

THE GENUS *VIOLA* IN THE BALEARIC ISLANDS

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RESUM

El gènere *Viola* a les Illes Balears.

S'ha dut a terme l'estudi del gènere *Viola* a les illes Balears. Es proposen dues noves combinacions nomenclaturals: *Viola suavis* Bieb. subsp. *barceloi* (Nyman) Orell & Romo, comb. nova i *Viola odorata* L. subsp. *stolonifera* (Rodríguez Femenías) Orell & Romo, comb. nova.

Es descriuen tres noves notosubspècies de l'illa de Mallorca: *Viola alba* L. nothosubsp. *neusii* Orell & Romo, nothosubsp. nova (= *Viola alba* subsp. *dehnhardtii* x *V. jaubertiana*); *Viola alba* L. nothosubsp. *bonaefidei* Orell & Romo, nothosubsp. nova (= *V. alba* subsp. *dehnhardtii* x *V. suavis* subsp. *barceloi*); i *Viola suavis* Bieb. nothosubsp. *cardonae* nothosubsp. nova (= *Viola suavis* subsp. *barceloi* x *V. jaubertiana*).

S'exposen la corologia i l'ecologia dels tàxons de *Viola* presents a les Illes i es valoren algunes citacions antigues, probablement errònies.

ABSTRACT

Following the study of Balearic taxa of the genus *Viola*, two new nomenclatural combinations are proposed: *Viola suavis* Bieb. subsp. *barceloi* (Nyman) Orell & Romo, comb. nova; and *Viola odorata* L. subsp. *stolonifera* (Rodríguez Femenías) Orell & Romo, comb. nova. Three new nothosubspecies from the island of Majorca are described: *Viola alba* L. nothosubsp. *neusii* Orell & Romo, nothosubsp. nova (= *Viola alba* subsp. *dehnhardtii* x *V. jaubertiana*); *Viola alba* L. nothosubsp. *bonaefidei* Orell & Romo, nothosubsp. nova (= *V. alba* subsp. *dehnhardtii* x *V. suavis* subsp. *barceloi*); and *Viola suavis* Bieb. nothosubsp. *cardonae* nothosubsp. nova (= *Viola suavis* subsp. *barceloi* x *V. jaubertiana*). The chorology and ecology of the Balearic taxa of the genus *Viola* are presented and some of the oldest reports, which are probably erroneous, are discussed.

KEY WORDS: *Viola*, Violaceae, Taxonomy, Balearic Islands.

MOTS CLAU: *Viola*, Violaceae, taxonomia, Illes Balears.

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INTRODUCTION

Our study of the genus *Viola* in Majorca, which began in 1987, stemmed basically from the identification of a few specimens from the Tramuntana range, which were particularly difficult to classify since they did not match known descriptions. This led us to undertake a detailed study of the various Balearic taxa.

Revision of the literature made us aware of the unequal treatment given by various authors and of the confusion surrounding this genus in Majorca and the other Balearic Islands.

Table I gives a synopsis of the treatment of the genus by different authors.

KNOCHE (1922) deals with the genus in a superficial and highly condensed fashion, including *V. alba*, *V. ambigua* and *V. stolonifera* in *V. odorata* and considering *V. jaubertiana* as a subvariety of *V. odorata*.

While this paper was in press the work by BOLÒS *et al.* (1990) appeared. In it two subsps. are recognized within *V. alba*: *dehnhardtii* and *scotophylla*. *V. suavis* is referred to as subsp. *sepincola* from Majorca and Pitiusic Island and *V. odorata* is not reported from the Balearic Islands.

TAXA KNOWN IN THE BALEARIC ISLANDS

Following the study of materials in the BC, the herbariums of Father Bonafè and Jeroni Orell; and of live plants and material we ourselves collected in the field, the definition of the genus *Viola* in the Balearic Islands is as follows (Table I).

***Viola alba* L. subsp. *dehnhardtii* (Ten.) W. Becker.**

Though omitted by VALENTINE *et al.* (1968: 273), this species is indeed present in the Balearic flora.

