp. *lepida* × *M. pedro-luisii*) Fig. 9–A, B

Holotype:—SPAIN. La Gomera: Parque Nacional del Garajonay, cruce de la Zarcita, 28°06'38,3"N, 17°13'01,9"W, Alt. 1170 m, 17 July 2012, P. Puppo & P. Pérez 585.1 (TFC).

Similar to *Micromeria lepida* subsp. *lepida* in velutinous or lanuginose indumentum and pedunculated cymes, and to *M. pedro-luisii* in secondary ramification and pauciflorous cymes.

Subshrub, 30–40 cm high, highly branched from the base; secondary branching present; branches semi prostrate or ascending, velutinous or lanuginose, basal part of branches shedding bark. Leaves subsessile, ericoids, arranged in young branches; blades 4–8 × 0.8–1.2 mm, sublinear, revolute, sparsely velutinous or lanuginose adaxially, abaxially lanose. Cymes pedunculated, loosely arranged on younger branches; peduncles 2–5 mm long; bracts up to 3 mm long, linear; flowers subsessile or shortly pedicelated, pedicels less than 1 mm long; bracteoles 1.5–2 mm long, linear. Calyx tubular, green tinged with violet, sparsely velutinous, 3–4 mm long, calyx apices subulate, straight. Corolla white to lilac, exerted, lower lip projected outwards. Anthers lilac, included. Style included.

Etymology:—The epithet of this new hybrid alludes the area it inhabits, Garajonay National Park.

Paratype:—SPAIN. La Gomera: Parque Nacional del Garajonay, Cruce de la Zarcita, 28°06'38,3"N, 17°13'01,9"W, 17 July 2012, P. Pérez 2012-G-13 (TFC).

Geographical Distribution:—This hybrid has been observed only in Cruce de la Zarcita in Garajonay National Park. It grows in rocky slopes, in the clearings of the forest, and border of roads above 1100 m.

