

# MARINE ALGAE OF SELVAGEM GRANDE (SALVAGE ISLANDS, MACARONESIA).

(CANCAP project Contribution No. 37)

By P. A. J. Audiffred \* and F. L. M. Weisscher \*

With 2 figures

**SUMMARY.** An annotated list of 155 species of marine algae, collected from Selvagem Grande, is given: 9 (20) Cyanophyta, 22 Chlorophyta, 35 Phaeophyta and 89 Rhodophyta.

Of these 48 are new to the Salvage Islands, of which 6 are new to Macaronesia.

Finally a complete list of 236 species is given of all marine algae of the Salvage Islands, found up to now in the three islands: Selvagem Grande, Selvagem Pequena and Ilhéu de Fora.

**SUMARIO.** Uma lista anotada de 155 espécies de algas marinhas colhidas na Selvagem Grande é dada no presente trabalho: 9 (20) Cyanophyta, 22 Chlorophyta, 35 Phaeophyta e 89 Rhodophyta.

Destas, 48 são novas para as Selvagens e 6 são novas para a Macaronésia.

Finalmente é dada uma lista completa, 236 espécies, de todas as algas marinhas das Ilhas Selvagens encontradas até à data nas 3 ilhas: Selvagem Grande, Selvagem Pequena e Ilhéu de Fora.

## INTRODUCTION

The marine benthic algae, dealt with in this paper, were collected at Selvagem Grande (30° 9' N, 15° 52' W) during the expeditions CANCAP III (1978) and CANCAP IV (1980).

For more details on the CANCAP project the papers of Weisscher (1982 & 1983) and of Audiffred (in press) are to be referred to. The Salvage Islands (Ilhas Selvagens) are situated about half way between Madeira and Tenerife and consist of three islands: Selvagem Grande, Selvagem Pequena and Ilhéu de Fora.

Politically they form part of the Archipelago of Madeira. (see fig. 1).

This paper is the third and last one in a series on marine benthic algae from the Salvage Islands. The first one dealt with algae from Ilhéu de Fora (Weisscher, 1982), the second one with algae from Selvagem Pequena (Weisscher, 1983). Gil-Rodriguez, Acebes-Ginoves and Perez de Paz (1978) published a catalogue of the marine algae of the Salvage Islands, based on their own investigations and on literature (Levring, 1974; Gain and Mirande, 1912; Pickering and Hansen, 1969).

\* Rijksherbarium, Leiden, The Netherlands.

These data, together with those of our own investigations and species listed by Gain (1914), have been used to compose the complete list of the marine algae of the Salvage Islands.

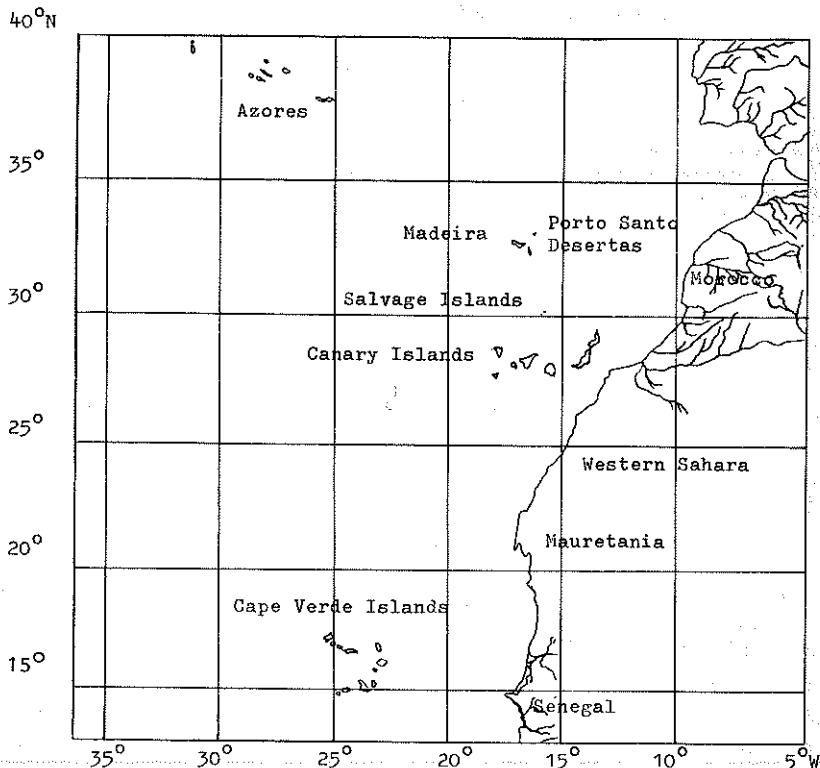


Fig.1.— Macaronesia (The islands) and north-western Africa.

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#### MATERIAL AND METHODS

The marine algae were collected from the south coast of Selvagem Grande :  
 — during the CANCAP III expedition in 1978 on October 21st in Portinho das Cagarras (sta. 3 D06, fig. 2) in tidal pools and in the

littoral zone down to 10 m., and on October 23rd in Enseada da Fonte das Galinhas (sta. 3D08, fig. 2) in the littoral zone in tidal pools.

- during the CANCAP IV expedition in 1980 on May 27th and June 6th in Portinho das Cagarras (sta. 4 D08, fig. 2) in the littoral zone, in tidal pools and by scuba diving and free diving down to 15 m., and on June 6th in Enseada da Fonte das Galinhas (sta. 4 D15, fig. 2) down to 6 m (free diving).

Some samples have been dried, others have been preserved in a 4% formaldehyde solution in seawater.

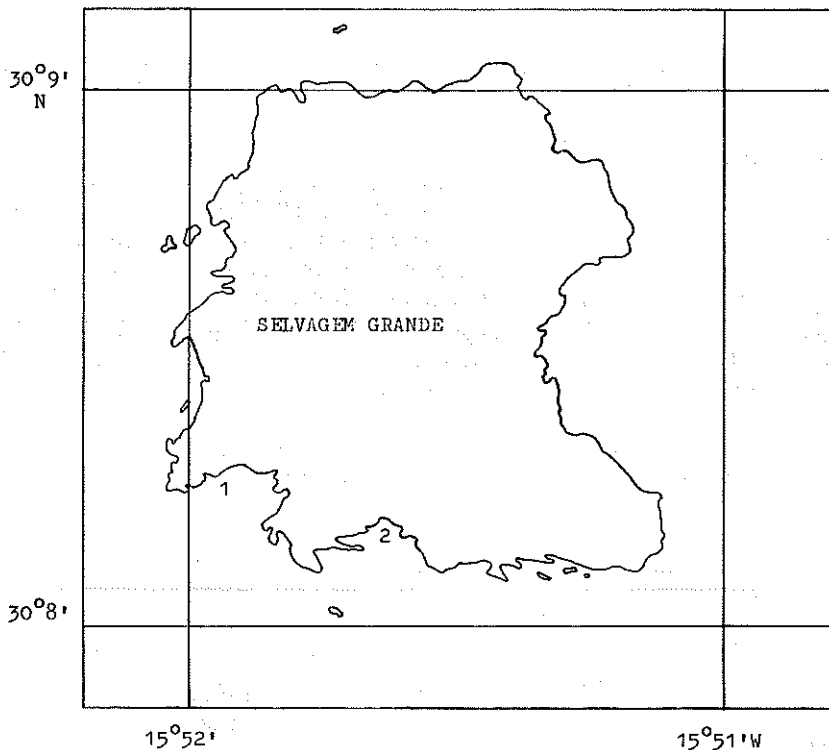


Fig.2.— Selvagem Grande. 1 = Portinho das Cagarras;  
2 = Enseada da Fonte das Galinhas.

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

Parke and Dixon, 1976

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.

Ceramiales : Feldmann-Mazoyer, 1940.

Others : Børgesen, 1927-1930.

Taylor, 1960.

### *Arrangement of the list of species.*

In the divisions Cyanophyta, Chlorophyta, Phaeophyta and Rhodophyta species are listed alphabetically.

Epiphytic and endophytic position of algae, as well as presence of fructifications and sexual organs when relevant is given in the annotations. Data about the geographical distribution in Macaronesia are according to the CANCAP-card-index of the Rijksherbarium, with data about the Salvage Islands distribution obtained from Gain and Mirande, 1912; Gain, 1914; Pickering and Hansen, 1969; Levring, 1974; Gil-Rodríguez et al., 1978, and Weisscher, 1982 and 1983.

New records for the Salvage Islands have been marked with an asterisk (\*). New records for Macaronesia have been marked with two asterisks (\*\*).