It is a somewhat variable taxon. In the Tramuntana Range, between 700 and 1350 m, forms with long, slender stolons, whitish flowers and leaves with straight, slightly concave margins are found; the capsule is hairy. These populations have been described as *V. alba* L. subsp. *scotophylla* (Jord.) Nyman.

It lives in shady, old holm oak woods in northern and eastern Majorca.

Material reviewed: MAJORCA; Artà, pine grove of Els Olors, at Ses Fonts Noves, *Ll.*

García Font, 9-V-1950, herb. Orell; El Gorg Blau, 7-IV-1945, *Ll. García Font* in herb. Orell; Escorca, woods of Turixant de Dalt, *Ll. Garcías*, 16-IV-1934, herb. Orell; Escorca, wood near the chapel, herb. Orell; Lluc, in nemoris, *Palau Ferrer*, 4-IV-1948, BC 110208; Lluc, near Son Llobera, 400 m., *O. de Bolòs et al.*, 3-VI-1970, BC; Lluc, el Gorg Blau, *Ll. Garcías*, 16-VI-1950; Es Gorg Blau, *Cardona*, 16-V-1978, BC; railway track, Pont d'En Valls, *Orell*, 27.II-1986; Artà, pine grove of Els Olors, on the Coma d'en Vivell, *Llorenç Garcías*, 9-V-1950, herb. Orell; between Palma and Sóller, La Volta Llarga, *Orell*, 19-II-1960; Coll de Sóller, Maculí de sa Senyora, Son Gallard, *Orell s/d*; Porxe del Bisbe, above Sóller, herb. Orell; Els Manroigs, Fornalutx, *B. Alcover*, 27-V-1951, in herb. Orell; Coll de Sa Bataya, Lluc, *Orell*, 1-V-1954, herb. Orell; Puig Major de Torroella, 1350 m, *O. de Bolòs & R. Molinier*, 28-II-1956, BC.

***Viola arborescens* L.**

Common in the lower part of northern Majorca and also present in Menorca and Eivissa (Ibiza).

Material reviewed: MAJORCA: Son Vida, *J. Orell*, 7-XI-1947, herb. Orell; Volta de Na Gireta, roadside bank, 28-VI-1980, herb. Orell; Sóller, towards Deià, *B. Alcover*, IX-1950, herb. Orell; Vall de Son Sales, 14-IX-1959, herb. Orell. FORMENTERA: Caló, *Orell*, 4-V-1984, herb. Orell.

***Viola jaubertiana* Marès et Vigineix, Catalogue Pl. Baléares, 37 (1980).**

=(*V. odorata* L. var. *jaubertiana* (Marès et Vigineix) Knoche, Flore Baléarique: 209 (1922).

Lives between 600 and 1000 m, in rupicolous communities, on shady slopes.

Material reviewed: MAJORCA; cliffs of the northern range, Gorg Blau, *Palau Ferrer*, 15-V-1955, BC; El Gorg Blau d'Escorca, in cracks in boulders, *Ll. García Font*, 6-IV-1934, in herb. Orell; cracks in shady boulders in El Gorg Blau, *Ll. García Font* 7-IV-1945, in herb. Orell; El Gorg Blau, limestone, *Cardona*, 29-V-1979, BC; Entreforc, *Orell*, 12-VIII-1960, herb. Orell.

***Viola suavis* Bieb. subsp. *barceloi* (Nyman) Orell & Romo, *comb. nova*.**

Basionym: *Viola barceloi* Nyman, *Conspectus Florae Europaeae*, Supp. II: 45, 1889.

=*Viola suavis* Bieb. subsp. *sepincola* (Jordan) W. Becker var. *barceloi* O. de Bolòs & Vigo, *Butll. Inst. Cat. Hist. Nat.* 38 (1): 80, 1974.

Ind. loc.: Sóller, lieux ombragés des collines, Pl. Esp. Fr. Sennen, n. 1100, leg. *F. Bianor*, III-1910, BC 74785.

