

## CONTRIBUTIONS TO THE FLORA OF THE AZORES VI.

By ALFRED HANSEN \*

During two stays in the Azores in June-July 1979 and in March-April 1984 when visiting the islands of Santa Maria, São Miguel and Terceira some observations on the vegetation and some collecting of various plants from these islands were carried out. The floristic results based on the examination of my own collections as well as on examination from other collectors are listed below. The Azorean flora is still being "enriched" almost every year by garden-escapes that have become naturalized and the introduction of new aliens from abroad, as well as a spreading of plants already present in some islands into other islands within the archipelago is still going on. — I wish here to thank Sr. Botelho Gonçalves, Serviços Florestais, Angra, Terceira, for sending me a plant collection made in Terceira and Pico in 1980, and Professor K.H. Rechinger, Vienna, for handing over to me a collection of plants from Faial, Pico and Terceira, made in 1978 and now deposited in the Geneva Herbarium, Switzerland. My thanks also go to Dr. G. Le Grand and Dr. D.S. Furtado, the Azorean University, Ponta Delgada, and Miss M. Margarida, P. Delgada, for informations on some new finds and for joining me on some excursions in São Miguel in April 1984. — Some of the records have already been included in *A. Hansen & P. Sunding: Flora of Macaronesia. Checklist of vascular plants*, 3. revised edition, Sommerfeltia 1, Oslo, 1985, but details of the new records have not yet been given.

## 1. SPECIES NEW TO THE AZORES

**Acanthaceae*****Strobilanthes maculata* (Wall.) Nees.**

S. Miguel: Observed in 1984 in 2 places in Furnas, along a rivulet and in an irrigation canal, most likely escaped from cultivation in gardens of the village. A perennial plant or shrub from northern India, Asia.

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**A p i a c e a e*****Daucus muricatus* (L.) L.**

S. Miguel: Fajã de Cima NE of P. Delgada, on roadside, 1979; leg. F. Skovgaard. A native of southern Europe from Portugal to the Aegean Islands, in Turkey and Algeria, N. Africa.

**A s t e r a c e a e*****Anacyclus radiatus* Loisel.**

S. Miguel: Ponta Delgada, in waste place at the harbour, 1979. Biennial plant widespread in the Mediterranean region, recently according to Franco (1984) also known from S. Jorge. It has also recently been found in Madeira (Funchal Harbour since 1973) in the Canary Islands (Tenerife, Lanzarote and Fuerteventura since 1969).

***Chrysanthemum carinatum* Schousboe.**

Terceira: Angra, in waste place near the old fortress, 1979. Annual species from Morocco. NW. Africa, often grown in various races in gardens, and in Europe often reported as an escape.

***Soliva pterosperma* (Juss.) Less.**

A weed of lawns in the Public Garden in Ponta Delgada, S. Miguel; also a weed in the nearby botanical garden, 1981, leg. E. J. Clement. Annual plant from South America.

**B r a s s i c a c e a e*****Cardamine pratensis* L.**

Terceira: Altares, ca. 500 m, 1973, leg. B. Gonçalves, no. 5005. A polymorphic species widely distributed in North and Central Europe.

**C o m m e l i n a c e a e*****Tinantia erecta* (Jacq.) Schlechtend. (*T. fugax* Scheidw.).**

S. Miguel: Fajã de Cima, NE. of P. Delgada, a weed in a maize-field, 1979. An annual plant, similar in appearance of *Tradescantia*, from Central- and South-America, known also as an alien in Madeira.

### Fumariaceae

**Fumaria muralis** Sonder ex Koch ssp. **boraei** (Jord.) Pugsley.

Faial: Horta, 1974. *F. muralis* ssp. *muralis* has been given for all the Azores except Corvo; ssp. *boraei* has been recorded also from Madeira and P. Santo and according to Lidén (1986) from Gran Canaria and Gomera among the Canary Islands.

### Geraniaceae

The following 2 species and a hybrid of the genus *Pelargonium*, natives of South Africa, are garden-escapes and new to the Azores. — *Pelargonium peltatum* (L.) l'Hérit. ex Aiton. — São Miguel: Praia. east of P. Delgada, in abandoned vineyards, 1979. — *Pelargonium inquinans* (L.) l'Hérit. ex Aiton. — Santa Maria: Praia at the south coast, along a small rivulet, 1979. — *Pelargonium* x *asperum* J.F. Ehrh. ex Willd. (*P. graveolens* x *radens*). — São Miguel: Praia, east of P. Delgada, in abandoned vineyards, 1979.

