

**MARINE ALGAE OF ILHA DO PORTO SANTO AND DESERTA GRANDE  
(MADEIRA ARCHIPELAGO)**

**(CANCAP project Contribution No. 40)**

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With 4 figures

*SUMMARY.* An annotated list of 193 species of marine algae, collected from Porto Santo and Deserta Grande, is given: 5 Cyanophyta, 34 Chlorophyta, 34 Phaeophyta and 120 Rhodophyta. Of these 41 are new records to the Madeira Archipelago, of which 11 are new records to Macaronesia. Nine have been listed as «problematic taxa».

*SUMÁRIO.* Uma lista anotada de 193 espécies de algas marinhas colhidas no Porto Santo e na Deserta Grande é dada: 5 Cyanophyta, 34 Chlorophyta, 34 Phaeophyta e 120 Rhodophyta. Destas, 41 são novas para o Arquipélago da Madeira, das quais 11 são novas para a Macaronésia. Nove foram referidas sob o título «Problematic Taxa».

INTRODUCTION

The marine benthic algae dealt with in this paper have been collected at Ilha do Porto Santo and Deserta Grande (see fig. 1) during the expeditions CANCAP III (1978) and CANCAP IV (1980). The CANCAP project is a long-term programme of biogeographically oriented marine research in the south-eastern part of the North Atlantic Ocean. For the CANCAP research area see fig. 2.

In biogeography the Atlantic islands in this area are often called «Macaronesia». For more details about the CANCAP project we refer to the papers of Weisscher (1982 and 1983).

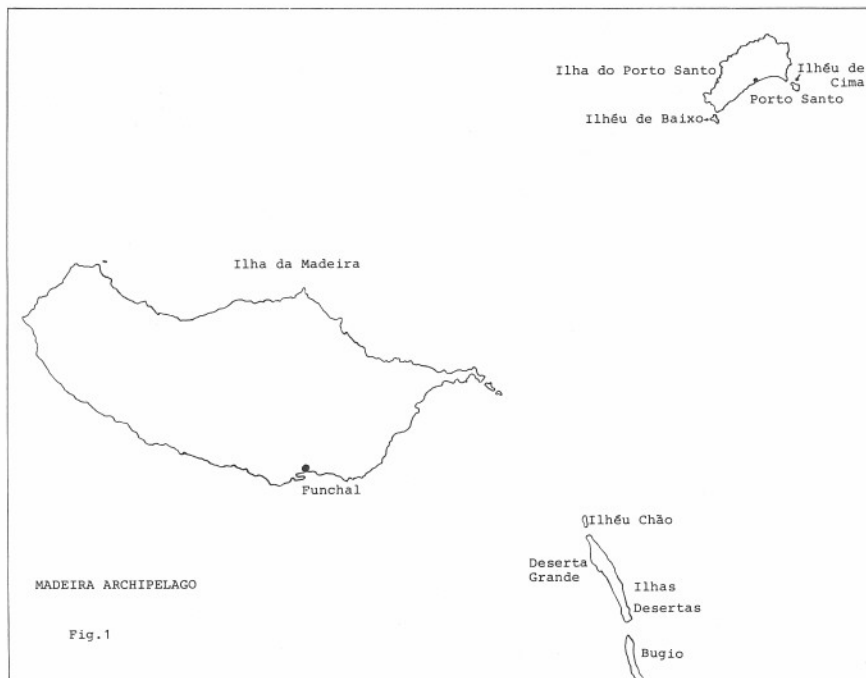
Porto Santo and Desertas form part of the Archipelago of Madeira, which consists of five islands: Madeira, Porto Santo, and the three

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Deserta Islands (Ilhéu Chão, Deserta Grande, Bugio). The Salvage Islands (Selvagem Grande, Selvagem Pequena, Ilhéu de Fora) are administered as part of the Madeira Archipelago but form a separate archipelago.

Levring (1974) published a list of marine algae of the Archipelago of Madeira (including the Salvages), based on his own investigations as well as on literature. He mentioned 81 algal species for Porto Santo and Deserta Grande (17 Chlorophyta, 17 Phaeophyta and 47 Rhodophyta, including 4 species of encrusting calcareous red algae).



In this paper, 193 algal species (5 Cyanophyta, 34 Chlorophyta, 34 Phaeophyta and 120 Rhodophyta) are recorded from Porto Santo and Deserta Grande. Of these, 157 species (5 Cyanophyta, 25 Chlorophyta, 30 Phaeophyta and 97 Rhodophyta) have been collected by us.

#### ACKNOWLEDGEMENTS

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## METHODS

The marine benthic algae have been collected in Porto Santo and Deserta Grande from the following stations( see also fig. 3 and 4) :

**Porto Santo****CANCAP III**

sta. 1, depth 109 m, sand-shells, van Veen grab,	14 Oct. 1978
sta. 2, depth 42 m, fine sand, van Veen grab,	14 Oct. 1978
sta. 4, depth 20 m, fine sand, van Veen grab,	14 Oct. 1978
sta. 7, depth 135-162 m, sand, van Veen grab,	14 Oct. 1978
sta. 8, depth 90 m, sand, van Veen grab,	14 Oct. 1978

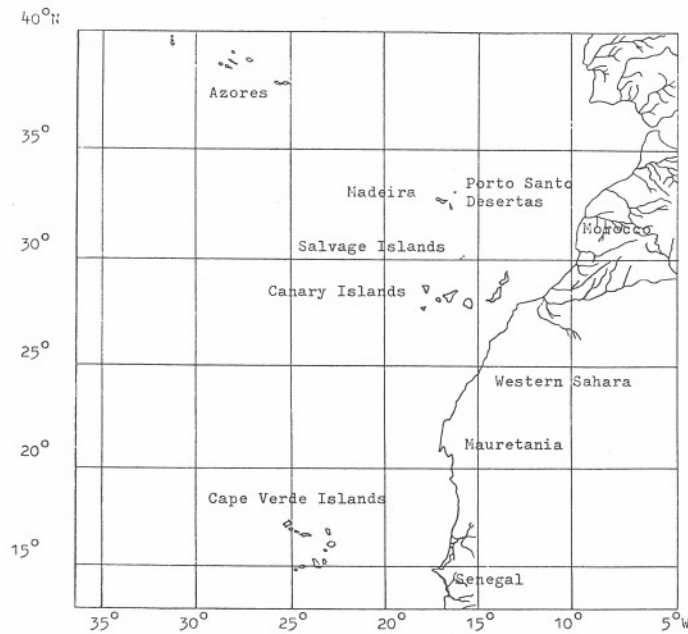
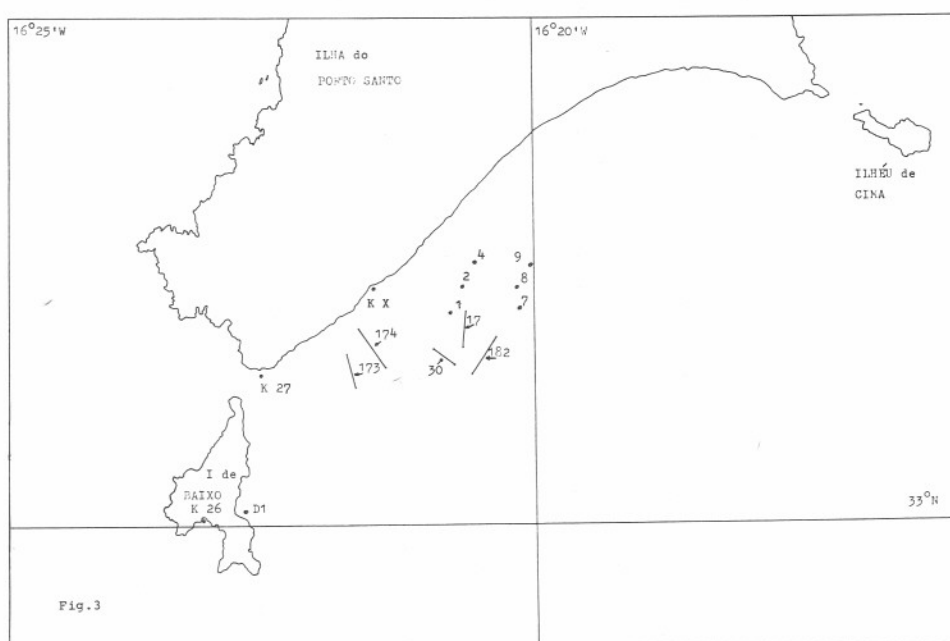