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

#### **Salvage Islands**

Sg = Selvagem Grande

Sp = Selvagem Pequena

Fo = Ilhéu de Fora

#### **Canary Islands**

L = Lanzarote

Gr = Graciosa

F = Fuerteventura

C = Gran Canaria

T = Tenerife

G = Gomera

P = La Palma

H = Hierro

#### **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

See also the section on problematic taxa.

## Cyanophyta

1. **Anabaena variabilis** Kütz. ex Born. et Flah.

Salvage Islands : Sg

Canary Islands : L

- \*\* 2. **Anacystis aeruginosa** Dr. et D.

Salvage Islands : Sg

- \* 3. **Brachytrichia quoyi** (C. Ag.) Born. et Flah. ex Born. et Flah.

Salvage Islands : Sg

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

Africa : Mo.

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

This Drouetian species includes the following taxa according to Frémy (1934) and Geitler (1930-1932) : *Calothrix aeruginea* Thur., *C. confervicola* (Roth) J. Ag., *C. consociata* (Kütz.) Born. et Flah., *C. crustacea* Thur. ex Born. et Flah., *C. scopulorum* C. Ag., *Microchaete aeruginea* Batt., *M. vitiensis* Asken. and *Rivularia bullata* (Poir.) Berk.

These taxa have all been found in the Salvage Islands.

Salvage Islands : Sg, Sp, Fo.

Madeira Archipelago : M, Dg.

Azores

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

Africa : Mo, WS, Ma

5. **Entophysalis deusta** (Menegh.) Dr. et D.

Salvage Islands : Sg, Sp, Fo

Azores

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

Africa : Mo, WS, Ma

6. **Microcoleus lyngbyaceus** (Kütz.) Crouan frat. ex Gomont.

This Drouetian species includes the following taxa according to Frémy (1934) and Geitler (1930-1932) : *Lyngbya aestuarii* (Mert.) Lyngb., *L. confervoides* C. Ag., *L. maiuscula* (Dillw.) Harv. and *L. semiplena* J. Ag. These taxa have all been found in the Salvage Islands.

Salvage Islands : Sg, Sp, Fo

Madeira Archipelago : Dg

Azores

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

Africa : Mo, WS, Ma, S

Cape Verde Islands

7. **Nodularia harveyana** Thur.  
Salvage Islands : Sg, Fo.
- \* 8. **Oscillatoria lutea** C. Ag. ex Gomont  
Salvage Islands : Sg  
Canary Islands : C, T.
9. **Symploca hydroides** (Harv.) Kütz.  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : T  
Cape Verde Islands

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

- \* 10. **Bryopsis hypnoides** Lamour.  
Epiphytic on *Sargassum desfontainesii*  
Salvage Islands : Sg  
Canary Islands : C, T.
- \* 11. **Caulerpa racemosa** (Forsk.) J. Ag. var. **peltata** (Lamour.) Eubank  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, G, P, H  
Africa : S.
12. **Caulerpa webbiana** Mont.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, PS  
Canary Islands : L, F, C, T, G, P, H
13. **Chaetomorpha linum** (O. F. Müll.) Kütz.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, WS, Ma, S.
14. **Cladophora albida** (Huds.) Kütz.  
Salvage Islands : Sg  
Canary Islands : C.
15. **Cladophora coelothrix** Kütz.  
Epiphytic on *Halopteris scoparia*  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : T  
Africa : Mo, S.
- \* 16. **Cladophora feredayi** Harv.  
Epiphytic on *Sphacelaria cirrosa*  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : C.

17. **Cladophora laetevirens** (Dilw.) Kütz.  
Dredged from 100 m depth S. W. of Selvagem Grande.  
Littoral specimens named by Van den Hoek.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Azores  
Canary Islands : C  
Cape Verde Islands.
- \* 18. **Cladophora liebetruthii** Grun.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : L, F, C, T, H
19. **Cladophora vagabunda** (L.) Hoek.  
Epiphytic on *Halopteris scoparia* (one littoral *Cladophora* specimen named by Van den Hoek), and *Galaxaura flagelliformis*  
Salvage Islands : Sg  
Canary Islands : C  
Africa : Mo
20. **Codium adhaerens** (Cabr.) C. Ag.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg, PS  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo  
Azores  
Cape Verde Islands.
21. **Dasycladus vermicularis** (Scopoli) Krasser  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, Dg, PS  
Canary Islands : L, F, C, T, G, P, H.
22. **Derbesia furcellata** (Zanard.) Ardiss.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Azores  
Canary Islands : C, T, G, P, H  
Africa : Ma
23. **Enteromorpha clathrata** (Roth) Grev.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : L, F, C, T, G, H  
Africa : Mo, Ma  
Cape Verde Islands.
24. **Enteromorpha compressa** (L.) Grev.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg

- Azores  
 Canary Islands : L, Gr, F, C, T, G, P, H  
 Africa : Mo, WS  
 Cape Verde Islands.
25. **Enteromorpha flexuosa** (Wulf. ex Roth) J. Ag. subsp. **paradoxa**  
 (Dillw.) Bliding  
 Salvage Islands : Sg, Sp  
 Canary Islands : C, T.
26. **Enteromorpha intestinalis** (L.) Link  
 Salvage Islands : Sg  
 Azores  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo  
 Cape Verde Islands.
27. **Enteromorpha ramulosa** (Sm.) Hook. f.  
 Epiphytic on *Sargassum desfontainesii*, *Dasycladus vermicularis*  
 and *Liagora* spec.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M  
 Azores  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo.
- \* 28. **Microdictyon boergesenii** Setchell  
 Salvage Islands : Sg  
 Madeira Archipelago : M  
 Canary Islands : L, C, T, H.
29. **Phaeophila dendroides** (Crouan frat.) Batters  
 Endophytic in *Polysiphonia elongata*.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M, Dg  
 Canary Islands : C, T.
30. **Phaeophila viridis** (Reinke) Burrows  
 Endophytic in *Dasycladus vermicularis* and *Griffithsia* spec.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M  
 Azores  
 Canary Islands : C, T  
 Africa : Mo.
31. **Valonia utricularis** (Roth) C. Ag.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : PS  
 Azores  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo.



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

- \*\* 32. **Cladosiphon contortus** (Thur.) Kylin  
Epilithic. Plurilocular sporangia present.  
Salvage Islands : Sg.
- \* 33. **Cladostephus spongiosus** (Huds.) C. Ag. forma **verticillatus** (Lightf.) P. v. R.  
Salvage Islands : Sg  
Madeira Archipelago : M, PS  
Azores  
Canary Islands : L, F, C, T  
Africa : Mo.
34. **Colpomenia sinuosa** (Roth) Derb. & Sol.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg, PS  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, Ma, S  
Cape Verde Islands.
35. **Cystoseira abies-marina** (Gmel.) C. Ag.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, S  
Cape Verde Islands.
36. **Cystoseira compressa** (Esp.) Gerl. & Nizam.  
Receptacles present.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo.
37. **Cystoseira foeniculacea** (L.) Grev.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, PS  
Azores  
Canary Islands : L, Gr, F, C, T, G, P, H  
Africa : Mo, Ma  
Cape Verde Islands
38. **Cystoseira humilis** Kütz. var. **humilis**  
Receptacles present.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg, PS  
Canary Islands : L, F, C, T, G, P, H

- Africa : Mo  
Cape Verde Islands.
- \* 39. **Dictyopteris membranacea** (Stackh.) Batt.  
Salvage Islands : Sg  
Madeira Archipelago : M, Dg, PS  
Azores  
Canary Islands : L, C, T, G, P, H  
Africa : Mo, WS
- \* 40. **Dictyota bartayresii** Lamour.  
Salvage Islands : Sg  
Canary Islands : C, H  
Africa : Ma  
Cape Verde Islands.
41. **Dictyota cervicornis** Kütz.  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : C, H
- \* 42. **Dictyota ciliolata** Sonder ex Kütz.  
Sporangia present.  
Salvage Islands : Sg  
Canary Islands : H  
Africa : Ma, S.
43. **Dictyota dichotoma** (Huds.) Lamour.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Ma, S.
- \* 44. **Dictyota divaricata** Lamour.  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, H  
Africa : S  
Cape Verde Islands.
45. **Dictyota linearis** (C. Ag.) Grev.  
Antheridia presente.  
Salvage Islands : Sg  
Madeira Archipelago : M, PS  
Canary Islands : L, F, C, T, H.  
Africa : Mo.
- \* 46. **Dictyota volubilis** Kütz. sensu Vickers  
Salvage Islands : Sg  
Canary Islands : H
47. **Dilophus fasciola** (Roth) Howe  
Sporangia present.  
Salvage Islands : Sg, Sp, Fo

