

MARINE ALGAE OF EL HIERRO (CANARY ISLANDS)

by

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RESUMEN

Se identifican un total de 92 especies de algas marinas de la isla de Hierro: 5 *Cyanophyta*, 12 *Chlorophyta*, 27 *Phaeophyta* y 45 *Rhodophyta*. De ellas, 10 son nuevas para las Islas Canarias, entre las que se encuentran 6 nuevas para la Región Macaronésica.

ABSTRACT

A total of 92 seaweeds of Hierro were identified, viz: 5 *Cyanophyta*, 15 *Chlorophyta*, 27 *Phaeophyta* and 45 *Rhodophyta*. Of these, 10 are new for the Canary Islands, of which 6 are new for Macaronesia.

INTRODUCTION

From 1976, the biogeographically oriented marine research initiated by the Rijksmuseum van Natuurlijke Historie (National Museum of Natural History), Leiden, has been directed mainly

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on the south-eastern part of the North Atlantic Ocean ("Macaronesia") (Fig. 1). The Rijksherbarium (National Herbarium, Leiden, and the Geologisch Instituut (Geological Institute), Groningen, participate in this long-term programme, which is called the CANCAP-project. Marine benthic algae of the island of Hierro have been collected during the CANCAP-II expedition (1977) with the oceanographic research vessel Hr. Ms. "Tydeman" of the Royal Netherlands Navy.

More phycological observations have been made during CANCAP-expedition to other Canary Islands (1977, 1978, 1980), the Madeira Archipelago (1978, 1980), Mauretania (1978), the Salvage Islands (1978, 1980), the Azores (1981) and the Cape Verde Islands (1982). Recently, M.C. GIL-RODRIGUEZ and W. WILDPRET DE LA TORRE (1980) made a study of the marine benthic algae of the island of Hierro. They mentioned 45 different species, of which 43 were new records for this island. A study of the vertical distribution of marine algae on several localities at Hierro was published by J. AFONSO-CARRILLO (1980). A catalogue of the marine benthic algae of the Canary Islands by M.C. GIL-RODRIGUEZ and J. AFONSO-CARRILLO (1980) mentions 68 specific taxa for the island of Hierro. Of these species, 33 are not mentioned in the present paper. Together with the 92 species of the present list, 125 species of marine algae are recorded from the island of Hierro.