Fig. 2. – Macaronesia (the islands) and north-western Africa.

sta. 9, depth 56 m, sand, van Veen grab,	14 Oct. 1978
sta. 17, depth 50-110 m, sand and stony bottom, triangular dredge,	15 Oct. 1978
sta. 30, depth 65-135 m, triangular dredge,	16 Oct. 1978
sta. D1, Ilhéu de Baixo depth 8-12 m, rocky coast, SCUBA diving,	15 Oct. 1978
sta. KX, depth 1-2 m, sandy beach, free diving,	16 Oct. 1978

## CANCAP IV

sta. 173, depth 25-40 m, rocks and shells, triangular dredge,	9 June 1980
sta. 174, depth 25-50 m, coarse sand, 1.2 m Agassiz trawl,	9 June 1980
sta. 182, depth 40-70 m, triangular dredge,	10 June 1980
sta. K26, Ilhéu de Baixo, depth 0-5 m, rocky coast, tide pools, shallow bay, free diving,	9 June 1980
sta. K27, depth 1-5 m, sandy beach, free diving,	9 June 1980

**Deserta Grande**

## CANCAP III

sta. D4, depth 0-4 m, SCUBA diving and free diving,

18 and 19  
Oct. 1978

Most samples have been preserved by drying; some have been preserved in a 4% formaldehyde solution in seawater.

*The names of the species are according to the following authors :*

Cyanophyta : Frémy, 1934 and Geitler, 1930-1932 (classical taxonomy),  
Drouet, 1968 and 1973  
Drouet and Daily, 1956

Chlorophyta : Lawson and Price, 1969

Phaeophyta : Price, John and Lawson, 1978

Rhodophyta :

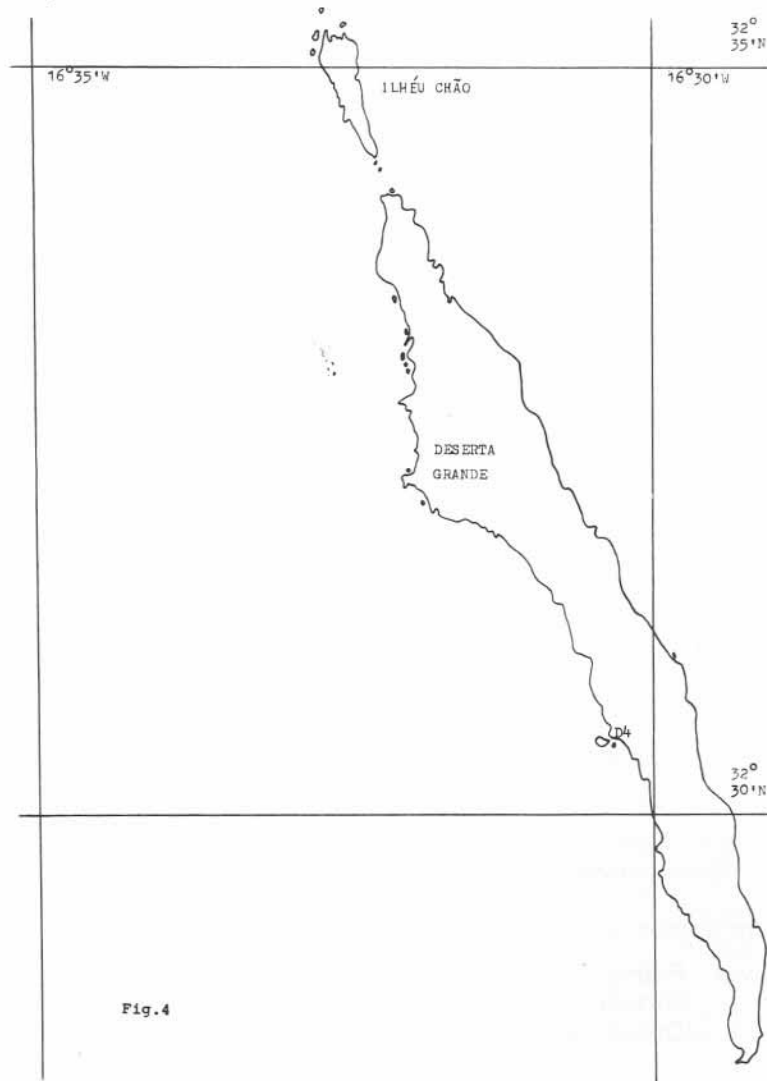
Bangiophyceae : John, Price, Maggs and Lawson, 1979

Ceramiaceae : Feldmann-Mazoyer, 1940

Others : Børgesen, 1927-1930 and Taylor, 1960

Inarticulate corallinaceae have usually not been studied in detail.

Occasionally Parke and Dixon. 1976 is used to check the correct naming.



*Arrangement of the list of species*

The species in the annotated list are given in alphabetic order within the divisions Cyanophyta, Chlorophyta, Phaeophyta and Rhodophyta. Incrusting calcareous algae are not incorporated. Epiphytic and endophytic position of algae, as well as presence and month of occurrence of fructifications and sexual organs are given when relevant.

New records for the Madeira Archipelago have been marked with an asterisk (\*), new records for Macaronesia with two asterisks (\*\*).

Dg or PS are *underlined* in case the alga was found on that island by Levring (1974) but not by us. The symbols (Dg) and (PS) are used in case it was found there both by Levring and by us.