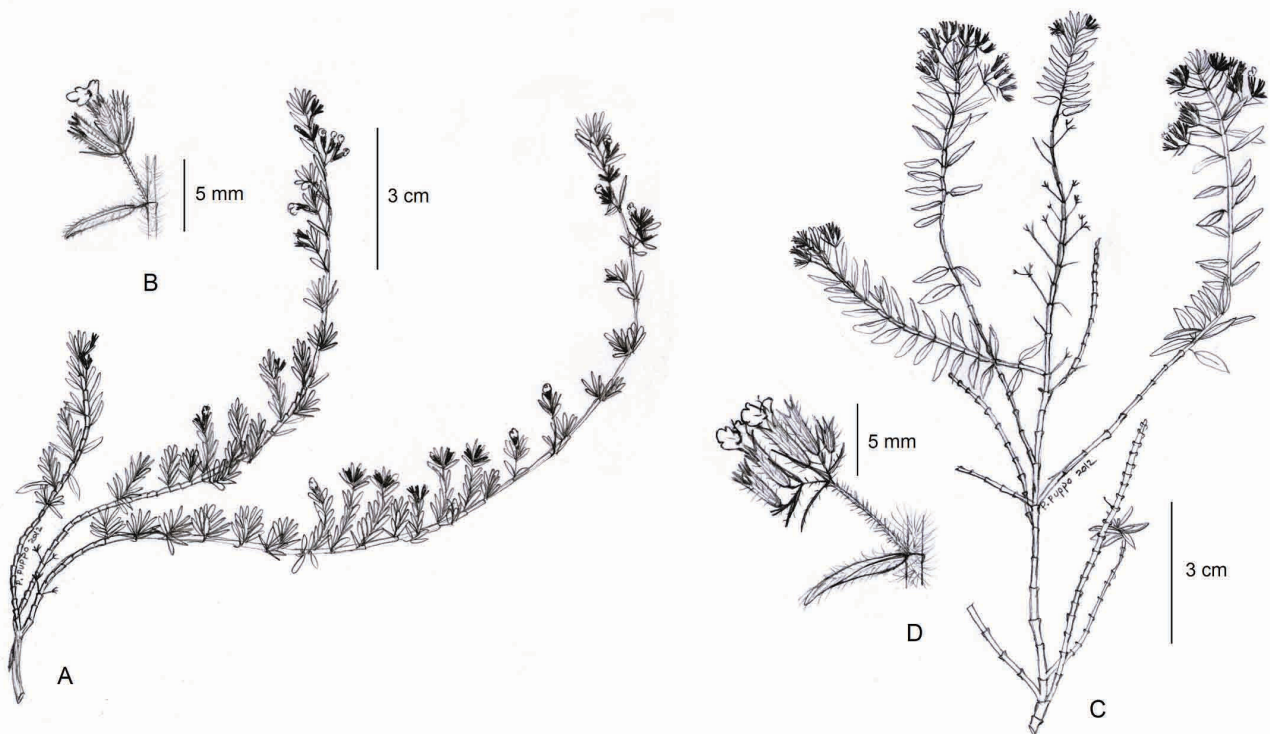


FIGURE 9. *Micromeria* × *garajonayii* flowering branch (A) and inflorescence (B). Drawn by P. Puppo from the holotype. *Micromeria lepida* subsp. *lepida* flowering branch (C) and inflorescence (D). Drawn by P. Puppo from Puppo *et al.* 584.1 (TFC).

Notes:—*M. × garajonayii* is easily recognized in the field because it shows intermediate morphological characteristics between both parents. Its habit is very similar to *M. pedro-luisii* (Fig. 8) presenting secondary branching, semi prostrated branches and leaves densely arranged in younger branches. Unlike *M. pedro-luisii*, this hybrid presents velutinous or lanuginose indumentum, pedunculated cymes, calyx apices subulate and inferior lip of the corolla projected outwards, characteristics that the hybrid takes from the other parent, *M. lepida* subsp. *lepida* (Fig. 9–C, D). *Micromeria × garajonayii* presents normally developed stamens and styles. The hybrids were found growing next to specimens of *M. lepida* subsp. *lepida*. Even though specimens from *M. pedro-luisii* were not observed on the same locality where the hybrids grow, they were observed in nearby areas such as Mirador de El Rejo. Furthermore, small black bees were observed visiting the flowers from the parents and the hybrids, easily transporting pollen from one plant to the other among localities.

Micromeria × ayamosnae Puppo & P. Pérez, *nothosp. nov.* (*Micromeria lepida* subsp. *bolleana* × *M. pedro-luisii*) Fig. 10—A, B

Holotype:—SPAIN. La Gomera: sobre Ayamosna, camino entre Ayamosna y Tagamiche, 28°05'56,4"N, 17°10'22,5"W, Alt. 786 m, 16 July 2012, P. Puppo, P. Pérez & F. Faure 570.4 (TFC).