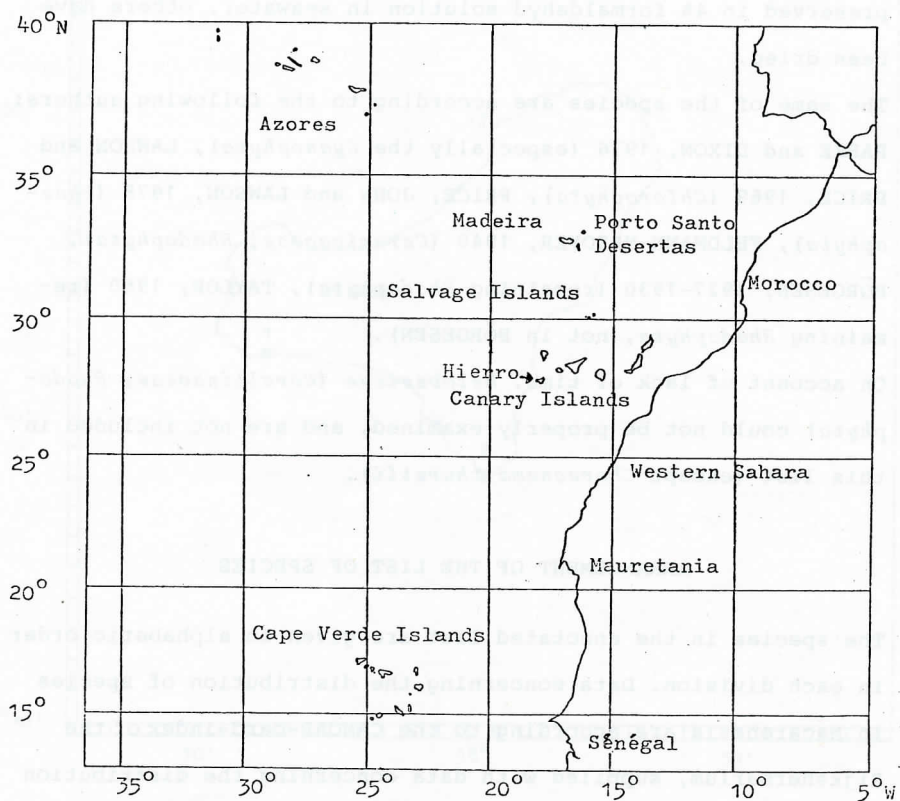


Fig. 1.

MATERIAL AND METHODS

Marine algae of Hierro were collected in the period of september 3rd-september 10th 1977 from the south-west coast of the island between Punta Orchilla and Punta Restinga (see Fig. 2) in the intertidal and on depths down to 25 m. Some samples have been preserved in 4% formaldehyd solution in seawater, others have been dried.

The same of the species are according to the following authors: PARKE and DIXON, 1976 (especially the *Cyanophyta*), LAWSON and PRICE, 1969 (*Chlorophyta*), PRICE, JOHN and LAWSON, 1978 (*Phaeophyta*), FELDMANN-MAZOYER, 1940 (*Ceramicaceae*, *Rhodophyta*), BÖRGESEN, 1927-1930 (remaining *Rhodophyta*), TAYLOR, 1960 (remaining *Rhodophyta*, not in BÖRGESEN).

On account of lack of time, *Melobesieae* (*Corallinaceae*, *Rhodophyta*) could not be properly examined, and are not included in this list (except *Choreonema thuretii*).

ARRANGEMENT OF THE LIST OF SPECIES

The species in the annotated list are given in alphabetic order in each division. Data concerning the distribution of species in Macaronesia are according to the CANCAP-card-index of the Rijksherbarium, supplied with data concerning the distribution of species in the Canary Islands by GIL-RODRIGUEZ and AFONSO-CARRILLO (1980), from Gran Canaria (Canary Island) (WEISSCHER et al., in press), from Fora (Salvage Island) (WEISSCHER, 1982) and from Selvagem Pequena (WEISSCHER, 1983). New records for the Canary Island have been marked with two asterisks (**). New records for Hierro have been marked with one asterisk (*).