- Madeira Archipelago : M, Dg, PS  
 Canary Islands : L, Gr, F, C  
 Africa : Mo  
 Cape Verde Islands.
48. **Ectocarpus siliculosus** (Dillw.) Lyngb.  
 Epiphytic on *Cladosiphon contortus*.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M  
 Canary Islands : L, C, T, G, P  
 Africa : Mo, Ma
- \* 49. **Giffordia mitchelliae** (Harv.) Hamel  
 Salvage Islands : Sg  
 Madeira Archipelago : M  
 Azores  
 Canary Islands : L, F, C, H  
 Africa : Mo, Ma, S.
50. **Halopteris filicina** (Grat.) Kütz.  
 Salvage Islands : Sg, Fo  
 Madeira Archipelago : M, Dg  
 Azores  
 Canary Islands : F, C, T  
 Africa : Mo.
51. **Halopteris scoparia** (L.) Sauv.  
 Salvage Islands : Sg, Sp, Fo  
 Madeira Archipelago : M, Dg, PS  
 Azores  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo  
 Cape Verde Islands.
52. **Hydroclathrus clathratus** (C. Ag.) Howe  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M, Dg  
 Canary Islands : L, F, C, T, G, P, H  
 Cape Verde Islands.
- \* 53. **Leptonematella fasciculata** (Reinke) Silva  
 Epiphytic on *Taonia atomaria*.  
 Plurilocular sporangia present.  
 Salvage Islands : Sg  
 Canary Islands : C.
- \* 54. **Nemacystus erythraeus** (J. Ag.) Sauv.  
 Epiphytic on *Scinaia complanata*.  
 Plurilocular sporangia present.  
 Salvage Islands : Sg  
 Canary Islands : T.

55. **Nemacystus hispanicus** (Sauv.) Kytlin  
Epilithic; epiphytic on *Laurencia obtusa* and *Liagora canariensis*.  
Plurilocular sporangia present.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M.
56. **Padina pavonica** (L.) Lamour.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, Dg, PS  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, Ma, S  
Cape Verde Islands.
57. **Pocockiella variegata** (Lamour.) Papenf.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, PS  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : WS, Ma, S  
Cape Verde Islands.
- \* 58. **Ralfsia verrucosa** (Aresch.) J. Ag.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : T, H  
Africa : Mo.
59. **Sargassum desfontainesii** (Turn.) C. Ag.  
Receptacles present.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, C, T, G, H.
60. **Sargassum vulgare** C. Ag.  
Receptacles present.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, WS, Ma, S  
Cape Verde Islands.
61. **Sphacelaria cirrosa** (Roth) C. Ag.  
Epiphytic on many algae.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M  
Azores  
Canary Islands : L, C, T, G, P, H.

Africa : Mo

Cape Verde Islands.

62. **Sphacelaria tribuloides** Menegh.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M  
 Azores  
 Canary Islands : C, T, H  
 Africa : Mo, S  
 Cape Verde Islands.
- \*\* 63. **Stilophora rhizodes** (Turn.) J. Ag.  
 Plurilocular sporangia present.  
 Salvage Islands : Sg.
- \* 64. **Styopodium zonale** (Lamour.) Papenf.  
 Salvage Islands : Sg  
 Canary Islands : L, C, T, P, H  
 Cape Verde Islands.
65. **Taonia atomaria** (Woodw.) J. Ag.  
 Sporangia present.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M, Dg  
 Azores  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo, Ma, S.

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

- \* 66. **Amphiroa cryptarthrodia** Zanard.  
 Salvage Islands : Sg  
 Madeira Archipelago : M  
 Azores  
 Canary Islands : T  
 Africa : Mo, S.
- \* 67. **Antithamnion cruciatum** (C. Ag. Näg.  
 Epiphytic on *Dasycladus vermicularis*, *Galaxaura flagelliformis*  
 and *Padina pavonica*.  
 Sporangia present.  
 Salvage Islands : Sg  
 Madeira Archipelago : M  
 Canary Islands : C, T, P  
 Africa : Mo, S  
 Cape Verde Islands.
- \* 68. **Asparagopsis armata** Harv.  
 Cystocarps present.  
 Salvage Islands : Sg

- Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo.
69. **Asparagopsis taxiformis** (Delile) Trevisan  
Cystocarps present  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, F, C, T, G, P, H.
70. **Botryocladia boergesenii** J. Feldm.  
Salvage Islands : Sg, Sp
71. **Botryocladia botryoides** (Wulf.) Feldm.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Azores  
Canary Islands : C, T, G, H  
Africa : Mo.
72. **Callithamnion corymbosum** (Smith) Lyngb.  
Epiphytic on many algae.  
Cystocarps, antheridia and tetrasporangia present.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M  
Canary Islands : C, T.
73. **Centroceras clavulatum** (C. Ag.) Mont.  
Epiphytic on *Asparagopsis armata*, *Caulerpa webbiana*, *Dasycladus vermicularis*.  
Salvage Islands : Sg, Fo  
Madeira Archipelago : M  
Azores  
Canary Islands : L, F, C, T, G  
Africa : Mo, Ma, S  
Cape Verde Islands.
74. **Ceramium ciliatum** (Ellis) Ducluz.  
Epiphytic on many algae  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, PS  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo  
Cape Verde Islands.
75. **Ceramium codii** (Rich.) Maz.  
Epiphytic on *Dictyota cervicornis*, *Jania capillacea*, *Sphacelaria cirrosa*.

- Sporangia present.  
Salvage Islands : Sg, Sp  
Canary Islands : C, H  
Africa : S.
76. **Ceramium diaphanum** (Lightf.) Roth.  
Epiphytic on many algae.  
Sporangia present.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, F, C, T, G, H  
Africa : Mo, S  
Cape Verde Islands.
77. **Ceramium echionotum** J. Ag.  
Epiphytic mainly on *Dasycladus vermicularis*.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, PS  
Azores  
Canary Islands : L, F, C, T, H  
Africa : Mo.
78. **Ceramium gracillimum** (Kütz.) Griff. et Harv.  
Epiphytic on *Liagora tetrasporifera*.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : L, C, T  
Africa : Mo, WS, Ma, S.
79. **Ceramium rubrum** (Huds.) C. Ag.  
Epiphytic on many algae, mainly Phaeophyta  
Salvage Islands : Sg  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, F, C, T, G, H  
Africa : Mo, WS
80. **Champia parvula** (C. Ag.) Harv.  
Epiphytic on *Caulerpa webbiana*, *Cystoseira abies-marina*, *Dasycladus vermicularis*, *Galaxaura flagelliformis*, *Liagora perforata*.  
Cystocarps and antheridia present.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Canary Islands : L, F, C, T, G, P  
Africa : Mo, WS, Ma  
Cape Verde Islands.
81. **Chondria tenuissima** (Good. et Woodw.) C. Ag.  
Cystocarps and antheridia present.  
Salvage Islands : Sg, Sp, Fo

- Madeira Archipelago : M  
Azores  
Canary Islands : L, C, T  
Africa : Mo, WS.
82. **Choreonema thuretii** (Born.) Schmitz  
Epiphytic on *Jania capillacea*  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, Dg, PS  
Canary Islands : L, F, C, T, H  
Africa : Mo, Ma.
83. **Corallina granifera** Ellis et Sol.  
Epilithic.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M  
Azores  
Canary Islands : L, F, C, T, G  
Africa : Mo.
84. **Cottoniella arcuata** (Børg.) G. Schott. var. **fusiformis** (Børg.) G. Schott.  
Epilithic; epiphytic on *Dasycladus vermicularis* and *Halopteris scoparia*.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : F, C, T, G, P, H.
85. **Crouania attenuata** (C. Ag.) J. Ag.  
Epiphytic on *Dasycladus vermicularis*, *Halopteris scoparia*, *Spyridia filamentosa*.  
Tetrasporangia present.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Canary Islands : F, C, T, G  
Africa : Mo.
- \* 86. **Dasya baillouviana** (Gmel.) Mont.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : L, C, H (?)
87. **Dasya rigidula** (Kütz.) Ardiss.  
Epilithic; epiphytic on *Nemacystus hispanicus*.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M.
88. **Dipterosiphonia dendritica** (C. Ag.) Falkenb.  
Epiphytic on *Halopteris scoparia* and *Valonia utricularis*.  
Salvage Islands : Sg, Fo  
Madeira Archipelago : M, PS  
Canary Islands : L, F, C, T, G, P



- \* 89. **Dudresnaya verticillata** (With.) Le Jol.  
Epilithic. Epiphytic on *Dictyota cervicornis*, *Halopteris scoparia*  
and *Taonia atomaria*.  
Cystocarps and antheridia present.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : T, H.
90. **Erythrocytis montagnei** (Derb. et Sol.) Silva  
Epiphytic on *Laurencia obtusa*.  
Antheridia present.  
Salvage Islands : Sg, Sp, Fo  
Canary Islands : L, F, C, T, G, P.
91. **Falkenbergia hillebrandii** (Born.) Falkenb.  
Salvage Islands : Sg, Sp  
Azores  
Canary Islands : L, C, T, H.
- \*\* 92. **Feldmannophycus rayssiae** (J. et G. Feldm.) Augier et Boudouresque  
Salvage Islands : Sg.
93. **Fosliella farinosa** (Lamour.) Howe  
Epiphytic on many algae.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Canary Islands : L, F, C, T, H  
Africa : Mo, Ma.
94. **Galaxaura flagelliformis** Kjellm. emend. Børg.  
Tetrasporic form of *G. squalida*.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : L, F, C, T, G, P, H.
- \* 95. **Galaxaura rugosa** (Ellis & Sol.) Lamour.  
Salvage Islands : Sg  
Cape Verde Islands
- \* 96. **Galaxaura squalida** Kjellm.  
Sexual form.  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, H  
Cape Verde Islands.
97. **Gelidiella tenuissima** (Thuret.) Feldm. et Hamel  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : H  
Africa : Mo, Ma, S  
Cape Verde Islands.