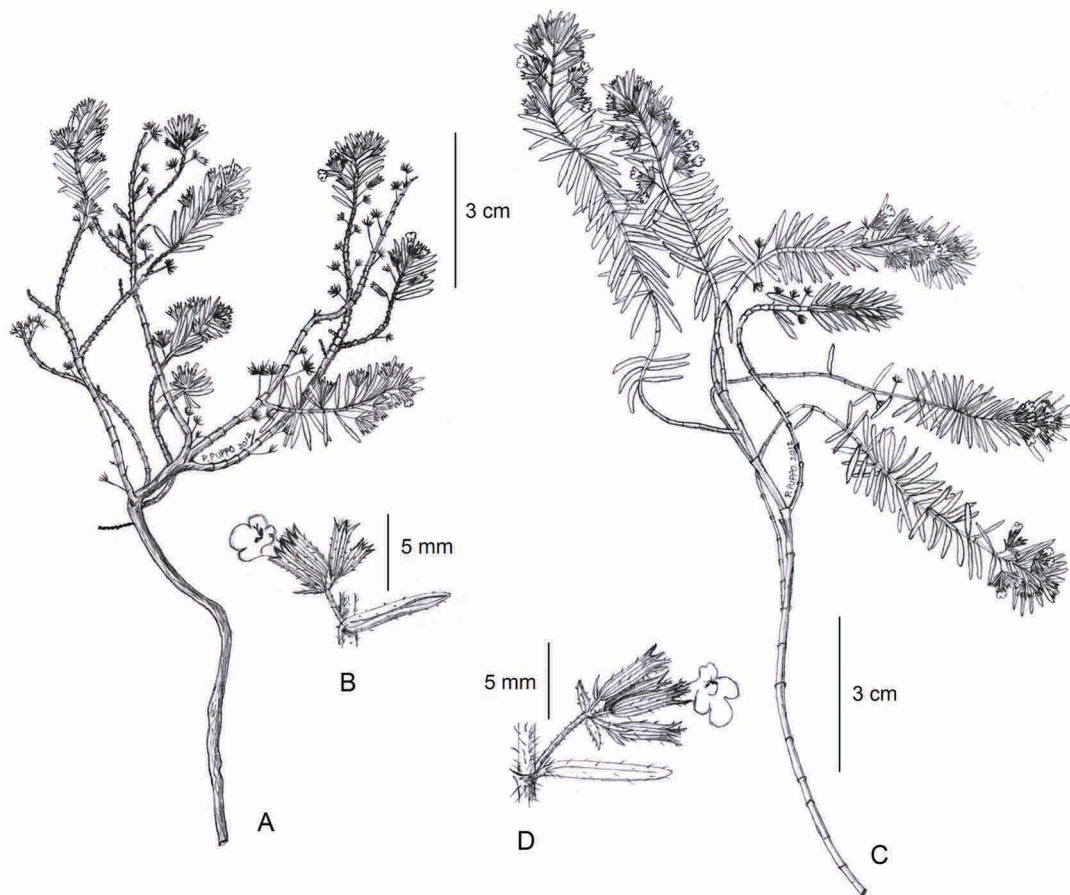


FIGURE 10. *Micromeria × ayamosnae* flowering branch (A) and inflorescence (B). Drawn by P. Puppo from the holotype. *Micromeria lepida* subsp. *bolleana* flowering branch (C) and inflorescence (D). Drawn by P. Puppo from Puppo *et al.* 571.3 (TFC).

Similar to *Micromeria lepida* subsp. *bolleana* in pedunculated cymes and terebinthinaceous smell, and to *M. pedro-luisii* in few leaves and scattered pubescence.

Subshrub, 15–20 cm high, basal stem thick, highly branched from the base; branches ascendant or erect, sparsely velutinous, basal part of branches shedding bark. Leaves sessile, ericoids, arranged in the upper parts of young branches; blades 5–8 × 0.8–1 mm, sublinear, revolute, sparsely velutinous or puberulous adaxially, abaxially strigose or densely velutinous. Cymes pedunculated, abundant, arranged on the upper parts of younger branches; peduncles 2.5–4 mm long; bracts up to 3 mm long, subulate, puberulous or velutinous. Flowers sessile; bracteoles 1.5 mm long, linear, subulate, puberulous or velutinous. Calyx tubular, green tinged with violet, sparsely velutinous, 3–4 mm

long, calyx apices acute, slightly projected outwards. Corolla white, exerted, lower lip projected downwards. Anthers white or lilac, included. Style slightly exerted.

Etymology:—The name of this new hybrid makes reference to the locality where the type was found, Ayamosna.

Paratypes:—SPAIN. La Gomera: sobre Ayamosna, camino entre Ayamosna y Tagamiche, 28°05'56,4"N, 17°10'22,5"W, 786 m, 16 July. 2012, *P. Puppo, P. Pérez & F. Faure 570.1* (TFC); *P. Puppo et al. 570.2* (TFC); *P. Puppo et al. 570.3* (TFC); *P. Puppo et al. 570.5* (TFC); *P. Puppo et al. 570.6* (TFC).

Other Specimens Examined:—SPAIN. La Gomera: Barranco de Benchijigua, 28°04'48,3"N, 17°12'33"W, 758 m, 16 July 2012, *P. Puppo, P. Pérez & F. Faure 575.1* (TFC); *P. Puppo et al. 575.2* (TFC).

Geographical Distribution:—Other than the type locality, this hybrid has been found in Barranco de Benchijigua, where both parents grow in sympatry. It grows in rocky slopes between 750–800 m.

Notes:—The habit of this hybrid resembles that of *M. lepida* subsp. *bolleana* (Fig. 10–C, D): thick basal stem, erect, ascending branches, and terebinthinaceous smell. On the other hand, *M. × ayamosnae* presents shorter branches with fewer leaves, and less dense pubescence, characteristics coming from the other parent *M. pedro-luisii* (see Fig. 8). Regarding the floral parts, the cymes are pedunculated as in *M. lepida* subsp. *bolleana* though the pedicels and flowers are not as long (Fig. 10) and the calyx apices are acute as in *M. pedro-luisii*. The hybrid specimens present normally developed stamens and styles.

Micromeria × ayamosnae was found growing among individuals from both parents in two localities in the SE of the island though their distribution might be wider. In the locality of Benchijigua, mosquitoes were observed visiting the flowers of the hybrid. Similarly, in the locality of Ayamosna, bees were found going through the flowers of the parents and hybrids alike. Some individuals from *M. gomerensis* were observed as well in Ayamosna though no morphological characters were observed from this species in the hybrids.