The station number is indicated only in case specimens have been collected by means of a Van Veen grab, a triangular dredge or an Agassiz trawl from 20-162 metres depth. When the station number is followed by a.o. (meaning among others) the alga has also been collected in tide pools or by diving (0-12 m).

*Explanation of the abbreviations of the geographic data, used in the list of species :*

**Madeira Archipelago**

M = Madeira  
Dg = Deserta Grande  
PS = Ilha do Porto Santo

**Salvage Islands**

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

**Canary Islands**

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

**Africa**

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

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

## ANNOTATED LIST OF SPECIES

See also the section on problematic taxa.

## C y a n o p h y t a

1. **Anabaena variabilis** Kütz. ex Born. et Flah.  
Madeira Archipelago : PS  
Salvage Islands : Sg  
Canary Islands : L
2. **Calothrix crustacea** Thur. ex Born. et Flah.  
This Drouetian species includes the following taxa according to Frémy (1934) and Geitler (1930-1932) : *Calothrix aeruginea* (Kütz.) Thuret (found in PS), *C. confervicola* (Roth) J. Ag. (found in Dg and PS), *C. crustacea* Thuret (found in Dg and PS) and *Rivularia mesenterica* Thuret (found in Dg).  
Madeira Archipelago : M, Dg, PS  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, WS, Ma
3. **Entophysalis conferta** (Kütz.) Dr. et D.  
According to Drouet and Daily (1956) this species includes *Dermodocarpa biscayensis* Sauv., found in Dg.  
Epiphytic on *Halopteris scoparia* and *Pterocladia capillacea*  
Madeira Archipelago : Dg  
Salvage Islands : Sp  
Canary Islands : C, T  
Africa : Ma, S
4. **Microcoleus lyngbyaceus** (Kütz.) Crouan ex Gom.  
This Drouetian species includes the following taxa according to Frémy (1934) and Geitler (1930-1932) :  
*Lyngbya aestuari* (Mert.) Lyngb. (found in Dg),  
*L. confervoides* C. Ag. (found in Dg),  
*L. maiuscula* (Dillw.) Harv. (found in PS, sta. 173 a.o.)  
*L. semiplena* J. Ag. (found in Dg), and *Oscillatoria limosa* C. Ag. ex Gom. (found in PS).  
Madeira Archipelago : Dg, PS  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, H  
Cape Verde Islands  
Africa : Mo, WS, Ma, S
5. **Oscillatoria lutea** C. Ag. ex Gom.  
According to Drouet (1968) this species includes *Lyngbya lutea* Gom.,

found in Dg and PS.  
 Madeira Archipelago : Dg, PS  
 Salvage Islands : Sg  
 Canary Islands : C, T

### C h l o r o p h y t a

6. **Blastophysa rhizopus** Reinke  
 Madeira Archipelago : M, Dg
7. **Blidingia minima** (Näg. ex Kütz.) Kylin  
 Madeira Archipelago : M, PS  
 Canary Islands : L, C, T  
 Africa : Mo, S
8. **Bryopsis plumosa** (Huds.) C. Ag.  
 Madeira Archipelago : Dg, PS  
 Azores  
 Salvage Islands : Sp  
 Canary Islands : C, T, G  
 Africa : Mo, Ma, S
9. **Caulerpa racemosa** (Forsk.) J. Ag. var. **peltata** (Lamour) Eubank  
 Madeira Archipelago : Dg  
 Salvage Islands : Sg  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : S
10. **Caulerpa webbiana** Mont.  
 Madeira Archipelago : M, (PS)  
 Salvage Islands : Sg, Sp  
 Canary Islands : L, F, C, T, G, P, H
11. **Chaetomorpha linum** (O. F. Müll.) Kütz.  
 Madeira Archipelago : M, Dg, Ps (sta. 7 a.o.)  
 Azores  
 Salvage Islands : Sg, Sp  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo, WS, Ma, S
12. **Cladophora liebetruthii** Grun.  
 Madeira Archipelago : M, Dg, PS  
 Salvage Islands : Sg  
 Canary Islands : L, F, C, T, H
13. **Cladophora pellucida** (Huds.) Kütz.  
 Madeira Archipelago : M, Dg, Ps (sta. 174)  
 Salvage Islands : Sg, Sp  
 Canary Islands : L, F, C, T, G, P  
 Cape Verde Islands  
 Africa : Mo



14. **Cladophora prolifera** (Roth) Kütz.  
Madeira Archipelago : M, PS (sta. 173)  
Azores  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, Ma, S
15. **Cladophora repens** (J. Ag.) Harv.  
Madeira Archipelago : M, Dg  
Salvage Islands : Sg, Sp
16. **Codium adhaerens** (Cabr.) C. Ag.  
Madeira Archipelago : M, Dg, (PS)  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo
17. **Codium decorticatum** (Woodw.) Howe  
Madeira Archipelago : M, Dg, PS  
Azores  
Canary Islands : L, F, C, T, G  
Cape Verde Islands  
Africa : Mo, WS, Ma, S
- \*18. **Codium elisabethiae** O. C. Schmidt  
Identified by P. C. Silva  
Madeira Archipelago : PS  
Azores
19. **Codium tomentosum** (Huds.) Stackh.  
Madeira Archipelago : M, PS  
Azores  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, G, P  
Cape Verde Islands  
Africa : Mo, Ma
20. **Dasycladus vermicularis** (Scopoli) Krasser  
Madeira Archipelago : M, (Dg) (PS) (sta. 4, 173 a.o.)  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P, H
21. **Derbesia lamourouxii** (J. Ag.) Sol.  
Madeira Archipelago : M, Dg  
Africa : Mo
22. **Derbesia tenuissima** (De Not.) Crouan  
Madeira Archipelago : Dg

- Salvage Islands : Sp  
 Canary Islands : C, T  
 Africa : Mo, S  
 Cape Verde Islands
23. **Enteromorpha clathrata** (Roth) Grev.  
 Madeira Archipelago : M, Dg  
 Salvage Islands : Sg, Sp  
 Canary Islands : L, F, C, T, G, H  
 Cape Verde Islands  
 Africa : Mo, Ma
24. **Enteromorpha compressa** (L.) Grev.  
 Madeira Archipelago : M, (Dg) PS  
 Azores  
 Salvage Islands : Sg, Sp  
 Canary Islands : L, Gr, F, C, T, G, P, H  
 Cape Verde Islands  
 Africa : Mo, WS
25. **Enteromorpha flexuosa** (Wulfen ex Roth) J. Ag. subsp. **paradoxa**  
 (Dillw.) Bliding  
 Madeira Archipelago : M, Dg  
 Salvage Islands : Sg, Sp  
 Canary Islands : C, T
- \*26. **Enteromorpha intestinalis** (L.) Link  
 Madeira Archipelago : PS  
 Azores  
 Salvage Islands : Sg  
 Canary Islands : L, F, C, T, G, P, H  
 Cape Verde Islands  
 Africa : Mo
27. **Enteromorpha prolifera** (Müll.) J. Ag.  
 Madeira Archipelago : M, Dg  
 Azores  
 Canary Islands : T, G  
 Africa : Ma
28. **Microdictyon boergesenii** Setchell  
 Madeira Archipelago : M, PS (sta. 9, 17, 173)  
 Salvage Islands : Sg  
 Canary Islands : L, C, T, H
- \*\*29. **Penicillus capitatus** Lamarck var. **mediterraneus** (Thur.) Huve  
 Madeira Archipelago : PS (sta. 17.)
30. **Phaeophila dendroides** (Crouan) Batt.  
 Endophytic in *Hypnea cervicornis*