98. **Gelidium pusillum** (Stackh.) Le Jol.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, WS, Ma, S.
99. **Gigartina acicularis** (Roth) Lamour.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Azores  
Canary Islands : F, C, T, G, P, H  
Africa : Mo, WS, Ma, S.
100. **Goniotrichum alsidii** (Zanard.) Howe  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : F, C, T, H  
Africa : Mo, Ma
101. **Griffithsia barbata** (Smith) C. Ag.  
Epiphytic on *Cladosiphon contortus* and *Halopteris scoparia*.  
Salvage Islands : Sg, Sp  
Canary Islands : C, T, H.
102. **Griffithsia tenuis** C. Ag.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, PS  
Canary Islands : F, C, T, H  
Africa : S  
Cape Verde Islands.
103. **Herposiphonia tenella** (C. Ag.) Ambr.  
Epiphytic on many algae.  
Tetrasporangia present.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, SW of Dg  
Canary Islands : L, F, C, T, G, H  
Africa : Mo, Ma, S.
104. **Herposiphonia tenella** (C. Ag.) Ambr. var. **secunda** Hollenberg  
Epiphytic on many algae.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : L, F, C, T, G, H  
Africa : Mo, S.
105. **Heterosiphonia wurdemanni** (Bailey ex Harv.) Falkenb.  
var. *lava* Berg. epiphytic on *Tacnia atomaria*.  
var. *typica* Berg. epiphytic on *Caulerpa webbiana* and *Dictyota bartayresii*.

- Salvage Islands : Sg, Sp, Fo  
 Madeira Archipelago : M  
 Canary Islands : L, F, C, H  
 Africa : Mo, Ma, S.
106. **Hypnea cervicornis** J. Ag.  
 Cystocarps and tetrasporangia present.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M, Dg, PS  
 Canary Islands : L, F, C, T, H  
 Africa : Mo, WS, Ma, S  
 Cape Verde Islands.
107. **Hypnea musciformis** (Wulf.) Lamour.  
 Epiphytic on *Cystoseira humilis* var. *humilis* and *Sargassum desfontainesii*.  
 Tetrasporangia present.  
 Salvage Islands : Sg, Sp  
 Madeira Archipelago : M, Dg, PS  
 Azores  
 Canary Islands : L, F, C, T, G, P, H  
 Africa : Mo, WS, Ma, S  
 Cape Verde Islands.
- \*108. **Hypoglossum woodwardii** Kütz.  
 Salvage Islands : Sg  
 Madeira Archipelago : M, Dg  
 Azores  
 Canary Islands : L, F, C, T, G  
 Africa : Mo, Ma, S.
109. **Jania adhaerens** Lamour.  
 Epiphytic on *Cystoseira humilis* var. *humilis*.  
 Salvage Islands : Sg, Sp  
 Canary Islands : F, C, T, H  
 Africa : Ma, S.
110. **Jania capillacea** Harv.  
 Epiphytic on *Cystoseira humilis* var. *humilis*, *Galaxaura flagelliformis* and *Valonia utricularis*  
 Salvage Islands : Sg, Sp, Fo  
 Canary Islands : C, H  
 Cape Verde Islands.
- \*111. **Laurencia hybrida** (D.C.) Lenorm. ex Duby  
 Epiphytic on *Dictyota bartayresii*.  
 Tetrasporangia present.  
 Salvage Islands : Sg  
 Madeira Archipelago : M  
 Canary Islands : C, T, G, H

- Africa : Mo  
Cape Verde Islands.
112. **Laurencia obtusa** (Huds.) Lamour.  
Epiphytic on *Dilophus fasciola* and *Polysiphonia flexella*.  
Cystocarps and tetrasporangia present.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, Dg, PS  
Azores  
Canary Islands : L, C, T, G, P, H  
Africa : Mo, Ma, S  
Cape Verde Islands.
113. **Laurencia perforata** (Bory) Mont.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : L, F, C, T, P, H  
Cape Verde Islands.
114. **Liagora canariensis** Børg.  
Cystocarpic.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Canary Islands : L, F, C, T, G, H
115. **Liagora ceranoides** Lamour.  
Cystocarpic.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : L, C, T.
116. **Liagora distenta** (Mert.) C. Ag.  
Carpogonial branches and antheridia present.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, PS  
Canary Islands : L, F, C, T, G, P  
Africa : Mo.
- \*117. **Liagora tetrasporifera** Børg.  
Tetrasporic, carpogonial.  
Salvage Islands : Sg  
Canary Islands : L, F, C, T, P, H.
118. **Lomentaria articulata** (Huds.) Lyngb.  
Salvage Islands : Sg  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : L, C, T, G, P, H  
Africa : Mo.
- \*119. **Lophosiphonia cristata** Falkenb.  
Epiphytic on *Galaxaura flagelliformis*.

- Salvage Islands : Sg  
 Canary Islands : H (?)
120. **Lophosiphonia reptabunda** (Suhr) Kylin  
 Epilithic. Epiphytic on *Caulerpa webbiana*.  
 Salvage Islands : Sg, Sp  
 Canary Islands : C, T, G, H.
- \*121. **Naccaria corymbosa** J. Ag.  
 Salvage Islands : Sg
- \*122. **Plocamium cartilagineum** (L.) Dixon  
 Salvage Islands : Sg  
 Madeira Archipelago : M, Dg  
 Azores  
 Canary Islands : F, C, T, G  
 Africa : Mo, WS, Ma, S  
 Cape Verde Islands.
- \*123. **Polysiphonia elongata** (Huds.) Harv.  
 Salvage Islands : Sg  
 Madeira Archipelago : M  
 Canary Islands : L, Gr, T
- \*124. **Polysiphonia ferulacea** Suhr in J. Ag.  
 Salvage Islands : Sg  
 Madeira Archipelago : M, Dg  
 Canary Islands : C, G  
 Cape Verde Islands.
- \*125. **Polysiphonia flexella** (C. Ag.) J. Ag.  
 Epilithic. Epiphytic on *Laurencia obtusa*.  
 Salvage Islands : Sg  
 Canary Islands : L, Gr, F, C.
- \*126. **Polysiphonia furcellata** (C. Ag.) Harv. in Hook.  
 Salvage Islands : Sg  
 Madeira Archipelago : M, Dg  
 Canary Islands : C, T  
 Africa : Mo.
127. **Polysiphonia havanensis** Mont.  
 Epilithic. Epiphytic on *Halopteris scoparia*.  
 Antheridia present.  
 Salvage Islands : Sg, Sp (?)  
 Azores  
 Canary Islands : C.
128. **Polysiphonia macrocarpa** Harv. in Mackay  
 Salvage Islands : Sg, Sp, Fo  
 Madeira Archipelago : M  
 Canary Islands : F, C, T, G, H  
 Africa : Mo, WS, Ma.

129. **Polysiphonia opaca** (C. Ag.) Zanard.  
Epilithic. Epiphytic on *Hydroclathrus clathratus*.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : L, C, P  
Africa : Mo.
130. **Polysiphonia sphaerocarpa** Børg.  
Epiphytic on *Dictyota ciliolata*.  
Cystocarps present.  
Salvage Islands : Sg, Sp  
Canary Islands : C  
Africa : S.
- \*131. **Polysiphonia subulata** (Ducluz.) J. Ag.  
Epiphytic on *Halopteris scoparia* and *Sargassum desfontainesii*.  
Antheridia present.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : L, C, T, H  
Africa : Mo.
- \*\*132. **Polysiphonia tripinnata** J. Ag.  
This plant agrees perfectly well with the description by Laurent (1970, p. 136-138, pl. XI, XII).  
Occasionally epiphytic on *Galaxaura flagelliformis*.  
Salvage Islands : Sg.
- \*133. **Ptilothamnion pluma** (Dillw.) Thur. in Le Jol.  
Epiphytic on *Feldmannophycus rayssiae* and *Heterosiphonia wurdemanni*.  
Salvage Islands : Sg  
Canary Islands : L  
Africa : Mo.
- \*134. **Rhodymenia pseudopalmata** (Lamour.) Silva  
Salvage Islands : Sg  
Madeira Archipelago : M  
Azores  
Canary Islands : L, F, C, T, P.  
Africa : Mo, WS, Ma, S  
Cape Verde Islands.
135. **Rytiphlaea tinctoria** (Clem.) C. Ag.  
Epilithic.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, PS  
Canary Islands : L, F, C, T, G  
Africa : Mo, WS, Ma.