Micromeria maderensis Puppo & Bräuchler, *nom. nov.* Fig. 11

≡ *Micromeria thymoides* (Solander ex Lowe) Webb & Berthelot (1844: 71), *nom. illeg.*, non De Notaris (1844: 319–320); *Satureja thymoides* Solander ex Lowe (1831: 19). Type:—PORTUGAL. Madeira, 1777, *F. Masson s.n.* (Lectotype, designated here by Bräuchler: BM001025181!, two lower right hand branches on sheet).

Erect subshrub 10–35 cm height, highly branched; branches straight or ascending, basal parts of branches glabrous shedding bark, younger parts white tomentose. Leaves sessile or subsessile, petioles when present less than 1 mm long; blades herbaceous, 6–10 × 1–3 mm, green, basal blades lanceolate, flat, glabrate or minutely pubescent adaxially, abaxially tomentose on the midrib, upper blades linear, revolute, adaxially glabrous, velutinous or minutely strigose, abaxially tomentose. Cymes shortly pedunculated or almost sessile. Calyx shortly pubescent to pilose, less than 3 mm long, calyx apices lanceolate to subulate, white-ciliate. Corolla white to pink or pink to purple, up to 4,5 mm long, exerted. Anthers included or barely exerted. Style included or exerted.

Etymology:—The new name of this species is derived from the island of Madeira where this species grows.

Specimens Examined:—PORTUGAL. Madeira: Madeira, 1776, *F. Masson s.n.* (BM001025179, left hand individual mounted on one sheet with the type); Fayal-bresal, bajo Eira do Serrado, July 1976, *J. R. Arcebes & P. L. Pérez de Paz s.n.* (TFC); Ribeira Brava, 100 m, July 1976, *P. L. Pérez de Paz & J. R. Arcebes s.n.* (TFC); Juxta “Pico Arrieiro”, 1750 m, July 1976, *P. L. Pérez de Paz s.n.* (TFC); Ribeira do Inferno, 27 July 1977, *I. La Serna & M. del Arco s.n.* (TFC); Porto Santo: Porto Santo, 1777, *F. Masson s.n.* (BM001025180, upper hand individual mounted on one sheet with the type).

Geographical Distribution:—This species has been collected in Madeira and Porto Santo and has also been reported from Desertas (Jardim & Francisco 2000; Borges *et al.* 2008). In Madeira, it is more abundant in the eastern half of the island from sea-level up to the highest points between Pico do Arrieiro and Pico Ruivo, between 1600–1800 m.

Notes:—The epithet “*thymoides*” cannot be used for this taxon due to priority of De Notaris (1844) name. *Micromeria thymoides* De Not. is sometimes regarded as a synonym or a subspecies (named *imperica* Chater) of *M. graeca*, a very variable species with many subordinate taxa described and widely distributed in the Mediterranean region. *Micromeria thymoides* sensu Webb & Berthelot is restricted to the Madeiran archipelago and has frequently been cited as synonym of *M. varia*. Both author names have been widely used in the literature, especially during the 19th century (*M. thymoides* De Not.: Grisebach 1843, Bertoloni 1854, Durand & Jackson 1886–1895, Parlatore & Caruel 1884, Penzig 1897–1898; *M. thymoides* Webb & Berthel.: Bentham 1848, Otto & Dietrich 1852, Hartung & Bronn 1860, Christ 1885, 1888, Bolle 1892, Jackson 1893). Sanctioning of either name is thus not desirable making

a new name necessary for the taxon from Madeira (ICN art. 53). The type specimen is mounted on a sheet with two further collections by Francis Masson (BM001025179 and BM001025180, both cited above). Both unambiguously represent part of the original material: the preface of the volume containing the protologue (Lowe 1831: 2) states that Masson collections in the Banksian herbarium (now at BM) were one source of material and the localities cited in the protologue match those on the sheet written by Solander. All three collections have a shared handwritten label with the different collections numbered 1–3. A note “small dark specimen” identifies the Porto Santo specimen (3) as the upper individual. As for assignment of the remaining fragments on the sheet to one of the localities, we follow the standard procedure of assigning the first specimen from left to right to locality 1 and the other two fragments representing branches from one and the same plant to locality 2. Although there remains some uncertainty, it does not affect application of the name since both were collected on the island of Madeira, in subsequent years, and they unambiguously represent the same taxon. The lectotype designated here is also separated by pencil linings and includes a label “Type Specimen” which originally may have referred to the whole sheet.