- Madeira Archipelago : M, Dg, PS  
 Salvage Islands : Sg, Sp  
 Canary Islands : C, T
31. **Phaeophila viridis** (Reinke) Burrows  
 Endophytic in *Laurencia obtusa*  
 Madeira Archipelago : M, PS  
 Azores  
 Salvage Islands : Sg, Sp  
 Canary Islands : C, T  
 Africa : Mo
- \*\*32. **Polyphya parvula** (Solms.) Schnetter & Bula Meyer  
 Madeira Archipelago : Dg
- \*\*33. **Pringsheimiella scutata** (Reinke) Marchew.  
 Epiphytic on *Laurencia obtusa*  
 Madeira Archipelago : PS  
 Africa : Mo, S
34. **Struvea anastomosans** (Harv.) Piccone  
 Madeira Archipelago : M, PS (sta. 17)  
 Azores  
 Canary Islands : L  
 Cape Verde Islands  
 Africa : S
35. **Ulva lactuca** L.  
 Madeira Archipelago : M, Dg, PS  
 Azores  
 Salvage Islands : Sg  
 Canary Islands : L, C, T, G, P, H  
 Cape Verde Islands  
 Africa : Mo, WS, Ma, S
36. **Urospora laeta** (Thur.) Børg.  
 Madeira Archipelago : Dg  
 Salvage Islands : Sg  
 Canary Islands : C, T  
 Africa : Mo
37. **Valonia utricularis** (Roth) C. Ag.  
 Madeira Archipelago : M, Dg, (PS)  
 Azores  
 Salvage Islands : Sg, Sp  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo

#### P h a e o p h y t a

38. **Arthrocladia villosa** (Hudson) Duby  
 Madeira Archipelago : M, PS (sta. 17, 173, 174, 182.)

39. **Cladostephus spongiosus** (Huds.) C. Ag. forma **spongiosus**  
Madeira Archipelago : M, PS  
Azores  
Canary Islands : L, F, C, T
40. **Cladostephus spongiosus** (Huds.) C. Ag. forma **verticillatus** (Lightf.)  
P. v. R.  
Madeira Archipelago : M (PS)  
Azores  
Salvage Islands : Sg  
Canary Islands : L, F, C, T  
Africa : Mo
41. **Colpomenia sinuosa** (Roth) Derb. & Sol.  
Madeira Archipelago : M, Dg, (PS)  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, Ma, S
42. **Cystoseira abies-marina** (Gmel.) C. Ag.  
Madeira Archipelago : M, PS  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, S
43. **Cystoseira compressa** (Esp.) Gerl. & Nizam.  
Madeira Archipelago : M, PS  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo
44. **Cystoseira foeniculacea** (L.) Grev.  
Madeira Archipelago : M, (PS)  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, Gr, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, Ma
45. **Cystoseira humilis** Kütz. var. **humilis**  
Receptacles present in June and October  
Madeira Archipelago : M (DG) (PS)  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo

46. **Dictyopteris membranacea** (Stackh.) Batt.  
Madeira Archipelago : M, (PS) (sta. 17 a.o.)  
Azores  
Salvage Islands : Sg  
Canary Islands : L, C, T, G, P, H  
Africa : Mo, WS
- \*47. **Dictyota bartayresii** Lamour.  
Madeira Archipelago : Dg, PS  
Salvage Islands : Sg  
Canary Islands : C, H  
Cape Verde Islands  
Africa : Ma
- \*48. **Dictyota cervicornis** Kütz.  
Madeira Archipelago : PS  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : C, H
- \*49. **Dictyota ciliolata** Sonder ex Kütz.  
Madeira Archipelago : PS  
Salvage Islands : Sg  
Canary Islands : H  
Africa : Ma, S
50. **Dictyota dichotoma** (Huds.) Lamour.  
Madeira Archipelago : M, PS (sta. 9, 30.)  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Africa : Ma, S
- \*51. **Dictyota divaricata** Lamour.  
Madeira Archipelago : Dg, PS  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, H  
Cape Verde Islands  
Africa : S
52. **Dictyota linearis** (C. Ag.) Grev.  
Madeira Archipelago : M, Dg (PS) (st. 17, 173 a.o.)  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, H  
Africa : Mo
- \*53. **Dictyota volubilis** Kütz. sensu Vickers  
Madeira Archipelago : PS (sta. 174)  
Salvage Islands : Sg  
Canary Islands : H

54. **Dilophus fasciola** (Roth) Howe  
Madeira Archipelago : M, *Dg* (PS) (sta. 173 a.o.)  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, Gr, F, C  
Cape Verde Islands  
Africa : Mo
- \*55. **Dilophus spiralis** (Mont.) Hamel  
Madeira Archipelago : *Dg*  
Canary Islands : F, C, T  
Africa : Mo
- \*56. **Discosporangium mesarthrocarpum** (Menegh.) Hauck  
Madeira Archipelago : PS
57. **Halopteris filicina** (Grat.) Kütz.  
Madeira Archipelago : M, *Dg*, PS (sta. 17 a.o.)  
Azores  
Salvage Islands : Sg, Fo  
Canary Islands : F, C, T  
Africa : Mo
58. **Halopteris scoparia** (L.) Sauv.  
Madeira Archipelago : M, (*Dg*), (PS) (sta. 4, 173, 174 a.o.)  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo
59. **Liebmannia levillei** J. Ag.  
Madeira Archipelago : M, *Dg*  
Azores
60. **Myrionema strangulans** Grev.  
Madeira Archipelago : M, *Dg*  
Azores  
Canary Islands : C, T
- \*61. **Nemacystus erythraeus** (J. Ag.) Sauv.  
Madeira Archipelago : PS (sta. 173, 174 a.o.)  
Salvage Islands : Sg  
Canary Islands : T
62. **Padina pavonica** (L.) Lamour.  
Madeira Archipelago : M, (*Dg*), (PS) (sta. 173 a.o.)  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, Ma, S