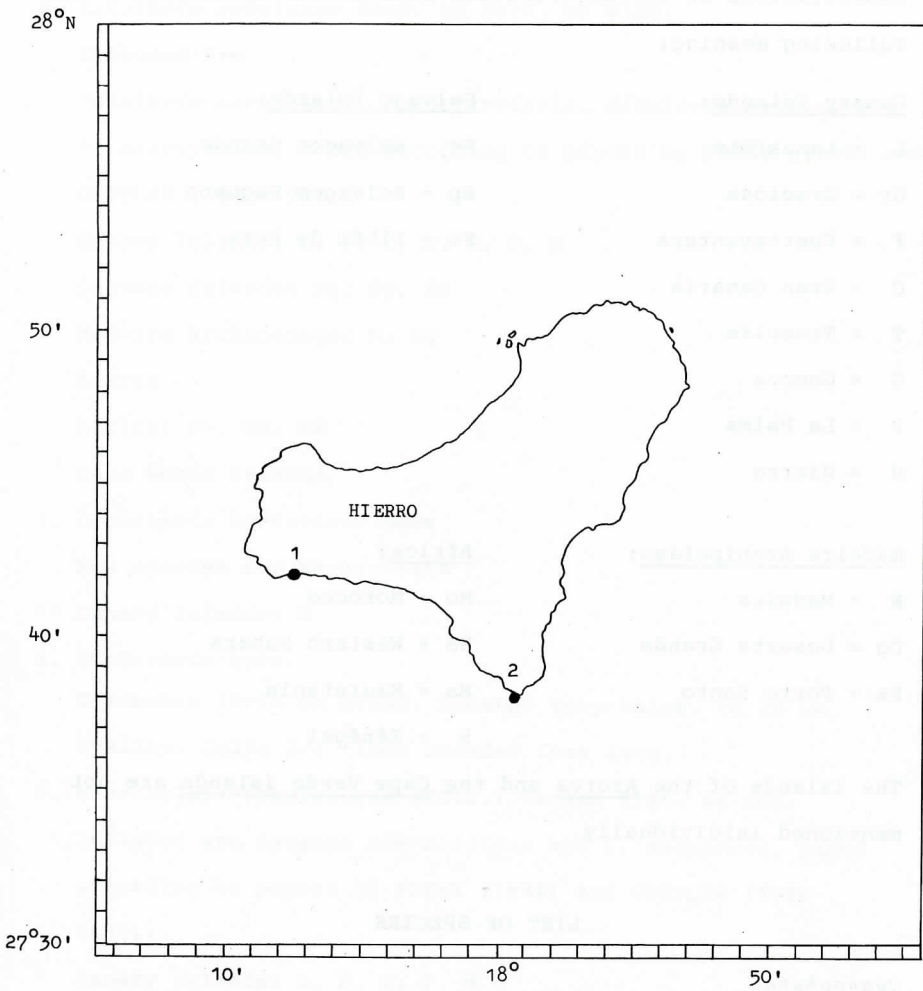


Fig. 2.

- 1 Punta de Orchilla
- 2 Punta de la Restinga

Abbreviations of the distribution data of the species have the following meaning:

Canary Islands:

L = Lanzarote
Gr = Graciosa
F = Fuerteventura
C = Gran Canaria
T = Tenerife
G = Gomera
P = La Palma
H = Hierro

Salvage Islands:

Sg = Selvagem Grande
Sp = Selvagem Pequena
Fo = Ilhéu de Fora

Madeira Archipelago:

M = Madeira
Dg = Deserta Grande
Ps = Porto Santo

Africa:

Mo = Morocco
WS = Western Sahara
Ma = Mauretania
S = Sénégal

The islands of the Azores and the Cape Verde Islands are not mentioned individually.

LIST OF SPECIES

Cyanophyta

1. *Brachytrichia quoyi* (C. Ag.) et Flah. ex Born. et Flah.

Epilithic

Canary Islands: L, F, C, T, G, P, H

Africa: Mo

2. *Calothrix crustacea* Thur. ex Born. et Flah.

Included are

Calothrix aeruginea, *C. confervicola*, *Rivularia bullata* and
R. mesenterica, named according to papers by FRÉMY (1934) and
GEITLER (1930-1932).

Canary Islands: L, F, C, T, G, P, H

Salvage Islands: Sg, Sp, Fo

Madeira Archipelago: M, Dg

Azores

Africa: Mo, WS, Ma

Cape Verde Islands

3. *Dichothrix bornetiana* Howe

New species for Macaronesia

** Canary Islands: H

4. *Dichothrix* spec.

Trichomes 10-15 μm broad. Sheaths very thick, to 20 μm ,
hyaline. Cells 2-4 times broader than long.

5. *Microcoleus lyngbyaceus* (Kütz.) Crouan frat. ex Gom.

Included are *Lyngbya confervoides* and *L. maiuscula*, named
according to papers by FRÉMY (1934) and GEITLER (1930-
1932).