### Onagraceae

**Fuchsia arborescens** Sims.

S. Miguel: Subspontaneous in a forest along the road between Furnas and Ribeira Quente, 1984. A shrub or small tree and a native of Mexico; known as a garden-escape also in Madeira.

### Plantaginaceae

**Plantago subspathulata** Pilger.

S. Maria: Maia. east coast, on slopes to the sea, 1979, and S. Miguel: In several places of the same habitat, for instance Rib. Quente, Maia, etc., 1984. A perennial species belonging to the *P. coronopus*-complex and hitherto considered an endemic plant to Madeira, where it grows on the cliffs of the north coast.

### Poaceae

**Lolium parabolicae** Sennen ex Samp.

S. Maria: Praia, south coast east of Vila, on roadsides close to the sea, 1979. Known from Madeira and Porto Santo and from Lanzarote and Fuerteventura, Canary Islands, and further distributed along the European Atlantic coasts of Spain, Portugal and France. Flora Europaea vol. 5 prefers to include it in *Lolium rigidum* Gaudin, which is an annual herb while *P. parabolicae* is perennial.

**Miscanthus sinensis** Anderss.

S. Miguel: Spontaneous in a forest on the southern bank of Lake Furnas, 1984. A stout, perennial grass up to 3m, a native of East Asia; cultivated for ornament and a garden-escape in S. Miguel.

**Paspalum notatum** Flügge. "Bahia Grass".

Terceira: Lajes, in lawns at the Airport, 1979. A perennial grass from Central and South America, nowadays introduced into USA (N. Jersey, N. Carolina, Florida, Texas, Louisiana) and most likely introduced into Terceira from that region.

**Polygonaceae****Rumex violascens** Rech. f.

Faial: Horta, near the sea, 1979, leg. B. Gonçalves, no. 6105. An annual or perennial plant and a native of the western USA from California to Texas, and of Mexico, often found on ditch banks. Known as an introduced plant also in Europe, for instance in Denmark. — The following *RUMEX*-hybrids are all new to the Azores, all collected in the same locality in São Miguel: Faial da Terra, in "*ruderalis littoralis orientalis*", leg. K. H. Rechinger 1978; *R. conglomeratus* x *crispus* (*R. x schulzei* Hausskn.), no. 58018, 58029; *R. conglomeratus* x *obtusifolius* (*R. x abortivus* Ruhmer), no. 58021, 58026; *R. conglomeratus* x *pulcher* (*R. x muretii* Hausskn.); *R. crispus* x *pulcher* (*R. x pseudopulcher* Hausskn.), no. 58019; and *R. obtusifolius* x *pulcher* (*R. x ogulinensis* Borbas). No. 58022a. *R. crispus* x *obtusifolius* (*R. x pratensis* Mert. & Koch) collected in the same locality too, is already known from S. Miguel.

**Rosaceae****Spiraea cantoniensis** Lour.

São Miguel: S. of Furnas, established in an old quarry, 1984. A garden-escape originating in China and Japan.

**Saxifragaceae****Saxifraga stolonifera** Meerb. (*S. sarmentosa* L.).

S. Miguel: A garden escape established on a slope at the Lake Fogo, 1984, leg. S.-E. Sandermann-Olsen. A native of East Asia and recently found also in Madeira escaped from cultivation (1986); among the Canary Islands known from Gran Canaria.

## Solanaceae

### *Cestrum purpureum* (Lindl.) Standl.

Observed in recent years as a garden-escape in G, SMi and T by G. Le Grand. A native of Mexico, and its correct name seems to be *C. elegans* (Brongn.) Schlechtend. var. *smithii* L. H. Bailey (or cv. *smithii*).

## Violaceae

### *Viola tricolor* L.

In waste ground at Fajã de Cima, NE. of Ponta Delgada, S. Miguel, 1983, leg. D. Furtado (seen also in 1984). An annual herb common in most of Europe, W. and SW. Asia.