63. **Pocockiella variegata** (Lamour.) Papenf.  
Madeira Archipelago : M, Dg, (PS)  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : WS, Ma, S
64. **Sargassum vulgare** C. Ag.  
Madeira Archipelago : M, Dg, PS  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, WS, Ma, S
65. **Sphacelaria cirrosa** (Roth) C. Ag.  
Found parasitical on *Cystoseira abies-marina* and on other algae,  
also epilithic.  
Madeira Archipelago : M, Dg, PS  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo
66. **Sphacelaria nana** Näg. ex Kütz.  
(= *Sphacelaria britannica* Sauvag.)  
Madeira Archipelago : M, PS
- \*67: **Sphacelaria rigidula** Kütz.  
(= *Sphacelaria furcigera* Kütz.)  
Madeira Archipelago : PS  
Canary Islands : C, T, H  
Africa : Ma  
Cape Verde Islands
68. **Sporochnus bolleanus** Mont.  
Madeira Archipelago : M, Dg, PS (sta. 17, 173)  
Canary Islands : L
- \*69. **Styopodium zonale** (Lamour.) Papenf.  
Madeira Archipelago : PS (sta. 17 a.o.)  
Salvage Islands : Sg  
Canary Islands : L, C, T, P, H  
Cape Verde Islands
70. **Zonaria tournefortii** (Lamour.) Montagne  
Madeira Archipelago : M, PS  
Azores

Salvage Islands : Sg  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo

### R h o d o p h y t a

- \*\*71. **Acrochaetium liagorae**  
 Identified by Isabella A. Abbott.  
 Madeira Archipelago : PS
- \*72. **Acrosorium reptans** (Crouan) Kylin  
 Madeira Archipelago : Dg  
 Canary Islands : F
73. **Acrosymphyton purpuriferum** (J. Ag.) Sjöstedt  
 Madeira Archipelago : M, Dg  
 Canary Islands : T, H
74. **Alsidium corallinum** C. Ag.  
 Madeira Archipelago : M, PS  
 Canary Islands : L, C
75. **Antithamnion cruciatum** (C. Ag.) Näg.  
 Epiphytic on *Halopteris filicina*  
 Madeira Archipelago : M, Dg, PS (sta. 173 a.o.)  
 Salvage Islands : Sg  
 Canary Islands : C, T, P  
 Cape Verde Islands  
 Africa : Mo, S
76. **Apoglossum ruscifolium** (Turner) J. Ag.  
 Tetrasporangia present in October.  
 Madeira Archipelago : M, Dg  
 Africa : Mo, S
77. **Asparagopsis armata** Harv.  
 Madeira Archipelago : M, Dg, PS  
 Azores  
 Salvage Islands : Sg  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo
78. **Asparagopsis taxiformis** (Delile) Trevisan  
 Madeira Archipelago : M, (Dg), PS  
 Azores  
 Salvage Islands : Sg, Sp  
 Canary Islands : L, F, C, T, G, P, H
- \*79. **Boergeseniella fruticulosa** (Wulf.) Kylin  
 Madeira Archipelago : Dg  
 Azores



Canary Islands : L, C, T, H  
Africa : Mo

80. **Botryocladia chiajeana** (Menegh.) Kylin.  
Madeira Archipelago : M, Dg, PS (sta. 174 a.o.)  
Canary Islands : C, T, P  
Africa : Mo

- \*\*81. **Botryocladia guineensis** John  
Small vesicles, 2-5 mm in length.  
Madeira Archipelago : PS

82. **Botryocladia microphysa** (Hauck) Kylin  
Madeira Archipelago : M, PS (sta. 17.)

83. **Callithamnion byssoides** Arnott.  
Madeira Archipelago : M, Dg  
Canary Islands : C  
Africa : Mo

84. **Callithamnion corymbosum** (Smith) Lyngb.  
Tetrasporangia and cystocarps present in June.  
Epiphytic on *Dictyota cervicornis* and *Hypnea cervicornis*.  
Madeira Archipelago : M, Dg, PS (sta. 17, 173, 174, a.o.)  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : C, T

85. **Catenella caespitosa** (Withering) L. Irvine  
Madeira Archipelago : M, (Dg)  
Azores  
Canary Islands : T  
Africa : Mo

86. **Centroceras clavulatum** (C. Ag.) Mont.  
Epiphytic on *Halopteris scoparia*.  
Madeira Archipelago : M, Dg, PS (sta. 174 a.o.)  
Azores  
Salvage Islands : Sg, Fo  
Canary Islands : L, F, C, T, G  
Cape Verde Islands  
Africa : Mo, Ma, S

87. **Ceramium ciliatum** (Ellis) Ducluz.  
Tetrasporangia present in June.  
Madeira Archipelago : M, (PS)  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo

88. **Ceramium diaphanum** (Lightf.) Roth  
Epiphytic on many algae.  
Tetrasporangia present in October.  
Madeira Archipelago : M, (Dg) PS (sta. 173 a.o.)  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, H  
Cape Verde Islands  
Africa : Mo, S
89. **Ceramium echionotum** J. Ag.  
Epiphytic on *Dasycladus vermicularis* and *Boergesenella fruticulosa*.  
Madeira Archipelago : M, Dg, (PS)  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, H  
Africa : Mo
90. **Ceramium gracillimum** (Kütz.) Griff. et Harv.  
Epiphytic on *Dictyota bartayresii*, *D. cervicornis* and *D. divaricata*.  
Madeira Archipelago : M, Dg, PS (sta. 174 a.o.)  
Salvage Islands : Sg, Sp  
Canary Islands : L, C, T  
Africa : Mo, WS, Ma, S
91. **Ceramium strictum** Harv.  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : C  
Africa : Ma, S
92. **Champia parvula** (C. Ag.) Harv.  
Madeira Archipelago : M, (Dg), PS  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P  
Cape Verde Islands  
Africa : Mo, WS, Ma
93. **Chondria dasyphylla** (Woodw.) C. Ag.  
Madeira Archipelago : M, PS  
Canary Islands : L, C  
Africa : Mo
94. **Chondria tenuissima** (Good. & Woodw.) C. Ag.  
Tetrasporangia present in June.  
Madeira Archipelago : M, Dg, PS (sta. 17, 173, 174 a.o.)  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, C, T  
Africa : Mo, WS

95. **Choreonema thuretii** (Bornet) Schmitz.  
Madeira Archipelago : M, Dg, PS  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, H  
Africa : Mo, Ma
96. **Chrysomenia bullosa** Levr.  
Madeira Archipelago : M, PS
- \*97. **Chylocladia verticillata** (Lightf.) Bliding  
Madeira Archipelago : PS (sta. 173, 174.)  
Canary Islands : F, C
- \*98. **Corallina elongata** Ellis & Sol.  
Madeira Archipelago : Dg  
Canary Islands : L, F, C, T, G, P, H
99. **Corallina granifera** Ellis & Sol.  
Madeira Archipelago : M, PS  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G  
Africa : Mo
100. **Corallina officinalis** L.  
Madeira Archipelago : M, (Dg), (PS)  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, WS, Ma, S
101. **Corynospora furcellata** (J. Ag.) Levr.  
Madeira Archipelago : M, Dg  
Canary Islands : C
102. **Corynospora pedicellata** (Smith) J. Ag.  
Madeira Archipelago : M, Dg  
Salvage Islands : Sp  
Canary Islands : F, C  
Africa : Mo
103. **Cottoniella arcuata** (Børg.) G. Schott. var. **fusiformis**  
(Børg.) G. Schott.  
Epiphytic on *Halopteris scoparia* and *Dictyota linearis*.  
Madeira Archipelago : M, Dg, PS (sta. 17, 173, 174 a.o.)  
Salvage Islands : Sg, Sp  
Canary Islands : F, C, T, G, P, H
104. **Crouania attenuata** (C. Ag.) J. Ag.  
Epiphytic on *Halopteris filicina* and *H. scoparia*