=*Viola ambigua* Barceló, *Flora de las Islas Baleares*: 53, 1879-1881.

Ind. loc.: Majorca: Andraitx, Puigpunyent, Valldemossa, Deià, Sóller, grown in gardens.

NYMAN (1889: 45) proposed the name *V. barceloi* for the taxon described by Barceló under the name of *V. ambigua*, since a previously described *V. ambigua* Waldst. & Kit. already existed.

Material reviewed: MAJORCA; Sóller, lieux ombragés des collines, *Fr. Bianor*, III-1910, Pl. Esp. Fr. Sennen, n. 1100, BC (sub *V. ambigua*); Son Nebot, holm oak woods, *Ll. Garcías*, 29-II-1952; Escorca, woods at Lluc; *Orell*, no date; Atalaya, Moreia, Artà, *Ll. Garcías*, 30-V-1948; road to Biniarraix, 4-II-1951, *Orell*; Ca Madó Greca, *Orell*, 15-III-1959; Binibassi, irrigation canal, herb *Orell*, 1988.

It is found on moist grassland and banks on the Island of Majorca between 100 and 1000 m.

***Viola odorata*. L. subsp. *stolonifera* (Rodríguez Femenías) Orell & Romo, **comb. nova**.**

Basionym: *V. stolonifera* Rodríguez Femenías, *Bull. Soc. Bot. France*, 25: 238 (1878). Ind. loc.: Lieux frais et ombragés du Barranc d'Algendar, Minorca.

This taxon, according to RODRÍGUEZ FEMENÍAS (1878) is a species akin to *V. hirta* L., from which it differs by its stoloniferous rhizome, scented flowers and only slightly hairy lateral petals. On the other hand, VALENTINE *et al.* (1968: 273) consider it a synonym of *V. odorata* L. We are of the opinion that it is to be subordinated to *Viola odorata*. The distinguishing characteristics of the two subspecies are summarized in Table II.

NEW TAXA

***Viola alba* L. nothosubsp. *neusii* Orell & Romo, **nothosubsp. nova**.**

(=*Viola alba* L. subsp. *dehnhardtii* (Ten.) W. Becker × *V. jaubertiana* Marès & Vigneix).

TABLE I. Evolution of knowledge of the genus *Viola* in the Balearic Islands. Ma: Majorca, Mi: Minorca, Ei: Eivissa (Ibiza) and Formentera. 1) MARÈS & VIGINEIX (1880). 2) BARCELÓ I COMBIS (1879-81). 3) DUVIGNEAUD (1979). 4) ORELL & ROMO (this study). (a) Reported from Cúber between Sóller and Lluc but has never been found there again and we have seen no herbarium specimens; probably an erroneous report. (b) BARCELÓ I COMBIS (1879-81) does not include *V. jaubertiana* in his first version of the catalogue but does include it in the supplement containing additions and corrections.

Taxa	Authors			
	1	2	3	4
<i>V. alba</i>				
subsp. <i>dehnhardtii</i>	-	-	Ma	Ma
<i>V. arborescens</i>	Ma	Ma, Mi, Ei	Ma, Mi, Ei	Ma, Mi, Ei
<i>V. hirta</i>	Ma (a)	-	-	-
<i>V. jaubertiana</i>	Ma	Ma	Ma	Ma
<i>V. suavis</i> subsp. <i>barceloi</i>	-	Ma	Ma	Ma
<i>V. odorata</i> subsp. <i>stolonifera</i>	Ma, Mi	Ma (b)	Ma, Mi	Mi