Canary Islands: L, F, C, T, H

Salvage Islands: Sg, Sp, Fo

Madeira Archipelago: Dg

Azores

Africa: Mo, WS, Ma, S

Cape Verde Islands

Chlorophyta

6. *Anadyomene stellata* (Wulf.) C. Ag.
 - * Canary Islands: L, F, C, T, P, H
 - Salvage Islands: Sp
7. *Bryobesia cylindrocarpa* Howe
 - New species for Macaronesia
 - Identified by C. VAN DEN HOEK
 - ** Canary Islands: H
8. *Caulerpa racemosa* (Forsk.) J. Ag. var. *peltata* (Lamour.)
 - Eubank. Branches ending in both flat and convex form with-
in the name plant.
 - * Canary Islands, L, F, C, T, G, P, H
 - Africa: S
9. *Caulerpa webbiana* Mont.
 - Canary Islands: L, F, C, T, G, P, H
 - Salvage Islands: Sg, Sp
 - Madeira Archipelago: M, PS
10. *Chaetomorpha gracilis* Kütz.
 - New species for Macaronesia
 - Plant of flexuous entangled filaments without specific
basal attachment. Diameter filaments 60-80 μ m.
 - ** Canary Islands: H
11. *Chaetomorpha linum* (O.F. Müll.) Kütz.
 - Filaments basally attached.
 - Canary Islands: L, F, C, T, G, P, H
 - Salvage Islands: Sg, Sp
 - Madeira Archipelago: M
 - Azores
 - Africa: Mo, WS, Ma, S

12. *Chaetomorpha pachynema* (Mont.) Mont.
Filaments basally attached.
* Canary Islands: L, F, C, T, G, P, H
Madeira Archipelago: M
Azores
Africa: Mo
Cape Verde Islands
13. *Cladophora liebetruthii* Grun.
Identified by C. VAN DEN HOEK
* Canary Islands: L, F, C, T, H
Madeira Archipelago: M
14. *Cladophoropsis membranacea* (C. Ag.) Börg.
* Canary Islands: C, T, G, H
Salvage Islands: Sp
Africa: Mo
Cape Verde Islands
15. *Dasycladus vermicularis* (Scopoli) Krasser
Canary Islands: L, F, C, T, G, P, H
Salvage Islands: Sg, Sp, Fo
Madeira Archipelago: M, Dg, PS
16. *Derbesia furcellata* (Zanard.) Ardiss.
* Canary Islands: C, T, G, P, H
Salvage Islands: Sg, Sp
Madeira Archipelago: M
Azores
Africa: Ma

17. *Enteromorpha compressa* (L.) Grev.
 Canary Islands: L, Gr, F, C, T, G, P, H
 Salvage Island: Sg, Sp
 Madeira Archipelago: M, Dg
 Azores
 Africa: Mo, WS
 Cape Verde Islands
18. *Microdictyon boergesenii* Setchell
 * Canary Islands: L, C, T, H
 Madeira Archipelago: M
19. *Microdictyon calodictyon* (Mont.) Kütz.
 * Canary Islands: C, T, H
20. *Valonia utricularis* (Roth.) C. Ag.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp
 Madeira Archipelago: M, PS
 Azores
 Africa: Mo
Phaeophyta
21. *Colpomenia peregrina* (Sauv.) Hamel
 Sporangia present.
 * Canary Islands: L, H
 Africa: Mo
22. *Colpomenia sinuosa* (Roth) Derb. & Sol.
 Sporangia present.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sp
 Madeira Archipelago: M, Dg, PS
 Azores
 Africa: Mo, Ma, S
 Cape Verde Islands

23. *Cystoseira abies-marina* (S. Gmel.) C. Ag.

All specimens were sterile.

Canary Islands: L, F, C, T, G, P, H

Salvage Islands: Sg, Sp

Madeira Archipelago: M

Azores

Africa: Mo, S

Cape Verde Islands

24. *Cystoseira compressa* (Esp.) Gerl. & Nizam.

Receptacles present.

Canary Islands: L, F, C, T, G, P, H

Salvage Islands: Sg, Sp, Fo

Madeira Archipelago: M

Africa: Mo

25. *Cystoseira foeniculacea* (L.) Grev.

(= *Cystoseira discors* (L.) C. Ag.)