- \*136. **Sciniaia complanata** (Collins) Cotton  
Epilithic.  
Cystocarps present.  
Salvage Islands : Sg  
Madeira Archipelago : M, Dg.
- \*137. **Sciniaia furcellata** (Turn.) Biv.  
Salvage Islands : Sg  
Madeira Archipelago : M, Dg  
Azores  
Canary Islands : F, C, T, G  
Africa : Mo, S.
- \*138. **Spermothamnion gorgoneum** (Mont.) Born.  
Epiphytic on *Codium adhaerens*.  
Salvage Islands : Sg  
Canary Islands : L, C, T  
Cape Verde Islands.
139. **Spyridia filamentosa** (Wulf.) Harv. in Hook.  
Epiphytic on *Caulerpa webbiana* and *Halopteris scoparia*.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M, PS  
Canary Islands : L, F, C, T, G, P, H  
Africa : Mo, WS, S
140. **Spyridia hypnoides** (Bory) Papenf.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M  
Canary Islands : L, F, C, T  
Africa : Mo, Ma, S  
Cape Verde Islands.
141. **Taenioma perpusillum** (J. Ag.) J. Ag.  
Epiphytic on *Colpomenia sinuosa*.  
Salvage Islands : Sg, Sp  
Canary Islands : L, F, C  
Africa : Mo.
- \*142. **Thuretella schousboei** (Thur.) Schmitz  
Cystocarps present.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : H  
Africa : Mo.
143. **Vickersia baccata** (J. Ag.) Karsak. emend. Børg.  
Epiphytic on *Herposiphonia tenella* and *Pocockiella variegata*.  
Salvage Islands : Sg  
Azores  
Canary Islands : L, F, C, T, G, P  
Africa : Mo.

- \*144. **Wrangelia argus** (Mont.) Mont.  
Epiphytic on *Dasycladus vermicularis* and *Halopteris scoparia*.  
Salvage Islands : Sg  
Madeira Archipelago : M  
Canary Islands : C, T, H  
Cape Verde Islands.
145. **Wrangelia penicillata** (C. Ag.) C. Ag.  
Tetrasporangia present.  
Salvage Islands : Sg, Sp  
Madeira Archipelago : M, Dg  
Canary Islands : L, F, C.
146. **Wurdemannia miniata** (Drap.) Feldm. et Hamel  
Epiphytic on *Cystoseira compressa*, *Dictyota bartayresii* and *Galaxaura flagelliformis*.  
Tetrasporangia present.  
Salvage Islands : Sg, Sp, Fo  
Madeira Archipelago : M  
Canary Islands : C, T, G, H  
Cape Verde Islands.

## PROBLEMATIC TAXA

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

147. **Cladosiphon spec.**  
Unilocular and plurilocular sporangia present.  
This specimen is reminiscent of *Castagnea fistulosa* (Zanard.)  
Derb. et Sol. (Kuckuck, 1929 : 48, fig. 57) and of *Cladosiphon*  
*occidentalis* Kylin (Kylin 1940 : 27, fig. 15 f). Its unilocular spo-  
rangium is similar to that of *Castagnea zosterae* (Mohr) Thur.  
as drawn by Børgesen (1914 : fig. 145 c). According to Kylin  
(1940 : 28) this *Castagnea zosterae* is a synonym of *Cladosiphon*  
*occidentalis* and Kuckuck's *Castagnea fistulosa* is supposed to  
be a synonym of *Cladosiphon mediterraneus* Kütz. (Kylin 1940 :  
26).  
Salvage Islands : Sg.

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

148. **Audouinella cf. repens** (Børg.) Woelkerling  
Living upon *Dudresnaya verticillata*, occasionally also upon *Thu-*  
*retella schousboei* and *Naccaria corymbosa*.  
Original spore persistent, diam. 11-13  $\mu$ m. Chromoplasts parietal,  
containing one pyrenoid. Monosporangia (7.5-8  $\times$  14-15  $\mu$ m),  
spermatangia, carpo-gonia and carposporophytes present.



Erect filaments arising up to 2.2 mm; cells 4-5.5  $\mu\text{m}$  wide and 45-65  $\mu\text{m}$  long, even in the lower portions.

According to the descriptions by Børgesen (1915 : 54) the erect filaments arise up to 500  $\mu\text{m}$ . The cells in lower portions are shorter (ca. 24  $\mu\text{m}$ ) and broader (7-8  $\mu\text{m}$ ) than those in upper portions (50  $\mu\text{m}$   $\times$  2-3  $\mu\text{m}$ ). Børgesen does not mention a persistent spore. Woelkerling (1971 : 35) mentions erect filaments arising up to 800  $\mu\text{m}$ , and spores which are sometimes persisting in mature plants. Because of the above mentioned differences, the identification of our plants cannot be quite satisfying.

Salvage Islands : Sg.

149. **Gelidiella** spec.

Plant sparingly branched, with terete axes, up to 3 cm tall, 150-200  $\mu\text{m}$  diam. Cortical cells irregularly shaped and disposed, 5-12  $\mu\text{m}$  diam. Medullary cells 12-18  $\mu\text{m}$  diam.

The specimens examined were sterile.

Salvage Islands : Sg.

150. **Gelidiopsis intricatum** (Kütz.) Vickers

The specimen examined was a very small one, thus determination cannot be sure. Nevertheless, it agrees well with the drawings given by Kützling (1867 : tab. 35, figs. 18 d, e, f) and with the dimensions given by Børgesen (1927 : 81).

Salvage Islands : Sg

Canary Islands : C, T, G

Cape Verde Islands.

151. **Gymnogongrus griffithsiae** (Turn.) Martius

Only fragments (basal parts) of the thallus were found.

Epilithic.

Salvage Islands : Sg

Madeira Archipelago : M

Canary Islands : C, T

Africa : Mo, Ma.

152. **Laurencia** spec.

Thallus cylindrical, 600-800  $\mu\text{m}$  diam, not very high. Lenticular thickenings abundant in the walls of the medullary cells, these cells being 50-65  $\mu\text{m}$  diam. Epidermal cells 25-60  $\mu\text{m}$  diam., rounded angular, neither elongated radially nor arranged like palisade cells in the transverse section of the branchlets. Apical hairs present. Only sterile specimens were found.

Epilithic. Epiphytic on *Halopteris scoparia* and *Liagora tetrasporifera*.

Salvage Islands : Sg

153. **Liagora** cf. **gymnarthron** Børg.

Differs from Børgesen's descriptions (Børgesen, 1927 : 54-58, fig. 30, 31) in having its branches regularly dichotomously divid-

ed, placed dispersedly as well as alternately and decussately upon the main branches.

Salvage Islands : Sg

Canary Islands : C.

154. *Polysiphonia* cf. *denudata* (Dillw.) Grev. ex Harv. in Hook.  
There are 5 primary pericentrals, alternating with the same number of secondary pericentrals. Main axes to 300  $\mu$ m diameter at the base.

Cystocarps short-stalked, ovate.

Salvage Islands : Sg

Madeira Archipelago : M

Africa : Mo, WS, Ma.

155. *Polysiphonia* cf. *paniculata* Mont.  
Plant ecorticate, dark red when preserved in formol. Siphons 8-12 pericentral round a large central one. Segments to 190  $\mu$ m diameter, 1-3 diam. long. No reproductive organs present. This plant seems to be distinct from *P. paniculata* as described by Lauret (1970 : 133-136, pl. 1x-x) by its rhizoids cut off from the distal end of pericentral cells, the extreme branches not being placed distichously, the straight pericentral siphons and the inward curled apices of the branches.

Salvage Islands : Sg.