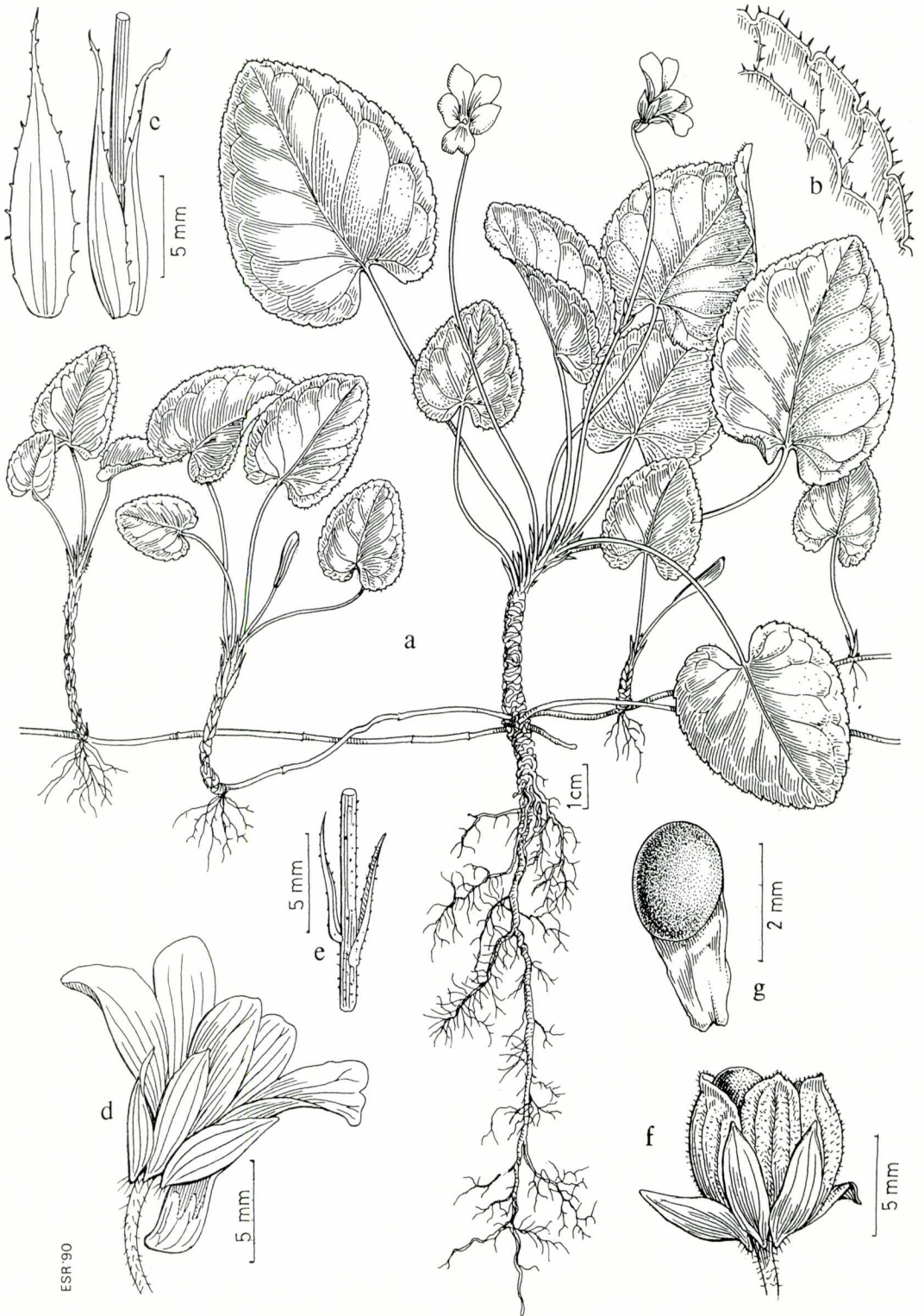
TABLE II. Comparison between *V. odorata* subsp. *odorata* (1) and *V. odorata* subsp. *stolonifera* (2).

The description given by FEMENÍAS (1878: 238) is not very explicit, except where the stolons are concerned. This taxon (Fig. 1) has so far been conclusively identified only in the Island of Minorca.