Receptacles present

Canary Islands: L, F, C, T, G, P, H

Salvage Islands: Sp

Madeira Archipelago: M, PS

Africa: Mo, Ma

26. *Cystoseira humilis* Kütz. var. *humilis*

Receptacles present

Canary Islands: L, F, C, T, G, P, H

Salvage Islands: Sg, Sp

Madeira Archipelago: M, Dg, PS

Africa: Mo

Cape Verde Islands

27. *Dictyota bartayresii* Lamour.
 * Canary Islands: C, H
 Africa: Ma
 Cape Verde Islands
28. *Dictyota cervicornis* Kütz.
 * Canary Islands: C, H
 Salvage Islands: Sp, Fo
29. *Dictyota ciliolata* Sonder ex Kütz.
 ** Canary Islands: H
 Africa: Ma, S
30. *Dictyota dichotoma* (Huds.) Lamour.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp
 Madeira Archipelago: M, Dg
 Azores
 Africa: Ma, S
31. *Dictyota divaricata* Lamour.
 * Canary Islands: L, F, C, T, H
 Africa: S
 Cape Verde Islands
32. *Dictyota linearis* (C. Ag.) Grev.
 * Canary Islands: L, F, C, T, H
 Salvage Islands: Sg
 Madeira Archipelago: M, PS
 Africa: Mo
33. *Dictyota volubilis* Kütz. sensu Vickers
 New record for Macaronesia
 ** Canary Islands: H

34. *Giffordia mitchelliae* (Harv.) Hamel
 Canary Islands: L, F, C, H
 Madeira Archipelago: M
 Africa: Mo, Ma, S
 Azores
35. *Halopteris scoparia* (L.) Sauv.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp, Fo
 Madeira Archipelago: M, Dg, PS
 Azores
 Africa: Mo
 Cape Verde Islands
36. *Hydroclathrus clathratus* (C. Ag.) Howe
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp.
 Madeira Archipelago: M, Dg
 Cape Verde Islands
37. *Mesospora mediterranea* Feldm.
 New genus for Macaronesia
 Epilithic. Reproductive organs not placed in sori.
 Lateral unilocular sporangia; subterminal plurilocular
 sporangia.
- ** Canary Islands: H
38. *Padina pavonica* (L.) Lamour.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp, Fo
 Madeira Archipelago: M, Dg, PS
 Azores
 Africa: Mo, Ma, S
 Cape Verde Islands

39. *Pocockiella variegata* (Lamour.) Papenf.
 Because PAPENFUSS (1977: 281) has proposed *Pocockiella* Papenf., 1943 for conservation against the earlier but comparatively little used *Lobophora* J. Ag., the name *Pocockiella variegata* is preferred here.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Fo
 Madeira Archipelago: M, PS
 Azores
 Africa: WS, Ma, S
 Cape Verde Islands
40. *Ralfsia verrucosa* (Aresch.) J. Ag
 Epilithic. No reproductive organs seen.
 * Canary Islands: T, H
 Madeira Archipelago: M
 Africa: Mo
41. *Sargassum desfontainesii* (Turn.) C. Ag
 No receptacles seen.
 Canary Islands: L, C, T, G, H
 Salvage Islands: Sg, Sp
 Madeira Archipelago: M, Dg
 Azores
42. *Sargassum vulgare* C. Ag
 No receptacles seen.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp
 Madeira Archipelago: M, Dg
 Azores
 Africa: Mo, WS, Ma, S
 Cape Verde Islands

43. *Sphaecelaria cirrosa* (Roth) C. Ag.

Epiphytic on *Padina pavonica* and *Sargassum desfontainessi*.

* Canary Islands: L, C, T, G, H

Salvage Islands: Sg, Sp, Fo

Madeira Archipelago: M

Azores

Africa: Mo

Cape Verde Islands

44. *Sphaecelaria rigidula* Kütz.

(= *Sphaecelaria furcigera* Kütz.)

* Canary Islands: C, T, H

Africa: Ma

Cape Verde Islands

45. *Sphaecelaria tribuloides* Meneghini

* Canary Islands: C, T, H

Salvage Islands: Sg, Sp

Madeira Archipelago: M

Azores

Africa: Mo, S

Cape Verde Islands

46. *Styopodium zonale* (Lamour.) Papenf.