*List of the marine algae of the Salvage Islands.  
Compilation of all known collections and publications until 1983.*

CYANOPHYTA

<i>Anabaena variabilis</i> Kütz. ex Born. et Flah.	Sg
<i>Anabaena</i> spec.	Sp
<i>Anacystis aeruginosa</i> Dr. et D.	Sg
<i>Aphanocapsa litoralis</i> var. <i>macrocoeca</i> Hansg. = <i>Entophysalis deusta</i> (Menegh.) Dr. et D.	Sp Fo
<i>Aphanocapsa sesciacensis</i> Frémy = <i>Anacystis aeruginosa</i> Dr. et D.	Sg
<i>Brachytrichia quoyi</i> (C. Ag.) Born. et Flah. ex Born. et Flah.	Sg
<i>Calothrix aeruginea</i> (Kütz.) Thur. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg Sp Fo
<i>Calothrix confervicola</i> (Dillw.) C. Ag. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg Sp Fo
<i>Calothrix consociata</i> (Kütz.) Born. et Flah. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg
<i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg Sp Fo
<i>Calothrix scopulorum</i> (Web. & Mohr.) C. Ag. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg Sp
<i>Calothrix</i> spec.	Sg
<i>Dermocarpa minima</i> Geitler = <i>Entophysalis conferta</i> (Kütz.) Dr. et D.	Sp
<i>Dichothrix penicillata</i> Zanard. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sp
<i>Entophysalis conferta</i> (Kütz.) Dr. et D.	Sp
<i>Entophysalis deusta</i> (Menegh.) Dr. et D.	Sg Sp Fo

<i>Lyngbya aestuarii</i> (Mert.) Lyngb. = <i>Microcoleus lyngbyaceus</i> (Kütz.) Crouan frat. ex Gom.	Sg	
<i>Lyngbya confervoides</i> C. Ag. = <i>Microcoleus lyngbyaceus</i> (Kütz.) Crouan frat. ex Gom.	Sg	Sp
<i>Lyngbya lutea</i> (C. Ag.) Gom. = <i>Oscillatoria lutea</i> C. Ag. ex Gom.	Sg	
<i>Lyngbya maiusecula</i> (Dillw.) Harv. = <i>Microcoleus lyngbyaceus</i> (Kütz.) Crouan frat. ex Gom.	Sg	Fo
<i>Lyngbya semiplena</i> (C. Ag.) J. Ag. = <i>Microcoleus lyngbyaceus</i> (Kütz.) Crouan frat. ex Gom.	Sg	
<i>Microchaete aeruginea</i> Batt. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg	
<i>Microchaete grisea</i> Thur. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg	
<i>Microchaete vitiensis</i> Ask. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg	Sp
<i>Microchaete spec.</i> = <i>Calothrix spec.</i>	Sg	
<i>Microcoleus lyngbyaceus</i> (Kütz.) Crouan frat. ex Gom.	Sg	Sp Fo
<i>Nodularia harveyana</i> Thur.	Sg	Fo
<i>Oscillatoria lutea</i> C. Ag. ex Gom.	Sg	
<i>Oscillatoria subuliformis</i> Thwaites = <i>Porphyrosiphon notarisii</i> (Menegh.) Kütz. ex Gom.	Sg	Sp
<i>Porphyrosiphon notarisii</i> (Menegh.) Kütz. ex Gom.	Sg	Sp
<i>Rivularia atra</i> Roth = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg	Sp
<i>Rivularia bullata</i> (Poir.) Berk. = <i>Calothrix crustacea</i> Thur. ex Born. et Flah.	Sg	Sp
<i>Symploca hydroides</i> Kütz.	Sg	Sp Fo

#### CHLOROPHYTA

<i>Acetabularia polyphysoides</i> (Crouan) Kuntze		Sp
<i>Anadyomene stellata</i> (Wulf.) C. Ag.		Sp
<i>Bryopsis hypnoides</i> Lamour.	Sg	
<i>Bryopsis plumosa</i> (Huds.) C. Ag.		Sp
<i>Caulerpa racemosa</i> (Forsk.) J. Ag. var. <i>peltata</i> (Lamour.) Eubank.	Sg	
<i>Caulerpa webbiana</i> Mont.	Sg	Sp
<i>Chaetomorpha aerea</i> (Dillw.) Kütz. = <i>Chaetomorpha linum</i> (O. F. Müll.) Kütz.		
<i>Chaetomorpha linum</i> (O. F. Müll.) Kütz.	Sg	Sp
<i>Cladophora albida</i> (Huds.) Kütz.	Sg	
<i>Cladophora coelothrix</i> Kütz.	Sg	Sp
<i>Cladophora dalmatica</i> Kütz.	Sg	
<i>Cladophora feredayi</i> Harv.	Sg	
<i>Cladophora flexuosa</i> (O. F. Müll.) Harv.	Sg	
<i>Cladophora hutchinsiae</i> (Dillw.) Kütz. = <i>Cladophora laetevirens</i> (Dillw.) Kütz.		
<i>Cladophora laetevirens</i> (Dillw.) Kütz.	Sg	
<i>Cladophora liebetruthii</i> Grun.	Sg	
<i>Cladophora pellucida</i> (Huds.) Kütz.	Sg	Sp
<i>Cladophora penicillata</i> Kütz. = <i>Cladophora vagabunda</i> (L.) Hoek		
<i>Cladophora prolifera</i> (Roth) Kütz.	Sg	
<i>Cladophora repens</i> (J. Ag.) Harv. = <i>Cladophora coelothrix</i> Kütz.		
<i>Cladophora vagabunda</i> (L.) Hoek	Sg	
<i>Cladophora</i> spp.	Sg	Sp
<i>Cladophoropsis membranacea</i> (C. Ag.) Børg.		Sp
<i>Codium adhaerens</i> (Cabr.) C. Ag.	Sg	Sp
<i>Codium tomentosum</i> Stackh.	Sg	
<i>Dasycladaceae</i> spec.		Sp
<i>Dasycladus vermicularis</i> (Scopoli) Krasser	Sg	Sp Fo
<i>Derbesia furcellata</i> (Zanard.) Ardiss.	Sg	Sp
<i>Derbesia tenuissima</i> (De Not.) Crouan frat.		Sp
<i>Enteromorpha clathrata</i> (Roth) Grev.	Sg	Sp
<i>Enteromorpha compressa</i> (L.) Grev.	Sg	Sp
<i>Enteromorpha flexuosa</i> (Wulf. ex Roth) J. Ag. subsp. <i>paradoxa</i> (Dillw.) Bliding	Sg	Sp
<i>Enteromorpha intestinalis</i> (L.) Link	Sg	