	1	2
Stipules shape	oval-lanceolated	sub oval-lanceolated
fimbriae	sparse	sparse
length, mm	(9)11-18(22)	11-15(18)19
Flowers length, mm	(14)15-20(22)	13-15(18)
spur length, mm	3-4	4-5
Sepals shape	obtuse or subacute	subacute
length, mm	0.4-0.8(1)	0.4-0.8
Capsules length, mm	7-10	8-9
Seeds length, mm	3-3.25	3.75-4
Hilum length, mm	0.75	1.75-2

A Viola alba subsp. *dehnhardtii* *sepalis subacutis et foliis coriaceis subglabris differt.*

HOLOTYPE; Sóller, Montagnes et rochers



ESR 90

TABLE III. Comparison between *V. alba* ssp. *dehnhardtii*, *V. jaubertiana* and their hybrid.

	<i>V. alba</i> ssp. <i>dehnhardtii</i>	hybrid nothosubsp. <i>neusii</i>	<i>V. jaubertiana</i>
Stipules shape	linear-lanceolate		oval-lanceolate
fimbriae	sparse	sparse	numerous
length, mm	10-15(20)	10-15	10-12
Leaves ratio width/length	hairy <1	subglabrous 0	glabrous >1
length, cm	(2)2.5-3(3.5)		(4)4,5(5)
width, cm	(1.5)2(2.5)		3-3.5
teeth	obtuse, not very distinct	subacute	runcinate acute teeth with cartilaginous margin
Sepals length, mm	obtuse 5-6	subacute 6-7	acute 7-8
Flowers length, mm	10-12	13-14	16-22(23)
Spur length, mm	3.5-4	3-4	2-3
Stolons	no	yes	yes

du Gorch Blau, 9-X-1912 leg. *F. Bianor*, BC-Herb, Sennen.

While this paper was in print **ROSSELLÓ et al.** (1991) proposed the name *V. x balearica* for this hybrid. This name is not validly published because no diagnosis in Latin has been done.

It differs from *V. alba* subsp. *dehnhardtii* by its subacute sepals and its coriaceous subglabrous leaves.

It is also found at Es Puig Major, 1200 m, Orell, 12-V-1988, in herb. Orell.

Table III shows in comparative form the differences between the two progenitors and the hybrid, all of them from El Gorg Blau, Tramuntana range (Majorca) where they were collected by *J. Orell* and *A.M. Romo*, 20-IV-1989, BC; see also figures 2 and 3.

Viola alba* L. nothosubsp. *bonaefidei* Orell & Romo, nothosubsp. *nova

(=*V. alba* L. subsp. *dehnhardtii* (Ten.) W. Becker × *V. suavis* Bieb subsp. *barceloi* (Nyman) Orell & Romo).

Planta non stonofilera cum sit, a Viola alba subsp. dehnhardtii foliis ovato-triangularibus (4-5 × 6-7) cm stipulisque ovatis (10-12 × 3-4) mm atque sparse laciniatis differt.

HOLOTYPE; Gorg Blau, 600 m, leg. *J. Orell* & *A.M. Romo*, 14-IV-1990, BC.

This nothosubspecies can be recognized by the absence of stolons and by its oval leaves; it differs from *V. suavis* by its lanceolate and sparsely fimbriated stipules.

***Viola suavis* Bieb. nothosubsp., *cardonae* Orell & Romo. nothosubsp. *nova*.**

(=*Viola suavis* Bieb. subsp. *barceloi* (Nyman) Orell & Romo × *V. jaubertiana* Marès & Vigineix).

A Viola suavis subsp. barceloi foliis subglabris, sparse pilosis, subruncinatis, stipulis ovatis (10-15 mm × 4-5 mm) atque stolonibus parvis differt.

HOLOTYPE; El Gorg Blau, limestone, *M.A. Cardona*, 29-V-1979, BC.

=*Viola barceloi* Chodat (hom. illeg.) in Contribution à la géobotanique de Majorque: 86, thèse. Université de Genève, 1924. Ind. loc.: in fissuris rupium ad exitum ancipitis dict. Gorch Blaou (Gorg Blau), inter Aïmalluc et Escorca. Fl. Martio.