* Canary Islands: L, C, T, P, H

Cape Verde Islands

47. *Zonaria tournefortii* (Lamour.) Mont.

Canary Islands: L, F, C, T, G, P, H

Salvage Islands: Sg

Madeira Archipelago: M

Azores

Africa: Mo

Rhodophyta

48. *Acrosymphyton purpuriferum* (J. Ag.) Sjöst.

* Canary Islands: T, H

Madeira Archipelago: M, Dg

49. *Asparagopsis taxiformis* (Delile) Trevisan

Canary Islands: L, F, C, T, G, P, H

Salvage Islands: Sg, Sp

Madeira Archipelago: M, Dg

Azores

50. *Boergeseniella fruticulosa* (Wulf.) Kylin

Antheridia present

* Canary Islands: L, C, T, H

Azores

Africa: Mo

51. *Botryocladia botryoides* (Wulf.) J. Feldm.

* Canary Islands: C, T, G, H

Salvage Islands: Sg

Madeira Archipelago: M

Azores

Africa: Mo

52. *Ceramium ciliatum* (Ellis.) Ducluz.

Canary Islands: L, F, C, T, G, P, H

Salvage Islands: Sg, Sp, Fo

Madeira Archipelago: M, Ps

Azores

Africa: Mo

Cape Verde Islands

53. *Ceramium codii* (Richards) G. Mazoyer
 * Canary Islands: C, H
 Salvage Islands: Sp
 Africa: S
54. *Ceramium diaphanum* (Lightf.) Roth
 Epiphytic on *Cystoseira humilis* var. *humilis*
 Tetrasporangia present.
 Canary Islands: L, F, C, T, G, H
 Salvage Islands: Sg, Sp, Fo
 Madeira Archipelago: M, Dg
 Azores
 Africa: Mo, S
 Cape Verde Islands
55. *Ceramium echionotum* J. Ag.
 Epiphytic on *Gelidium pulchellum* var. *claviferum*
 Canary Islands: L, F, C, T, H
 Salvage Islands: Sg, Sp, Fo
 Madeira Archipelago: M, PS
 Azores
 Africa: Mo
56. *Choreonema thuretii* (Born.) Schmitz.
 Endophytic in *Jania capillacea*
 * Canary Islands: L, F, C, T, H
 Salvage Islands: Sg, Sp, Fo
 Madeira Archipelago: M, Dg, PS
 Africa: Mo, Ma

57. *Corallina officinalis* L.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp
 Madeira Archipelago: M, Dg, PS
 Azores
 Africa: Mo, WS, Ma, S
 Cape Verde Islands
58. *Dasya baillouviana* (Gmel.) Mont.
 Tetrasporangia present.
 Ramuli not placed in whorls of three (as shown in COPPEJANS, 1983: pl. 212.2) but randomly distributed.
 In transverse sections of the thallus, pericentral cells not very distinct. Stichidia terminating with a long acute sterile apex.
 * Canary Islands: L, C, H
 Madeira Archipelago: M
59. *Dasya comrymbifera* J. Ag.
 Tetrasporangia present.
 * Canary Islands: H (C?)
 Salvage Islands: Sp
 Madeira Archipelago: M
60. *Falkenbergia hillebrandii* (Born.) Falkenb.
 (= tetrasporangial phase of *Asparagopsis taxiformis* (Delile) Trevisian).
 Canary Islands: L, C, T, H
 Salvage Islands: Sp
 Azores