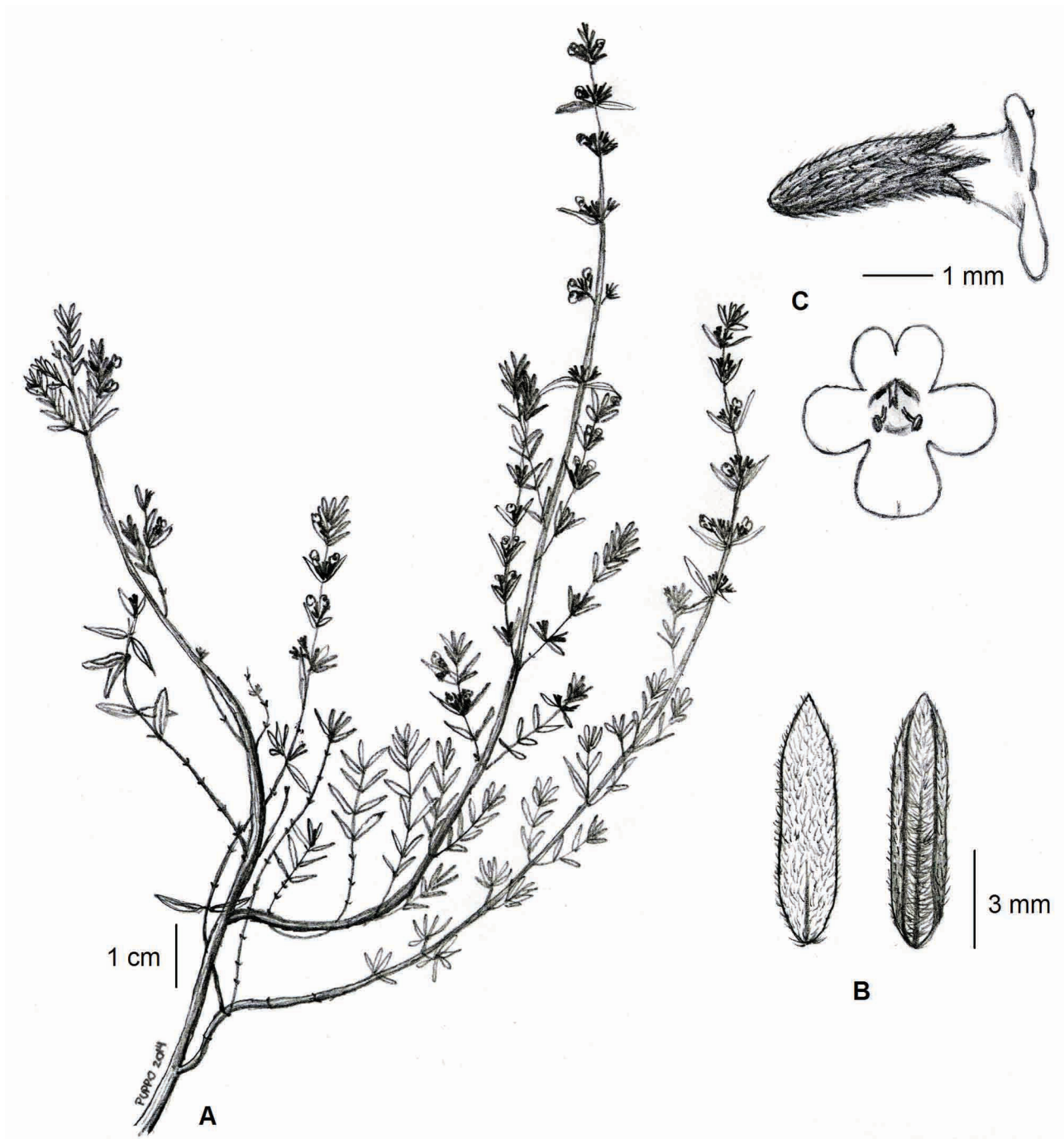


FIGURE 11. *Micromeria maderensis* flowering branch (A), leaf axial and abaxial (B) and flower, frontal and side view (C). Drawn by P. Puppo from P. L. Pérez & J.R Acebes s.n. (TFC).