=*Viola suavis* Bieb. var. *barceloi* (Chodat) O. de Bolòs & Vigo in schedis.

CHODAT (1922: 83) hinted at the presence of this hybrid and in effect described it in the same work (1922: 86) under the name of *V. barceloi* Chodat (hom. illeg.). Chodat overlooked the fact that the name *V. barceloi* had already been used by Nyman and that moreover the taxon she described was a hybrid, a conclusion that is reached after a detailed reading of the description.

It is present in the Tramuntana range in Majorca.

◀ FIG. 1. *Viola odorata* L. subsp. *stolonifera* (Rodríguez Femenías) Orell & Romo. A) Port; B) Detail of the margin of the leaf; C) Stipules; D) Flower; E) Bracts; F) Capsule; G) Seed. (Drawing by E Sierra from the fold collected by Rodríguez Femenías at the Barranc d'Algendar, Minorca, in 1876, BC).
Viola odorata L. subsp. *stolonifera* (Rodríguez Femenías) Orell & Romo. A) Port; B) Detall del marge de la fulla; C) Estípules; E) Bràctees, D) Flor; F) Càpsula; G) Grana. (Dibuix E. Sierra a partir del plec recollit per Rodríguez Femenías, al barranc d'Algendar, Menorca, l'any 1876, BC).