61. *Galaxaura flagelliformis* Kjellm.
 Tetrasporic phase of *G. squalida* Kjellm.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp
 Madeira Archipelago: M
62. *Galaxaura squalida* Kjellm.
 Sexual phase.
 * Canary Islands: L, F, C, T, H
 Cape Verde Islands
63. *Gelidiella tenuissima* (Thuret) Feldm. & Hamel
 Epilithic. Tetrasporangia present.
 ** Canary Islands: H
 Salvage Islands: Sp
 Madeira Archipelago: M
 Africa: Mo, Ma, S
 Cape Verde Islands
64. *Gelidiella* spec.
 Epilithic. Diameter filaments 400–500 μm . Cortical cells
 not placed in vertical rows, diameter 2.5–7.5 μm .
 Branches terete or a little compressed. Sterile.
 Canary Islands: H
65. *Gelidium pusillum* (Stackh.) Le Jol.
 Tetrasporangia present.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp
 Madeira Archipelago: M, Dg
 Azores
 Africa: Mo, WS, Ma, S

66. *Gigartina acicularis* (Roth) Lamour.

* Canary Islands: F, C, T, G, P, H

Salvage Islands: Sg, Sp

Madeira Archipelago: M

Azores

Africa: Mo, WS, Ma, S

67. *Goniotrichum alsidii* (Zanard.) Howe

* Canary Islands: F, C, T, H

Salvage Islands: Sg, Sp

Madeira Archipelago: M, Dg

Azores

Africa: Mo, Ma

68. *Griffithsia barbata* (Sm.) C. Ag.

* Canary Islands: C, T, H

Salvage Islands: Sp

69. *Griffithsia tenuis* C. Ag.

Epilithic. Tetrasporangia present.

* Canary Islands: F, C, T, H

Salvage Islands: Sg, Sp, Fo

Madeira Archipelago: M, PS

Africa: S

Cape Verde Islands

70. *Herposiphonia tenella* (C. Ag.) Ambr.

Salvage Islands: Sp, Fo

* Canary Islands: L, F, C, T, G, H

Madeira Archipelago: M, Dg

Africa: Mo, Ma, S

71. *Herposiphonia tenella* (C. Ag.) Ambr. var. *secunda* Hol-
lenberg
- * Canary Islands: L, F, C, T, G, H
 - Salvage Islands: Sg, Sp
 - Madeira Archipelago: M
 - Africa: Mo, S
72. *Heterosiphonia wurdemanni* (Bailey ex Harvey) Falkenb.
var. *typica* Börg.
- Epiphytic on *Cystoseira foeniculacea* and *Halopteris scoparia*
- * Canary Islands: L, F, C, H
 - Salvage Islands: Sg, Sp, Fo
 - Madeira Archipelago: M
 - Africa: Mo, Ma, S
73. *Hypnea cervicornis* J. Ag.
- Tetrasporangia present.
- Canary Islands: L, F, C, T, H
 - Salvage Islands: Sg, Sp
 - Madeira Archipelago: M, Dg, PS
 - Africa: Mo, WS, Ma, S
 - Cape Verde Islands
74. *Hypnea musciformis* (Wulf.) Lamour.
- Epiphytic on *Cystoseira abies-marina*
- Canary Islands: L, F, C, T, G, P, H
 - Salvage Islands: Sg, Sp
 - Madeira Archipelago: M, Dg, PS
 - Azores
 - Africa: Mo, WS, Ma, S
 - Cape Verde Islands

75. *Jania adhaerens* Lamour.
 Tetrasporic conceptacles present.
 Epiphytic on *Cystoseira compressa* and *Pocockiella variegata*.
- * Canary Islands: F, C, T, H
 Salvage Islands: Sp
 Africa: Ma, S
76. *Jania capillacea* Harv.
 Epiphytic on *Cystoseira compressa*, *Dictyota cervicornis*, *Dictyota dichotoma* and *Pocockiella variegata*.
- * Canary Islands: C, H
 Salvage Islands: Sp, Fo
 Cape Verde Islands
77. *Laurencia obtusa* (Huds.) Lamour.
 Tetrasporangia and cystocarps present.
 Canary Islands: L, C, T, G, P, H
 Salvage Islands: Sg, Sp, Fo
 Madeira Archipelago: M, Dg, PS
 Azores
 Africa: Mo, Ma, S
 Cape Verde Islands
78. *Laurencia paniculata* (C. Ag.) Kütz.
 Thallus of this specimen is conspicuously solid.
- ** Canary Islands: H
 Cape Verde Islands