KEY TO ALL THE SPECIES OF *MICROMERIA* PRESENT IN THE CANARY ISLANDS (modified from Pérez de Paz 1978)

1. Leaves ovate, lanceolate or oblong-lanceolate, coriaceous or subcoriaceous, generally glabrous, margins straight or slightly revolute 2
- Leaves linear to lanceolate, not coriaceous, glabrate to hairy, tomentose or wooly, margins revolute 6
2. Leaves with glands in the abaxial side; flowers less than 5 mm long *M. teneriffae* 3
- Leaves lacking glands; flowers larger than 10 mm long 3
3. Leaves subcoriaceous, lanceolate, 2 cm long. (Gran Canaria) *M. helianthemifolia* 4
- Leaves coriaceous, not lanceolate, less than 1.5 cm long. (Tenerife) 4
4. Leaves ericoid, less than 2 mm width (Teno) *M. densiflora* 5
- Leaves not ericoid, wider than 3 mm (Anaga) 5
5. Leaves oblong, apex acuminate; corolla pink-violet; style included *M. glomerata* 6
- Leaves obovate, apex acute; corolla white or slightly pink; style exerted *M. rivias-martinezii* 6
6. Leaves up to 3 cm long.; flowers larger than 12 mm long 7
- Leaves shorter than 2 cm long.; flowers smaller than 10 mm long 8
7. Subshrub larger than 60 cm tall; leaves lanceolate; corolla violet (restricted to NW Gran Canaria) *M. pineolens* 9
- Subshrub less than 20 cm tall; leaves oblong; corolla white (restricted to SW Gran Canaria) *M. leucantha* 9
8. Plants densely white-lanate or grey-tomentose (Gran Canaria) 9
- Plants glabrate, strigose, pilose, or tomentose (Gran Canaria, La Palma, Tenerife, La Gomera, El Hierro, Lanzarote or Fuerteventura) 11
9. Plants grey-tomentose; upper lip of the corolla conspicuous *M. tenuis* 10
- Plants white-lanate; upper lip of the corolla reduced 10
10. Inflorescence pedicelated; flowers up to 4 mm long; calyx ovate *M. lanata* 11
- Inflorescence sessile; flowers up to 10 mm long.; calyx tubular *M. benthamii* 11
11. Leaves ericoid, upper leaves arranged in fascicles 12
- Leaves ovate, lanceolate or linear, not arranged in fascicles 15
12. Plants up to 50 cm tall, glabrate to velutinous (La Gomera) *M. pedro-luisii* 13
- Plants up to 30 cm tall, puberulent to densely pilose (Tenerife) 13
13. Leaves glabrate or puberulent; corolla soft pink (from Teno to Anaga below 1000 m) *M. varia* 14
- Leaves strigose, lanuginose, tomentose or pilose; corolla white (Las Cañadas above 2000 m) 14
14. Leaves strigose on the adaxial side, abaxial side lanuginose; calyx tubular; inferior corolla lip projected upwards 15
- Leaves pilose on the adaxial side, abaxial side tomentose; calyx campanulate; inferior corolla lip slightly folded backwards 15
15. Leaves up to 16 mm long., abaxial mid-vein sericate (Tenerife) *M. hyssoifolia* 16
- Leaves less than 12 mm long., abaxial mid-vein puberulent, lanate, strigose, hirsute, or villous but not sericate (La Gomera, La Palma, El Hierro, Gran Canaria, Lanzarote or Fuerteventura) 16
16. Cymes conspicuously pedunculated, peduncles 5–10 mm long. (La Gomera) *M. lepida* 17
- Cymes sessile or shortly pedunculated, peduncles less than 5 mm long. (La Palma, El Hierro, La Gomera, Gran Canaria, Lanzarote or Fuerteventura) 17
17. Younger parts of branches villous; corolla up to 7 mm long. (La Palma) *M. herpyllomorpha* 18
- Younger parts of branches puberulent, canescent, strigose, tomentose, incanous or lanuginose; corolla up to 5 mm long. (El Hierro, La Gomera, Gran Canaria, Lanzarote or Fuerteventura) 18
18. Corolla white or slightly pink (El Hierro) *M. hierrensis* 19
- Corolla lilac to dark purple (La Gomera, Gran Canaria, Lanzarote or Fuerteventura) 19
19. Adaxial surface of leaves sparsely strigose; calyx less than 2.5 mm long. (La Gomera) *M. gomerensis* 20
- Adaxial surface of leaves glabrate, puberulent or hirsute; calyx 2.5–3.5 mm long. (Gran Canaria, Lanzarote or Fuerteventura) 20
20. Cyme peduncles up to 5 mm long.; corolla dark purple (Lanzarote and Fuerteventura) *M. rupestris* 21
- Cyme peduncles up to 2 mm long.; corolla light purple (Gran Canaria) *M. canariensis* 21

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