## VARIOUS NEW RECORDS

## Filices

*Pityrogramma tartarea* (Cav.) Maxon, whose correct name according to Proctor (1965) is *P. ebenea* (L.) Proctor, published as new to the Azores with a single find in S. Miguel 1971 (A. Hansen 1972), obviously has a wider distribution in this island: In 1979 and in 1984 it was collected at Pedras de Galega above Furnas (Hansen No. 23, 1059), in 1984 at Ribeira Quente south of Furnas (Hansen No. 1077) and in an old quarry south of Furnas (Hansen No. 1056). Fernandes & Fernandes (1983) do not believe in the existence of this fern in the Azores, but *P. ebenea* and *P. calomelanos* (Sw.) Link (var. *aureiflava* (Hook.) Weatherby ex Bailey) are quite distinct. Their statement of a common confusion between *P. calomelanos* and *P. chrysophylla*, so that the latter may not be present at all in the Azores, may very well be correct.

## Apiaceae

### *Ammi huntii* H. Watson.

Graciosa: NW. coast, ca. 200m, 1986, leg. G. Le Grand, and Faial: Caldeira, 1983, leg. M. Margarida. New to both islands. As *Ammi seubertianum* and *A. trifoliatum* are now included in *A. huntii*, this endemic and polymorphic species is known from all islands except Terceira.

## Asteraceae

### *Aster squamatus* (Spreng.) Hieron.

New to S. Miguel: Povoação, a few specimens in waste place at the harbour, 1984, and Ponta Delgada, a few specimens in waste place close to the sea, 1984. Known from P, SJ, SMa, T.

***Centaurea melitensis* L.**

S. Miguel: In waste place in Ponta Delgada-West, 1984. It seems never to have been published as existing in this island, even though some sheets with this plant collected on S. Miguel by T. C. Hunt in 1848 (without exact locality) and distributed by the Botanical Society of London, exist in some herbaria, for instance in Herb. C. Now known from Fa, G, P, SJ, SMa and SMi.

***Chamaemelum mixtum* (L.) All.**

New to S. Miguel: Ponta Delgada, in waste place at the harbour, 1979. Previously known from Fa, G, P, SMa and T.

***Galinsoga parviflora* Cav.**

In waste place, Ponta Delgada, 1970 and 1984, and near the new hotel at Praia, W. of Vila Franca, S. Miguel, 1984. New to S. Miguel.

***Gazania rigens* (L.) Gaertn.**

A garden escape on Ilhéu de Vila Franca, south coast of S. Miguel off Vila Franca, 1983, G. Le Grand. New to S. Miguel and previously known from Fa, FI, P and T.

***Gnaphalium cheiranthifolium* Lam.**

Recorded from a single locality in S. Miguel in 1971 (Hansen 1972) should be identified with the closely related species *G. gaudichaudianum* DC., likewise a native of South America.

**Boraginaceae*****Borago officinalis* L.**

In waste place along the road Furnas-Ponta Garça, S. Miguel, 1984. A rare plant in this island, with a single record from 1904 (Hansen 1972), previously known from Fa, FI, P, SJ, SMa, SMi and T.

**Brassicaceae*****Arabidopsis thaliana* (L.) Heynh.**

Abundant in flower-beds in the park near the French Church, southern end of Lake Furnas, S. Miguel, new to this island. Earlier known only from P and T.

**Caryophyllaceae*****Illecebrum verticillatum* L.**

Sete Cidades, S. Miguel, 1983, leg. M. Margarida. New to S. Miguel, and moreover found on Fa, FI and T.

**Convolvulaceae*****Dichondra micrantha* Urban.**

This weed especially of lawns, hitherto known only from Fa and SMA (Hansen 1971, 1974), was observed in several places in S. Miguel in 1984.

***Ipomoea acuminata* (Vahl) R. & S.**

Recorded for the first time as a garden-escape in the Azores (SMA 1970, Hansen 1971), is now known from all islands except C and FI (Hansen 1974 and 1975, Franco 1984). According to Fosberg (1976) the valid name for this plant should be *I. indica* (Burm.) Merr.

**Euphorbiaceae*****Phyllanthus tenellus* Roxb.**

S. Miguel: Fajã de Cima, as a weed in a glasshouse, 1979. A rare alien in the Azores, known only from Fa, P and SMI.

**Fabaceae*****Lathyrus hirsutus* L.**

Terceira: Monte Brasil near Angra, a small stand near the monument; previously known only from Fa.