79. *Laurencia perforata* (Bory.) Mont.
Epiphytic on *Corallina officinalis*.
Canary Islands: L, F, C, T, P, H
Salvage Islands: Sg
Madeira Archipelago: M
Cape Verde Islands
80. *Liagora tetrasporifera* Börg.
Identified by ISABELLA A. ABBOTT.
Tetrasporangia, antheridia and carpogonia present.
* Canary Islands: L, F, C, T, P, H
Salvage Islands: Sp
81. *Liagora valida* Harv.
Identified by ISABELLA A. ABBOTT.
Antheridia and carpogonia present.
** Canary Islands: H
Madeira Archipelago: M
Cape Verde Islands
82. *Liagora spec.*
Even ISABELLA A. ABBOTT did not recognize this species.
Carpogonial branches present.
Canary Islands: H
83. *Lophosiphonia reptabunda* (Suhr.) Kylin
18 pericentral cells.
* Canary Islands: C, T, G, H.
Salvage Islands: Sp
84. *Lophosiphonia cf. cristata* Falkenb.
As distinct from *L. cristata*, my specimens have no
hook-formed summits of the branchlets, and the rhizoids
do not remain in open connection with the pericentral

cells. The specimens are sterile, ecorticate and have 9 pericentral cells. The correct number of pericentral cells in *L. cristata* is uncertain. According to FALKENBERG (1901: 499) this number is 6-8, but on page 726 he asserts that all species of *Lophosiphonia* have 10-18 pericentral cells except for *L. macra* which has only 4. BÖRGESEN (1918: 297) mentioned 9-10 pericentral cells, now and then in the erect branchlets even more. Taylor (1960: 606) mentions (6-) 9-10 (-12) pericentral cells and COPPEJANS & BOUDOURESQUE (1976: 224) give just 9. CULLINANE (1970: 3) expressed his doubt about as to what extent sterile *Lophosiphonia* can be distinguished from depauperate *Polysiphonia*. Canary Islands: H.

85. *Nemastoma canariensis* (Kütz.) J. Ag.

* Canary Islands: F, C, T, H

86. *Platysiphonia miniata* (C. Ag.) Börg.

** Canary Islands: H.

Salvage Islands: Sp

Africa: Mo, Ma

87. *Polysiphonia macrocarpa* Harv. in Mackay

The specimen agree with the descriptions of KAPRAUN (1977: 317) and not with those of BÖRGESEN (1930: 82), which are according to KAPRAUN in fact those of *P. ureeolata* (Lightf.) Grev.

* Canary Islands: F, C, T, G, H

Salvage Islands: Sg, Sp, Fo

Madeira Archipelago: M

Africa: Mo, WS, Ma.

88. *Polysiphonia subulata* (Ducluz.) J. Ag.
 (= *P. violacea* (Roth.) Grev., according to BATTEN, 1923)
 Canary Islands: L, C, T, H
 Madeira Archipelago: M
 Africa: Mo.
89. *Spyridia filamentosa* (Wulf.) Harv. Cystocarps in Hook
 Cystocarps and tetrasporangia present.
 Canary Islands: L, F, C, T, G, P, H
 Salvage Islands: Sg, Sp, Fo
 Madeira Archipelago: M, PS
 Africa: Mo, S
90. *Trichogloeopsis pedicellata* (Howe) Abbott & Doty
 New genus for Macaronesia.
 Identified by ISABELLA A. ABBOTT.
 Carpogonial and cystocarpic.
 ** Canary Islands: H
91. *Wrangelia argus* (Mont.) Mont.
 Tetrasporangia present.
 * Canary Islands: T, C, H
 Madeira Archipelago: M
 Cape Verde Islands
92. *Wurdemannia setacea* Harv.
 * Canary Islands: C, T, G, H
 Salvage Islands: Sp, Fo
 Madeira Archipelago: M
 Cape Verde Islands

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