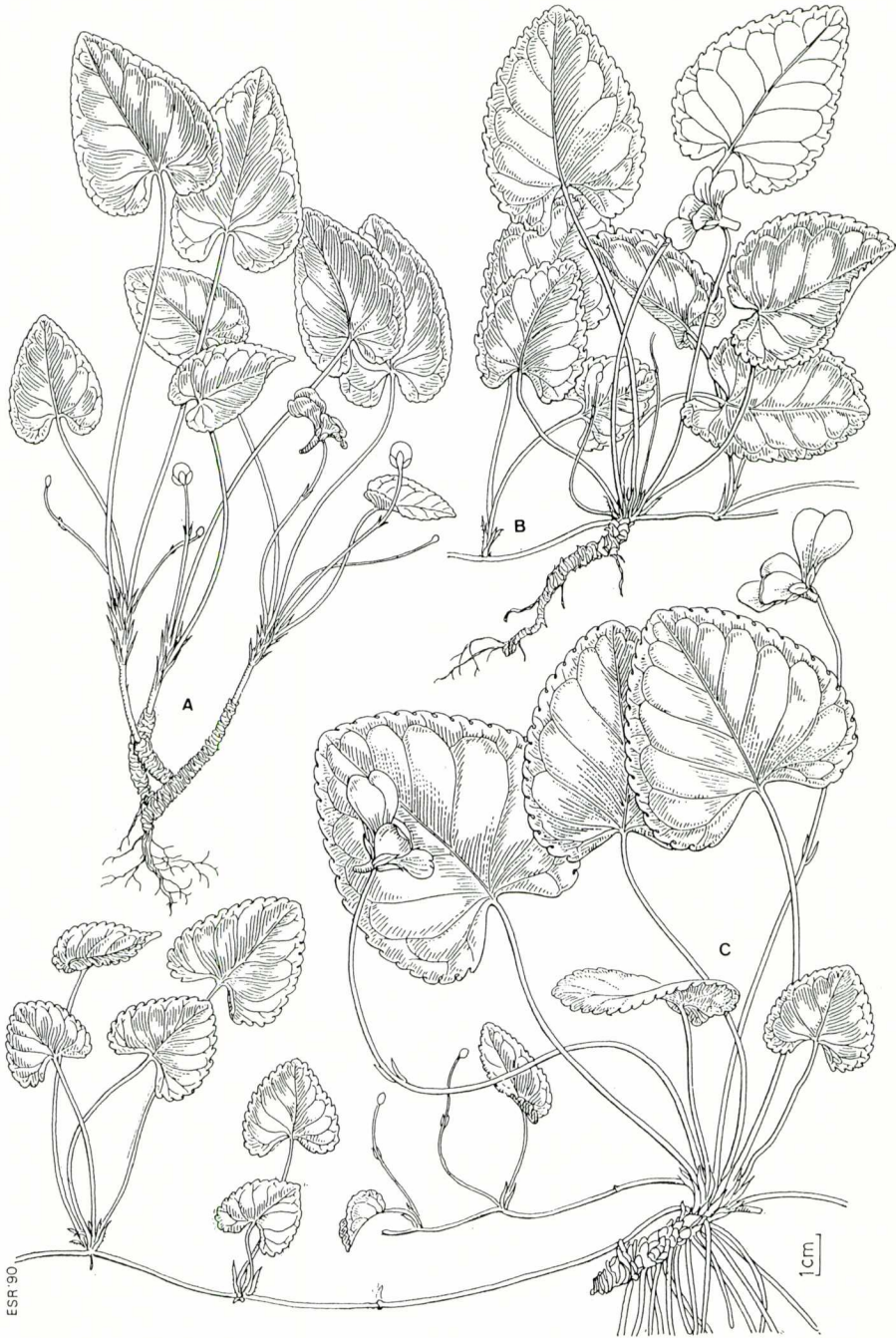
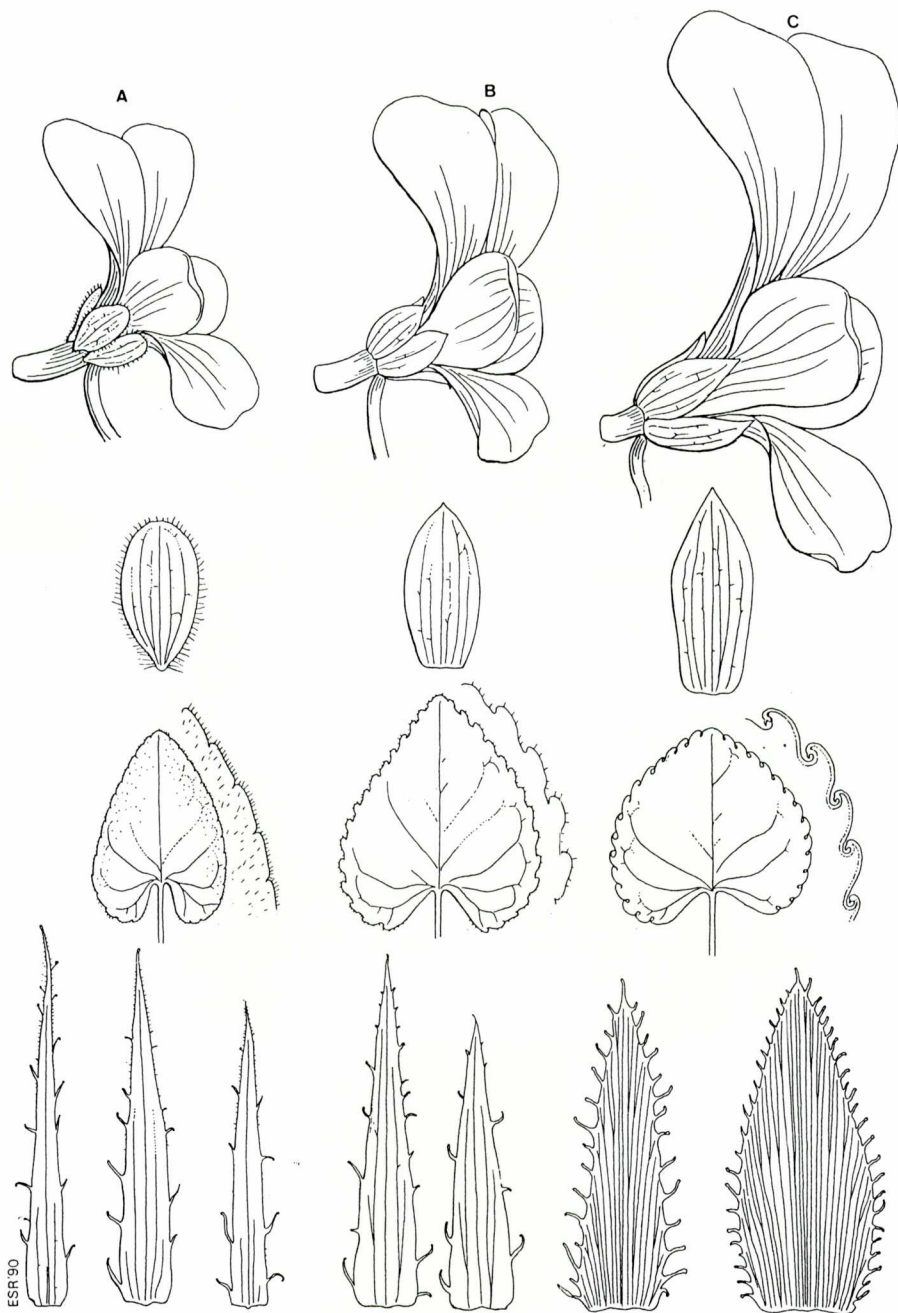