Tetrasporangia present in October.  
Madeira Archipelago : M, Dg, PS  
Salvage Islands : Sg, Sp  
Canary Islands : F, C, T, G  
Africa : Mo

105. **Cryptopleura ramosa** (Huds.) Kylin  
Madeira Archipelago : M, Dg  
Azores  
Africa : Mo
- \*106. **Ctenosiphonia hypnoides** (Welw.) Falkenb.  
Madeira Archipelago : Dg  
Canary Islands : C, T  
Africa : Mo
107. **Dasya baillouviana** (Gmel.) Mont.  
Epiphytic on *Dictyota bartayresii*  
Stichidia present in June.  
Madeira Archipelago : M, PS (sta. 173, 174 a.o.)  
Salvage Islands : Sg  
Canary Islands : L, C, H (?)
108. **Dasya corymbifera** J. Ag.  
Madeira Archipelago : M, PS (sta. 173)  
Salvage Islands : Sp  
Canary Islands : C (?), H
109. **Dasya hutchinsiae** Harv. in Hook.  
Madeira Archipelago : M, PS (sta. 173)  
Salvage Islands : Sg  
Canary Islands : L, C, T, H  
Africa : Mo
110. **Dasya ocellata** (Grat.) Harv. in Hook.  
Stichidia present in October.  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, F, C  
Africa : Mo
111. **Dasya rigidula** (Kütz.) Ardiss.  
Tetrasporangia present in June.  
Epiphytic on *Dasycladus vermicularis*  
Madeira Archipelago : M, PS (sta. 173, 174 a.o.)  
Salvage Islands : Sg, Sp
112. **Dipterosiphonia dendritica** (C. Ag.) Falkenb.  
Epiphytic on *Jania rubens* and *Laurencia obtusa*.  
Madeira Archipelago : M, (PS)

- Salvage Islands : Sg, Fo  
Canary Islands : L, F, C, T, G, P
- \*113. **Dipterosiphonia rigens** (C. Ag.) Falkenb.  
Epiphytic on *Laurencia obtusa*.  
Madeira Archipelago : PS  
Canary Islands : L, F, C, P  
Africa : Mo
114. **Dudresnaya verticillata** (With.) Le Jol.  
Cystocarps and antheridia present in June.  
Madeira Archipelago : M, PS (sta. 173 a.o.)  
Salvage Islands : Sg  
Canary Islands : T, H
- \*115. **Erythrocytis montagnei** (Derb. & Sol.) Silva  
Epiphytic on *Laurencia obtusa*  
Madeira Archipelago : PS  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P
- \*116. **Falkenbergia hillebrandii** (Born.) Falkenb.  
Madeira Archipelago : Dg, PS  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, C, T, H
117. **Fosliella farinosa** (Lamour.) Howe  
Madeira Archipelago : M, PS  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, H  
Africa : Mo, Ma
- \*118. **Gelidiopsis intricata** (C. Ag.) Vickers  
Madeira Archipelago : Dg  
Salvage Islands : Sg  
Canary Islands : C, T, G  
Cape Verde Islands
119. **Gelidium pusillum** (Stackh.) Le Jol.  
Madeira Archipelago : M, Dg  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, WS, Ma, S
120. **Gigartina acicularis** (Roth) Lamour  
Madeira Archipelago : M, Dg, PS  
Azores  
Salvage Islands : Sg, Sp

- Canary Islands : F, C, T, G, P, H  
Africa : Mo, WS, Ma, S
121. **Goniotrichum alsidii** (Zanard.) Howe  
Madeira Archipelago : M, (Dg), PS (sta. 173 a.o.)  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : F, C, T, H  
Africa : Mo, Ma
122. **Gracilaria verrucosa** (Huds.) Papenf.  
Cystocarp present in June.  
Madeira Archipelago : M, Dg, PS (sta. 7, 9, 173, 174.)  
Canary Islands : C  
Africa : Mo, WS, Ma, S
- \*123. **Griffithsia barbata** (Smith) C. Ag.  
Madeira Archipelago : PS  
Salvage Islands : Sg, Sp  
Canary Islands : C, T, H
124. **Griffithsia schousboei** Mont.  
Madeira Archipelago : M, PS  
Canary Islands : C, T  
Africa : Mo
125. **Griffithsia tenuis** C. Ag.  
Madeira Archipelago : M, Dg, (PS) (sta. 173 a.o.)  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : F, C, T, H  
Cape Verde Islands  
Africa : S
126. **Gymnogongrus griffithsiae** (Turn.) Mart.  
Madeira Archipelago : M, Dg  
Salvage Islands : Sg  
Canary Islands : C, T  
Africa : Mo, Ma
- \*127. **Halarachnion ligulatum** (Woodw.) Kütz.  
Madeira Archipelago : PS (sta. 17)  
Canary Islands : L
- \*\*128. **Haliptilon virgatum** (Zan.) Garb. & Joh.  
Madeira Archipelago : Dg
- \*129. **Halodictyon mirabile** Zanard.  
Madeira Archipelago : PS (sta. 17 a.o.)  
Salvage Islands : Sp  
Canary Islands : F, C  
Africa : Mo (?)

130. **Halopitys incurvus** (Huds.) Batt.  
Madeira Archipelago : M, (PS) (sta. 173)  
Canary Islands : F, C, T  
Africa : Mo, Ma
- \*\*131. **Halymenia hancockii** Taylor  
The specimen examined agrees very well with the descriptions and figures given by Taylor (1942 : 98-99, 175).  
The cystocarpic plant was found in June.  
Madeira Archipelago : PS (sta. 182)  
Africa : S
- \*\*132. **Haraldia lenormandii** (Derb. & Sol.) Feldm.  
Madeira Archipelago : Dg, PS
133. **Herposiphonia tenella** (C. Ag.) Ambr.  
Found epiphytic on *Dictyota divaricata* and on other algae.  
Madeira Archipelago : M, Dg, PS  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, H  
Africa : Mo, Ma, S
134. **Herposiphonia tenella** (C. Ag.) Ambr. var. **secunda** Hollenb.  
Found epiphytic on *Dasycladus vermicularis*, on *Dictyota divaricata* and on other algae.  
Madeira Archipelago : M, Dg, PS (sta. 173 a.o.)  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, H  
Africa : Mo, S
135. **Heterosiphonia wurdemanni** (Bail. ex Harv.) Falkenb. var. **typica** Børg.  
Epiphytic on *Dictyota bartayresii* and *Halopteris scoparia*.  
Tetrasporangia present in October.  
Madeira Archipelago : M, Dg, PS (sta. 174 a.o.)  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, H  
Africa : Mo, Ma, S
136. **Hypnea cervicornis** J. Ag.  
Cystocarps seen in June and October; tetrasporangia in June.  
Madeira Archipelago : M, (Dg), (PS) (sta. 17, 173, 174 a.o.)  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, H  
Cape Verde Islands  
Africa : Mo, WS, Ma, S
137. **Hypnea musciformis** (Wulfen) Lamour.  
Madeira Archipelago : M, Dg, PS  
Azores  
Salvage Islands : Sg, Sp

- Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, WS, Ma, S
138. **Hypoglossum woodwardii** Kütz.  
Madeira Archipelago : M, Dg, PS (sta. 17 a.o.)  
Azores  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, G  
Africa : Mo, Ma, S
139. **Jania adhaerens** Lamour.  
Madeira Archipelago : Dg  
Salvage Islands : Sg, Sp  
Canary Islands : C, F, T  
Africa : Ma, S
- \*140. **Jania capillacea** Harv.  
Madeira Archipelago : PS  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : C, H  
Cape Verde Islands
141. **Jania corniculata** (L.) Lamour.  
Madeira Archipelago : PS  
Azores  
Canary Islands : T  
Africa : Mo
142. **Jania rubens** (L.) Lamour.  
Madeira Archipelago : M, (PS)  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, Ma, S
143. **Laurencia hybrida** (D. C.) Lenorm. ex Duby  
Madeira Archipelago : M, Dg, PS  
Salvage Islands : Sg  
Canary Islands : C, T, G, H  
Cape Verde Islands  
Africa : Mo
144. **Laurencia obtusa** (Huds.) Lamour.  
Madeira Archipelago : M, Dg, (PS) (sta. 17 a.o.)  
Azores  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, C, T, G, P, H  
Cape Verde Islands  
Africa : Mo, Ma, S



- \*145. **Laurencia paniculata** J. Ag.  
Madeira Archipelago : PS  
Canary Islands : H  
Cape Verde Islands
146. **Laurencia pinnatifida** (Huds.) Lamour.  
Madeira Archipelago : M, Dg  
Azores  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, H  
Africa : Mo, WS, Ma, S
147. **Liagora ceranoides** Lamour.  
Madeira Archipelago : M, PS  
Salvage Islands : Sg, Sp  
Canary Islands : L, C, T
148. **Liagora canariensis** Børg.  
Identified by Isabella A. Abbott.  
Madeira Archipelago : M, (Dg), PS  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, G, H
149. **Liagora distenta** (Mert.) C. Ag.  
Madeira Archipelago : M, (PS)  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, G, P  
Africa : Mo
- \*150. **Liagora tetraporifera** Børg.  
Identified by Isabella A. Abbott.  
Madeira Archipelago : Dg, PS  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T, P, H
- \*151. **Liagora viscida** (Forsk.) C. Ag.  
Madeira Archipelago : PS  
Azores  
Canary Islands : C, T
152. **Liagora spec.**  
Isabella A. Abbott informed us that this specimen could not be identified properly.  
Madeira Archipelago : Dg
153. **Lomentaria articulata** (Huds.) Lyngb.  
Tetrasporangia present in October.  
Madeira Archipelago : M, (Dg)  
Azores  
Salvage Islands : Sg

- Canary Islands : L, C, T, G, P, H  
Africa : Mo
154. **Lophocladia trichoclados** (Mert.) Schmitz.  
Madeira Archipelago : M, PS  
Canary Islands : L, F, C
- \*155. **Lophosiphonia reptabunda** (Suhr.) Kylin  
Epilithic, also epiphytic on *Dictyota bartayresii*  
Madeira Archipelago : Dg, PS  
Salvage Islands : Sg, Sp  
Canary Islands : C, T, G, H
156. **Lophosiphonia scopulorum** (Harv.) Wom.  
Madeira Archipelago : Dg  
Salvage Islands : Sg, Sp  
Canary Islands : C
- \*157. **Myriogramme minuta** Kylin.  
Madeira Archipelago : PS  
Azores  
Africa : Mo
158. **Peyssonnelia dubyi** Crouan  
Madeira Archipelago : M, Dg  
Salvage Islands : Sg  
Cape Verde Islands
- \*\*159. **Peyssonnelia inamoena** Pilger  
Madeira Archipelago : Dg, PS (sta. 2, 7, 8, 9, 17 a.o.)  
Africa : S
160. **Peyssonnelia rubra** (Grev.) J. Ag.  
Madeira Archipelago : M, Dg  
Canary Islands : L, C, T  
Africa : Mo
161. **Pleonosporium borneri** (Smith) Näg.  
Polysporangia in June and October.  
Madeira Archipelago : M, Dg, PS  
Azores  
Africa : Mo
162. **Plocamium cartilagineum** (L.) Dixon  
Epiphytic on *Dilophus spiralis*  
Madeira Archipelago : M, Dg  
Azores  
Salvage Islands : Sg  
Canary Islands : F, C, T, G  
Cape Verde Islands  
Africa : Mo, WS, Ma, S

163. **Polysiphonia denudata** (Dillw.) Grev. ex Harv. in Hook.  
Madeira Archipelago : M, PS (sta. 173, 174.)  
Salvage Islands : Sg (?)  
Africa : Mo, WS, Ma
164. **Polysiphonia elongata** (Huds.) Grev. ex Harv. in Hook.  
Madeira Archipelago : M, PS (sta. 173.)  
Salvage Islands : Sg  
Canary Islands : L, Gr, T
165. **Polysiphonia ferulacea** (Suhr) J. Ag.  
Madeira Archipelago : M, Dg  
Salvage Islands : Sg  
Canary Islands : C, G  
Cape Verde Islands
- \*166. **Polysiphonia flexella** (C. Ag.) J. Ag.  
Epiphytic on *Dictyota linearis* (sta. 173 a.o.)  
Madeira Archipelago : PS  
Salvage Islands : Sg  
Canary Islands : L, Gr, F, C
167. **Polysiphonia furcellata** (C. Ag.) Harv. in Hook.  
Epiphytic on *Laurencia paniculata*.  
Madeira Archipelago : M, Dg, PS  
Salvage Islands : Sg  
Canary Islands : C, T  
Africa : Mo
168. **Polysiphonia opaca** (C. Ag.) Zanard.  
Madeira Archipelago : M, Dg, PS  
Salvage Islands : Sg, Sp  
Canary Islands : L, C, P  
Africa : Mo
- \*169. **Polysiphonia tepida** Hollenb.  
According to the description of Kapraun (1977 : 323-324) this alga has 7-8 pericentral cells. Some of the specimens examined had only 6 pericentral cells in the basal parts of the thallus, and 7-8 in the erect filaments. All specimen were collected in October.  
Madeira : Dg  
Canary Islands : C (?)
- \*170. **Polysiphonia tripinnata** J. Ag.  
Madeira Archipelago : Dg, PS  
Salvage Islands : Sg
171. **Polysiphonia violacea** (Roth) Grev.  
Epiphytic on *Cladostephus spongiosus* forma *verticillatus*  
Madeira Archipelago : M, PS  
Canary Islands : L, C, T, H  
Africa : Mo