***Lathyrus ochrus* (L.) DC.**

First published from fields near Santana Airport, N. coast of S. Miguel found in 1971 (Hansen 1972). In 1984 it was observed in an old quarry, P. Delgada-West, and on roadslopes near hotel Praia, W. of Vila Franca; the only island so far.

***Lathyrus sativus* L.**

Santa Maria: Praia, south coast E. of Vila, a field-weed, 1979; new to this island; also known from Fa and SMI.

***Vicia bithynica* (L.) L.**

Santa Maria: Maia, eastern coast, 1979, new to this island and previously collected in SMi and P.

***Vicia tenuissima* (M. Bieb.) Schinz & Thell.**

Terceira: Monte Brasil near Angra, 1979, new to this island and now known from all islands except C and P.

**I r i d a c e a e*****Romulea columnae* Seb. & Mauri.**

S Miguel: Abundant in grass-borders in Furnas Park, Furnas, in spring 1984. Apparently a very rare plant in the Azores, mentioned for the first time by Watson (1847) without exact locality, and again by the same author (1870) as collected by Th. Hunt in S. Miguel at 1000-1500 ft., again without exact locality. Drouet (1866) cites Watson, and Trelease (1897) cites again the same authors and adds: Not recently collected. Pinto da Silva (1974) gives a record from Terceira found in 1964, and Pa-lhinha (1966) mentions it from S. Miguel and Terceira.

**L a m i a c e a e*****Lavandula viridis* l'Hérit.**

Known only from Terceira as a very rare plant. The following 2 collections have been traced by the author: Fonte do Bastardo, no cimo do Pico de Fora, 20/7-1970, leg. J. Ormonde, No. 492, Herb. Museum, P. Delgada (also in other herbaria, see Ormonde & Paiva 1973), and in rocky and dry soil, Porto Martins, 50m, 15/5-1978, leg. B. Gonçalves, No. 6041, Herb. Leicester.

***Teucrium scorodonia* L.**

S. Miguel: Sete Cidades, 1983, leg. M. Margarida, new to this island; known also from T (Rocha Afonso 1982).

**L i l i a c e a e*****Allium paniculatum* L.**

Santa Maria: In the airport-area, 1979, new to this island and previously known only from SJ and SMi.

***Allium subhirsutum* L.**

Pico: A weed in Quinta das Rosas, Madalena, 1980, leg. B. Gonçalves. New to Pico and hitherto known from SMi and T.



**Allium triquetrum L.**

This onion was collected for the first time in the Azores in S. Miguel by K. H. Rechinger in 1978 and mentioned by Stearn (1978) and in "Flora Europaea" 5 (1980). In April 1984 it could be proved that this plant has already a wide distribution and is fully naturalized at least in that part of the island which is situated between Ponta Delgada and Furnas. About 25 different localities with this plant, mostly growing on roadsides, have been noticed, nearly everywhere represented by numerous specimens. Herbarium-material from Salga, Fenaes de Ajuda, Rib. Quente and Furnas Village (no. 1023, 1037, 1050, 1059, 1074) is available.

**Asparagus asparagoides (L.) Druce.**

S. Miguel: Ponta Delgada, in waste place, 1979; new to this island and previously found only in Fa and T (Hansen 1971 and 1974, Valdés 1979).

**Moraceae****Ficus pumila L.**

S. Miguel: A garden-escape at Furnas, ca. 200m, 1978, leg. K. H. Rechinger. New to this island and earlier observed in Fa and P.

**Nyctaginaceae****Mirabilis jalapa L.**

Terceira: In waste place in Angra, 1979, and thus known from all islands except G.

**Orobanchaceae****Orobanche crenata Forssk.**

S. Miguel: 2 new records from this island in 1984, viz. Cerrado do Grande, W. of P. Delgada, a garden-weed, and Ponta Delgada-west, in a waste place. Trelease (1897) mentions this parasite from S. Miguel without any precise locality; in 1971 it was observed at Feteiras (Hansen 1972). Known also from Terceira (Franco 1984).

**Oxalidaceae****Oxalis articulata Savigny**

S. Miguel: P. Delgada, in waste place at the harbour, 1979. New to this island and previously observed in Fa, Fl, SJ and T.

**P o a c e a e*****Avena fatua* L.**

S. Miguel: Along path on cliff-top W. of P. Delgada, 1981, leg. E. J. Clement. New to this island and also known from Fa and T.