FIG. 2. A) *Viola alba* L. subsp. *dehnhardtii* (Ten.) W. Becker; B) *V. alba* L. nothosubsp. *neusii* Orell & Romo; C) *V. jaubertiana* Marès & Vigineix. All three come from El Gorg Blau. Tramuntana range, Majorca, leg. Orell et Romo 10-IV-1990, BC.
 A) *Viola alba* L. subsp. *dehnhardtii* (Ten.) W. Becker; B) *V. alba* L. nothosubsp. *neusii* Orell & Romo; C) *V. jaubertiana* Marès & Vigineix. Totes tres provenen del Gorg Blau. Serra de Tramuntana. Mallorca, leg. Orell et Romo 10-IV-1990, BC.



ESR 90

FIG. 3. Details of the flowers, sepals, leaves and stipules of: (A) *V. alba* L. subsp. *dehnhardtii* (Ten.) W. Becker; B) *V. alba* L. nothosubsp. *neusii* Orell & Romo; C) *V. jaubertiana* Marès & Vigneix. Drawing made from materials from the same source as those in Fig. 2. Detalls de les flors, sèpals, fulles i estípules de: A) *V. alba* L. subsp. *dehnhardtii* (Ten.) W. Becker; B) *V. alba* L. nothosubsp. *neusii* Orell & Romo; C) *V. jaubertiana* Marès & Vigneix. Dibuix fet a partir de materials amb el mateix origen que els de la fig. 2.

TAXA ERRONEOUSLY REPORTED FROM MAJORCA

Viola segobricensis Pau, Notes Bot., 2: 61 (1888).

Reports of this taxon from the island of Majorca are probably erroneous and must refer to *Viola suavis* subsp. *barceloi*. On the other hand it does appear to be present in Eivissa (Ibiza): Torrent d'En Mates (near Beniarràs), leg. C. Guerau d'Arellano, 14-II-1972, BC 607219; (det. O. de Bolòs & Vigo ut *V. suavis* subsp. *sepincola* var. *segobricensis* (Pau) Bolòs & Vigo).

Viola hirta L.

Reported by MARÈS & VIGINIEX (1880) in Majorca, probably in error since it has never again been found there and no proof is to be found in herbariums.

Key to taxa from the Balearic Islands

- 1. Small woody shrub *V. arborescens*
- 1. Herbaceous plant 2
- 2. Linear or narrowly lanceolate-linear stipules, obtuse sepals *V. alba*
- 2. Ovate lanceolate stipules, acute or obtuse sepals 3
- 3. Glabrous plant, leaves with cartilaginous margin *V. jaubertiana*
- 3. Pubescent plant with non cartilaginous margin 4
- 4. Rounded obtuse leaves, short stolons *V. suavis*
- 4. Long stolons *V. odorata* ssp. *stolonifera*

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