- \*171a. **Polysiphonia violacea** (Roth) Grev. var. **subulata** (Ducl.) Hauck  
 Madeira Archipelago : PS (sta. 17.)  
 Salvage Islands : Sg  
 Canary Islands : H
172. **Pterocladia capillacea** (Gme.) Born. & Thur.  
 Tetrasporangia present in October  
 Madeira Archipelago : M, Dg, PS  
 Azores  
 Salvage Islands : Sg  
 Canary Islands : L, F, C, T, G, P, H  
 Cape Verde Islands  
 Africa : Mo, S
173. **Rhodophyllis madeirensis** Levr.  
 Madeira Archipelago : M, PS
174. **Rhodothamniella codii** (Crouan) Feldm.  
 Madeira Archipelago : M, Dg
175. **Rhodymenia pseudopalmata** (Lamour.) Silva  
 Madeira Archipelago : M, Dg  
 Azores  
 Salvage Islands : Sg  
 Canary Islands : L, F, C, T, P  
 Cape Verde Islands  
 Africa : Mo, WS, Ma, S
176. **Rytiphlaea tinctoria** (Clem.) C. Ag.  
 Madeira Archipelago : M, (PS)  
 Salvage Islands : Sg, Sp  
 Canary Islands : L, F, C, T, G  
 Africa : Mo, WS, Ma
177. **Scinaia complanata** (Collins) Cotton  
 Madeira Archipelago : M, Dg  
 Salvage Islands : Sg
178. **Scinaia forcillata** (Turn.) Biv.  
 Madeira Archipelago : M, Dg, PS  
 Azores  
 Salvage Islands : Sg  
 Canary Islands : F, C, T, G  
 Africa : Mo, S
179. **Spyridia filamentosa** (Wulf.) Harv. in Hook.  
 Epiphytic on *Cystoseira humilis* var. *humilis*  
 Madeira Archipelago : M, Dg, (PS) (sta. 17, 173, 174 a.o.)  
 Salvage Islands : Sg, Sp, Fo  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo, WS, S

180. **Spyridia hypnoides** (Børy.) Papenf.  
Epiphytic on *Cladostephus spongiosus* forma *verticillatus*.  
Tetrasporangia present in October.  
Madeira Archipelago : M, PS  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C, T  
Cape Verde Islands  
Africa : Mo, Ma, S
- \*181. **Taenioma perpusillum** (J. Ag.) J. Ag.  
Epiphytic on *Laurencia paniculata*  
Madeira Archipelago : Dg, PS  
Salvage Islands : Sg Sp  
Canary Islands : L, F, C  
Africa : Mo
182. **Thuretella schousboei** (Thur.) Schmitz.  
Madeira Archipelago : M, PS  
Salvage Islands : Sg  
Canary Islands : H  
Africa : Mo
183. **Wrangelia argus** (Mont.) Mont.  
Madeira Archipelago : M, PS  
Salvage Islands : Sg  
Canary Islands : C, T, H  
Cape Verde Islands
184. **Wrangelia penicillata** (C. Ag.) C. Ag.  
Tetrasporangia present in June and October.  
Madeira Archipelago : M, (Dg), PS (sta. 173 a.o.)  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C

## PROBLEMATIC TAXA

## C h l o r o p h y t a

185. **Cladophora** spp.  
Two *Cladophora* species could not be identified properly. The plants of one species were repeatedly branched, with tufts up to 9 cm high. Diameter of apical cells 27.5-32.5  $\mu\text{m}$ ; main axes 100-200  $\mu\text{m}$  diameter; basal cells 100-150  $\mu\text{m}$  in diameter.  
Madeira Archipelago : PS
186. The plant of the second species had a length up to 25 cm; the diameter of the apical cells were 40-70  $\mu\text{m}$ ; diameter main axes and basal cells 100-150 (-200)  $\mu\text{m}$ .  
Madeira Archipelago : PS

## P h a e o p h y t a

187. **Nereia ?**

The examined specimen is reminiscent of *Nereia* and seems to belong to the Sporochneales. However, the primary hairs are growing all over the thallus and are not just arranged in groups crowning each actively growing branch, which is one of the characteristic features of the sporophytes belonging to this order (Papenfuss, 1951 : 137). Length of the specimen 6 cm; light green coloured axes and hairs when dried.

Madeira Archipelago : PS.

## R h o d o p h y t a

188. **Amphiroa** spec.

Only tiny pieces found  
Madeira Archipelago : Dg

189. **Dasya** spec.

Only two small fragments found. Lateral filaments sparingly distributed. Main branches completely corticated; diameter ca. 350  $\mu\text{m}$ . Diameter of central cell ca. 60  $\mu\text{m}$ . No reproductive organs seen.  
Madeira Archipelago : PS (sta. 174.)

190. **Halymenia** spec.

Only small fragments (basal parts) dredged from 50-110 meters' depth. Plant foliaceous, about 100  $\mu\text{m}$  thick. Thallus with a short (1 mm) cylindrical stipe. Margin entire. Medullary filaments 2.5-5  $\mu\text{m}$  diam. Cortex 2-3 cells thick. Cortical cells roundish, about 7.5-15  $\mu\text{m}$  diam. in surface view and 5-7.5  $\mu\text{m}$  thick. Subcortex 1-2 cells thick, the cells 7.5-12.5  $\mu\text{m}$  diam. in section.  
Madeira Archipelago : PS (sta. 17)

191. **Laurencia** cf. **nidifica** J. Ag.

According to Yamada (1931: 202) and Lawson and John (1982 : 338) this plant is forming small cushions or mats, consisting of erect branches arising from an entangled system of prostrate branches. In my specimens, only erect branches were present.  
Madeira Archipelago : Dg

192. **Laurencia** spec.

Plants 4-5  $\mu\text{m}$  high. Main axes about 600  $\mu\text{m}$  diameter. Only erect branches, no prostrate branches present. Surface cells not arranged like palisade cells when viewed in section. Lenticular thickenings abundant in the walls of the medullary cells.  
Madeira Archipelago : Dg

193. **Polysiphonia cf. macrocarpa** Harv. in Mackay  
 Diam. prostrate filaments 75-80  $\mu\text{m}$ . Segments 3-5 diam. long. Tetra-  
 sporangia present; cystocarps absent. Dredged from 25-50 meters'  
 depth, in June.  
 Madeira Archipelago : M, PS (sta. 173, 174)  
 Salvage Islands : Sg, Sp, Fo  
 Canary Islands : F, C, T, G, H  
 Africa : Mo, WS, Ma.

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