***Axonopus affinis* Chase.**

S. Miguel: In meadows near the hot springs, northern part of Lake Furnas, quite established, 1984. This American grass was observed for the first time in the Azores at Sete Cidades in the same island 1971 (Hansen 1972). In Europe this grass has been recorded from Portugal by A. R. Pinto da Silva (1964) but not given in Flora Europaea 5, 1980.

***Holcus rigidus* Hochst. in Seub.**

Observed in Graciosa 1985 by D. Furtado, and this endemic grass is now known from all the islands except SMA.

***Setaria geniculata* (Lam.) Beauv.**

Faial: Bank of Ribeira de Flamengos, Horta, 1981, leg. E. J. Clement. Found earlier in SMA and T.

**P o l y g o n a c e a e*****Fagopyrum dibotrys* (D. Don) Hara (*F. cymosum* (Trev.) Meissn.)**

S. Miguel: Ponta Delgada, in waste place near the University Park, 1984; new to this island, and since its first record from the Azores (Hansen 1973) it has been recorded from Fa, P, SJ and T. In Europe so far only known as an established alien from England (Lousley 1976: A single stand in Pembroke, vc. 45, since 1961), and in France (Kerguelen 1985: Bretagne, environs of Brest, naturalized and known for many years, but for a long time unidentified by French botanists).

**R a n u n c u l a c e a e*****Consolida ambigua* (L.) P. W. Ball & Heyw.**

S. Jorge: Naturalized at Fajã dos Bodes, SE. of Calheta, 1985, leg. G. Le Grand. Known from C, Fa, FI, P, SMi and T.

**S c r o p h u l a r i a c e a e*****Asarina erubescens* (D. Don) Pennell**

S. Miguel: A garden-escape in abandoned gardens at Praia E. of P. Delgada, 1979. A rare plant in the Azores, known from P, SJ, SMi and T.

According to W. J. Elisens (1985) its valid name should be *Lophospermum erubescens* D. Don in Sweet.

***Calceolaria tripartita* Ruiz & Pav.**

Pico: A weed in Quinta das Rosas, Madalena, 1980, leg. B. Gonçalves. The first record from the Azores (Terceira 1974) was published under the name *C. chelidonioides* HBK. (Hansen 1975).

***Mazus japonicus* (Thunb.) Ktze.**

Terceira: Angra, in waste place near the old fortress, 1979. Observed for the first time in the streets of Angra in 1972 (Hansen 1973).

***Veronica polita* Fr.**

S. Miguel: On road side near the lighthouse at Ponta Garça, south coast, 1984. Previously known only from SMA (Hansen 1975).

***Veronica peregrina* L.**

S. Miguel: Furnas, among pavements in the streets, 1979. In 1984 it seemed to be common in all towns and villages in the eastern part of this island. Known from Fa, SJ, SMA, SMi and T.

**Solanaceae**

***Nicandra physalodes* (L.) Gaertn.**

S. Miguel: Observed in 2 localities at Fajã de Cima, NE. of P. Delgada, 1979. New to this island and further known from Fa, SJ and T.

**Tropaeolaceae**

***Tropaeolum majus* L.**

Terceira: Angra, in waste place, 1979, and in some places in S. Miguel, for instance at Furnas, observed in 1984. Further known from C, Fa, FI and P.

**Urticaceae**

***Soleirolia solerolii* (Req.) Dandy**

Terceira: Established in a small cave near Lagoa do Negra, 1979. New to this island, and previously recorded from Fa only.

## Verbenaceae

### *Verbena rigida* Spreng.

S. Miguel: Água de Pau, 1983, leg. G. Le Grand. New to this island, and previously recorded from Fa, SMA, T.

## Zingiberaceae

### *Hedychium gardnerianum* Sheppard ex Ker-Gawl.

Observed in Corvo in 1983 by G. Le Grand, and thus known from all islands except G and nearly everywhere as a really troublesome weed.

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**RESUMO.** No presente trabalho é dada uma lista de plantas composta principalmente por não indígenas, muitas das quais foram introduzidas como plantas de jardim e que escaparam para o meio selvagem tendo-se naturalizado, algumas endémicas e algumas novas para certas ilhas. É baseada em plantas colhidas pelo autor em Junho-Julho de 1979 e Março-Abril de 1984 nas ilhas de Santa Maria, São Miguel e Terceira, bem como em algumas colecções feitas por outros.