<i>Enteromorpha linza</i> (L.) J. Ag.	Sg	Sp	
<i>Enteromorpha ramulosa</i> (Sm.) Hook. f.	Sg	Sp	
<i>Entocladia viridis</i> Reinke = <i>Phaeophila viridis</i> (Reinke) Burrows			
<i>Microdictyon boergesenii</i> Setchell	Sg		
<i>Percursaria percursa</i> (C. Ag.) Rosenv.		Sp	
<i>Phaeophila dendroides</i> (Crouan frat.) Batters	Sg	Sp	
<i>Phaeophila viridis</i> (Reinke) Burrows	Sg	Sp	
<i>Protoderma</i> cf. <i>marina</i> Reinke = <i>Pseudendoclonium</i> cf. <i>submarinum</i> Wille			
<i>Pseudendoclonium</i> cf. <i>submarinum</i> Wille			Sp
<i>Pseudochlorodesmis furcellata</i> (Zanard.) Børg. = <i>Derbesia furcellata</i> (Zanard). Ardiss.			
<i>Ulva lactuca</i> L.	Sg		
<i>Urospora laeta</i> (Thur.) Børg.	Sg		
<i>Valonia macrophysa</i> Kütz.			Sp
<i>Valonia utricularis</i> (Roth) C. Ag.	Sg	Sp	
<b>PHAEOPHYTA</b>			
<i>Acinetospora crinita</i> (Carm. ex Harv. in Hook.) Kornm.			Sp
<i>Cladosiphon contortus</i> (Thur.) Kylin	Sg		
<i>Cladosiphon</i> spec.	Sg		
<i>Cladostephus spongiosus</i> (Huds.) C. Ag. forma <i>verticillatus</i> (Lightf.) P. v. B.	Sg		
<i>Colpomenia sinuosa</i> (Roth) Derb. et Sol.	Sg	Sp	
<i>Cutleria multifida</i> (Sm.) Grev.	Sg		
<i>Cystoseira abies-marina</i> (S. Gmel.) C. Ag.	Sg	Sp	
<i>Cystoseira abrotanifolia</i> C. Ag. = <i>Cystoseira foeniculacea</i> (L.) Grev.			
<i>Cystoseira canariensis</i> Sauv. = <i>Cystoseira humilis</i> Kütz. var. <i>humilis</i>			
<i>Cystoseira compressa</i> (Esp.) Gerl. & Nizam.	Sg	Sp	Fo
<i>Cystoseira discors</i> (L.) C. Ag. = <i>Cystoseira foeniculacea</i> (L.) Grev.			
<i>Cystoseira fimbriata</i> (Desf.) Bory = <i>Cystoseira compressa</i> (Esp.) Gerl. & Nizam.			
<i>Cystoseira foeniculacea</i> (L.) Grev.	Sg	Sp	
<i>Cystoseira humilis</i> Kütz. var. <i>humilis</i>	Sg	Sp	
<i>Cystoseira</i> spec.			Sp
<i>Dictyopteris membranacea</i> (Stackh.) Batt.	Sg		
<i>Dictyota bartayresii</i> Lamour.	Sg		
<i>Dictyota cervicornis</i> Kütz.	Sg	Sp	Fo
<i>Dictyota ciliolata</i> Sonder ex Kütz.	Sg		
<i>Dictyota dichotoma</i> (Huds.) Lamour.	Sg	Sp	
<i>Dictyota divaricata</i> Lamour.	Sg		
<i>Dictyota linearis</i> (C. Ag.) Grev.	Sg		
<i>Dictyota volubilis</i> Kütz. sensu Vickers	Sg		
<i>Dilophus fasciola</i> (Roth) Howe	Sg	Sp	Fo
<i>Dilophus kohlmeiyeri</i> Nizam. & Gerl.			Sp
<i>Ectocarpus confervoides</i> (Roth) Le Jol. = <i>Ectocarpus siliculosus</i> (Dillw.) Lyngb.			
<i>Ectocarpus siliculosus</i> (Dillw.) Lyngb.	Sg	Sp	
<i>Elachista intermedia</i> Crouan	Sg		
<i>Feldmannia irregularis</i> (Kütz.) Hamel	Sg	Sp	Fo
<i>Giffordia intermedia</i> (Rosenv.) Lund.			Sp
<i>Giffordia mitchelliae</i> (Harv.) Hamel	Sg		
<i>Giraudia sphaclarioides</i> Derb. & Sol.			Sp
<i>Halopteris filicina</i> (Grat.) Kütz.	Sg		Fo
<i>Halopteris scoparia</i> (L.) Sauv.	Sg	Sp	Fo
<i>Hydroclathrus clathratus</i> (C. Ag.) Howe	Sg	Sp	
<i>Leptonematella fasciculata</i> (Reinke) Silva	Sg		
<i>Lobophora variegata</i> (Lamour.) Womersley = <i>Pocockiella variegata</i> (Lamour.) Papenf.			
<i>Nemacystus erythraeus</i> (J. Ag.) Sauv.	Sg		
<i>Nemacystus hispanicus</i> (Sauv.) Kylin	Sg	Sp	

<i>Padina pavonica</i> (L.) Lamour.	Sg	Sp	Fo
<i>Pocockiella variegata</i> (Lamour.) Papenf.	Sg	Sp	Fo
<i>Ralfsia bornetii</i> Kuck.	Sg		
<i>Ralfsia verrucosa</i> (Aresch.) J. Ag.	Sg		
<i>Sargassum desfontainesii</i> (Turn.) C. Ag.	Sg	Sp	
<i>Sargassum natans</i> (L.) Børg.	Sg		
<i>Sargassum vulgare</i> C. Ag.	Sg	Sp	
<i>Sphacelaria cirrosa</i> (Roth) C. Ag.	Sg	Sp	Fo
<i>Sphacelaria hystrix</i> Suhr. in Reinke = <i>Sphacelaria cirrosa</i> (Roth) C. Ag.			
<i>Sphacelaria tribulooides</i> Menegh.	Sg	Sp	
<i>Stilophora rhizodes</i> (Turn.) J. Ag.	Sg		
<i>Styopodium zonale</i> (Lamour.) Papenf.	Sg		
<i>Taonia atomaria</i> (Woodw.) J. Ag.	Sg	Sp	
<i>Zonaria tournefortii</i> (Lamour.) Mont.	Sg		

### EHODOPHYTA

<i>Acrochaetium crassipes</i> Børg.	Sg		
<i>Acrochaetium</i> cf. <i>repens</i> Børg. = <i>Audouinella</i> cf. <i>repens</i> (Børg.) Woelkerling			
<i>Acrochaetium virgatulum</i> (Harv.) Born. = <i>Audouinella virgatula</i> (Harv.) Dixon			
<i>Aglaethamnion furcellariae</i> (J. Ag.) Feldm.-Maz.		Sp	
<i>Amphiroa cryptarthrodia</i> Zanard.	Sg		
<i>Antithamnion cruciatum</i> (C. Ag.) Näg.	Sg		
<i>Antithamnion elegans</i> Berth.	Sg	Sp	
<i>Antithamnion</i> spec.	Sg		
<i>Asparagopsis amata</i> Harv.	Sg		
<i>Asparagopsis taxiformis</i> (Delile) Coll. & Herv.	Sg	Sp	
<i>Audouinella</i> cf. <i>repens</i> (Børg.) Woelkerling	Sg		
<i>Audouinella virgatula</i> (Harv.) Dixon		Sp	
<i>Audouinella</i> spec.	Sg		
<i>Botryocladia boergesenii</i> J. Feldm.	Sg	Sp	
<i>Botryocladia botryoides</i> (Wulf.) Feldm.	Sg		
<i>Callithamnion corymbosum</i> (Smith) Lyngb.	Sg	Sp	Fo
<i>Callithamnion</i> spec.	Sg		
<i>Caulacanthus ustulatus</i> (Mert.) Kütz.	Sg		
<i>Centroceras clavulatum</i> (C. Ag.) Mont.	Sg		Fo
<i>Ceramiales</i> spec.		Sp	
<i>Ceramium ciliatum</i> (Ellis) Ducluz.	Sg	Sp	Fo
<i>Ceramium codii</i> (Rich.) Maz.	Sg	Sp	
<i>Ceramium diaphanum</i> (Roth) Harv.	Sg	Sp	Fo
<i>Ceramium echionotum</i> J. Ag.	Sg	Sp	Fo
<i>Ceramium gracillimum</i> Griff. & Harv.	Sg	Sp	
<i>Ceramium rubrum</i> (Huds.) C. Ag.	Sg		
<i>Ceramium tenuissimum</i> (Lyngb.) J. Ag.	Sg	Sp	Fo
<i>Ceramium</i> spec.	Sg		
<i>Champia parvula</i> (C. Ag.) Harv.	Sg	Sp	
<i>Chondria curvilineata</i> Coll. & Herv.		Sp	
<i>Chondria tenuissima</i> (Good. et Woodw.) C. Ag.	Sg	Sp	Fo
<i>Choreonema thuretii</i> (Born.) Schmitz.	Sg	Sp	Fo
<i>Compothamnion thuyoides</i> (Sm.) Näg.	Sg		
<i>Corallina granifera</i> Ellis et Sol.	Sg	Sp	Fo
<i>Corallina mediterranea</i> Aresch = <i>Corallina officinalis</i> L.			
<i>Corallina officinalis</i> L.	Sg	Sp	
<i>Corynospora pedicellata</i> (Smith) J. Ag.		Sp	
<i>Cottoniella arcuata</i> (Børg.) G. Schott. var. <i>fusiformis</i> (Børg.) G. Schott.	Sg	Sp	
<i>Cottoniella fusiformis</i> Børg. = <i>Cottoniella arcuata</i> (Børg.) G. Schott. var. <i>fusiformis</i> (Børg.) G. Schott.			
<i>Crodelia orbiculata</i> (Fosl.) Kylin	Sg		

<i>Crouania attenuata</i> (C. Ag.) J. Ag.	Sg	Sp	
<i>Cruoriella dubyi</i> (Crouan) Schmitz = <i>Peyssonella dubyi</i> Crouan frat.			
<i>Dasya arbuscula</i> (Dillw.) C. Ag.	Sg		
<i>Dasya baillouviana</i> (Gmel.) Mont.	Sg		
<i>Dasya corymbifera</i> J. Ag.		Sp	
<i>Dasya hutchinsiae</i> Harv. in Hook. = <i>Dasya arbuscula</i> (Dillw.) C. Ag.			
<i>Dasya rigidula</i> (Kütz.) Ardiss.	Sg	Sp	
<i>Dermatolithon corallinae</i> (Crouan) Foslie	Sg		
<i>Dermatolithon hapalidioides</i> (Crouan) Foslie	Sg		
<i>Dipterosiphonia dendritica</i> (C. Ag.) Falkenb.	Sg		Fo
<i>Dudresnaya verticillata</i> (With.) Le Jol.	Sg		
<i>Epilithon membranaceum</i> (Esper.) Heydr.	Sg		
<i>Erythrocladia irregularis</i> Rosenv.	Sg		
<i>Erythrocladia subintegra</i> Rosenv.	Sg		
<i>Erythrocytis montagnei</i> (Derb. et Sol.) Silva	Sg	Sp	Fo
<i>Erythrotrichia carnea</i> (Will.) J. Ag.	Sg		
<i>Falkenbergia hillebrandii</i> (Born.) Falkenb.	Sg	Sp	
<i>Feldmannophycus rayssiae</i> (J. et G. Feldm.) Augier et Boudouresque	Sg		
<i>Fosliella farinosa</i> (Lamour.) Howe	Sg	Sp	Fo
<i>Fosliella minutula</i> (Foslie) Ganesan		Sp	
<i>Galaxaura flagelliformis</i> Kjellm. emend. Børg.	Sg	Sp	
<i>Galaxaura oblongata</i> (Ellis et Sol.) Lamour.	Sg		
<i>Galaxaura rugosa</i> (Ellis et Sol.) Lamour.	Sg		
<i>Galaxaura squalida</i> Kjellm.	Sg		
<i>Galaxaura umbellata</i> (Esp.) Lamour.	Sg		
<i>Gelidiella ramellosa</i> (Kütz.) Feldm. et Hamel	Sg		
<i>Gelidiella tenuissima</i> (Thuret.) Feldm. et Hamel	Sg	Sp	
<i>Gelidiella spec.</i>	Sg		
<i>Gelidium crinale</i> (Turn.) Lamour. = <i>Gelidium pusillum</i> (Stackh.) Le Jol.			
<i>Gelidiopsis intricatum</i> (Kütz.) Vickers	Sg		
<i>Gelidium pusillum</i> (Stackh.) Le Jol.	Sg	Sp	
<i>Gigartina acicularis</i> (Roth) Lamour.	Sg	Sp	
<i>Goniotrichum alsidii</i> (Zanard.) Howe	Sg	Sp	
<i>Griffithsia barbata</i> (Smith) C. Ag.	Sg	Sp	
<i>Griffithsia tenuis</i> C. Ag.	Sg	Sp	Fo
<i>Gymnogongrus griffithsiae</i> (Turn.) Martius	Sg		
<i>Halodictyon mirabile</i> Zanard.		Sp	
<i>Halymenia bermudensis</i> Coll. & Howe		Sp	
<i>Herposiphonia secunda</i> (C. Ag.) Näg. = <i>Herposiphonia tenella</i> (C. Ag.) Ambr. var. <i>secunda</i> Hollenberg			
<i>Herposiphonia tenella</i> (C. Ag.) Ambr.	Sg	Sp	Fo
<i>Herposiphonia tenella</i> (C. Ag.) Ambr. var. <i>secunda</i> Hollenberg	Sg	Sp	
<i>Heterosiphonia wurdemannii</i> (Bailey ex Harv.) Falkenb.	Sg	Sp	Fo
<i>Hypnea cervicornis</i> J. Ag.	Sg	Sp	
<i>Hypnea musciformis</i> (Wulf.) Lamour.	Sg	Sp	
<i>Hypoglossum woodwardii</i> Kütz.	Sg		
<i>Janczewskia verruciformis</i> Solms.	Sg		
<i>Jania adhaerens</i> Lamour.	Sg	Sp	
<i>Jania capillacea</i> Harv.	Sg	Sp	Fo
<i>Jania pumila</i> Lamour.	Sg		
<i>Jania rubens</i> (L.) Lamour.	Sg	Sp	
<i>Laurencia hybrida</i> (D. C.) Lenorm. ex Duby	Sg		
<i>Laurencia obtusa</i> (Huds.) Lamour	Sg	Sp	Fo
<i>Laurencia perforata</i> (Bory) Mont.	Sg		
<i>Laurencia pinnatifida</i> (Gmel.) Lamour.	Sg	Sp	
<i>Laurencia spec.</i>	Sg		
<i>Liagora canariensis</i> Børg.	Sg		
<i>Liagora ceranoides</i> Lamour.	Sg	Sp	

<i>Liagora distenta</i> (Mert.) C. Ag.	Sg	Sp	
<i>Liagora</i> cf. <i>gymnarthron</i> Børg.	Sg		
<i>Liagora tetrasporifera</i> Børg.	Sg	Sp	
<i>Lithophyllum solutum</i> (Fosl.) Lem.		Sp	
<i>Lithophyllum</i> cf. <i>vickersiae</i> Lem.		Sp	
<i>Lomentaria articulata</i> (Huds.) Lyngb.	Sg		
<i>Lophosiphonia cristata</i> Falkenb.	Sg		
<i>Lophosiphonia reptabunda</i> (Suhr) Kylin	Sg	Sp	
<i>Lophosiphonia scopulorum</i> (Harv.) Wom.	Sg	Sp	
<i>Melobesia farinosa</i> Lamour. = <i>Fosliella farinosa</i> (Lamour.) Howe			
<i>Melobesia minutula</i> Fosl. = <i>Fosliella minutula</i> (Fosl.) Ganesan			
<i>Naccaria corymbosa</i> J. Ag.	Sg		
<i>Peyssonnelia dubyi</i> Crouan frat.	Sg		
<i>Platoma cyclocolpa</i> Schmitz		Sp	
<i>Platysiphonia miniata</i> (C. Ag.) Børg.		Sp	
<i>Plocamium cartilagineum</i> (L.) Dixon	Sg		
<i>Plumaria</i> spec.	Sg		
<i>Polysiphonia brodiaei</i> (Dillw.) Spreng	Sg		
<i>Polysiphonia</i> cf. <i>ceramiaeformis</i> Crouan		Sp	
<i>Polysiphonia</i> cf. <i>denudata</i> (Dillw.) Grev. ex Harv. in Hook.	Sg		
<i>Polysiphonia elongata</i> (Huds.) Harv.	Sg		
<i>Polysiphonia erythraea</i> (Schousb.) J. Ag.	Sg		
<i>Polysiphonia ferulacea</i> Suhr. in J. Ag.	Sg		
<i>Polysiphonia flexella</i> (C. Ag.) J. Ag.	Sg		
<i>Polysiphonia</i> cf. <i>foetidissima</i> Cocks		Sp	
<i>Polysiphonia furcellata</i> (C. Ag.) Harv. in Hook.	Sg		
<i>Polysiphonia havanensis</i> Mont.	Sg	Sp	?
<i>Polysiphonia macrocarpa</i> Harv. in Mackay	Sg	Sp	Fo
<i>Polysiphonia nutans</i> Mont.	Sg		
<i>Polysiphonia opaca</i> (C. Ag.) Zanard.	Sg	Sp	
<i>Polysiphonia</i> cf. <i>paniculata</i> Mont.	Sg		
<i>Polysiphonia sphaerocarpa</i> Børg.	Sg	Sp	
<i>Polysiphonia subulata</i> (Ducluz.) J. Ag.	Sg		
<i>Polysiphonia tripinnata</i> J. Ag.	Sg		
<i>Polysiphonia</i> spp.		Sp	
<i>Pseudolithophyllum expansum</i> (Phil.) Lemoine	Sg		
<i>Pterocladia capillacea</i> (Gmel.) Born. et Thur.	Sg		
<i>Ptilothamnion pluma</i> (Dillw.) Thur. in Le Jol.	Sg		
<i>Rhodomenia pseudopalmeta</i> (Lamour.) Silva	Sg		
<i>Ricardia montagnei</i> Derb. & Sol. = <i>Erythrocyctis montagnei</i> (Derb. & Sol.) Silva			
<i>Rytiphlaea tinctoria</i> (Clem.) C. Ag.	Sg	Sp	
<i>Scinaia complanata</i> (Collins) Cotton	Sg		
<i>Scinaia furcellata</i> (Turn.) Biv.	Sg		
<i>Spermothamnion gorgoneum</i> (Mont.) Born.	Sg		
<i>Spyridia aculeata</i> (Schimp.) Kütz. = <i>Spyridia hypnoides</i> (Bory) Papenf.			
<i>Spyridia filamentosa</i> (Wulf.) Harv. in Hook.	Sg	Sp	Fo
<i>Spyridia hypnoides</i> (Bory) Papenf.	Sg	Sp	
<i>Taenioma perpusillum</i> (J. Ag.) J. Ag.	Sg	Sp	
<i>Thuretella schousboei</i> (Thur.) Schmitz	Sg		
<i>Vickersia bacata</i> (J. Ag.) Karsak. emend. Børg.	Sg		
<i>Wrangelia argus</i> (Mont.) Mont.	Sg		
<i>Wrangelia penicillata</i> (C. Ag.) C. Ag.	Sg	Sp	
<i>Wurdemannia miniata</i> (Drap.) Feldm. et Hamel	Sg	Sp	Fo
<i>Wurdemannia setacea</i> Harv. = <i>Wurdemannia miniata</i> (Drap.) Feldm. et Hamel			

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