

Benthic marine algae of Iceland: revised checklist

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Abstract — A list of 269 species of benthic marine algae found in Iceland is given. Twenty-two Cyanophyceae, 77 Phaeophyceae, one Chrysophyceae, 95 Rhodophyceae, seven Xanthophyceae, one Charophyceae, 66 Ulvophyceae are included. Of these, 26 are new records for Iceland. Relevant systematic and taxonomic problems are discussed in notes.

checklist / Cyanophyceae / Iceland / marine benthic algae / Phaeophyceae / Ulvophyceae / Rhodophyceae / Xanthophyceae

Résumé — **Catalogue révisé des algues marines d'Islande.** Un inventaire de 269 espèces d'algues marines benthiques des côtes islandaises a été dressé. Il comprend 22 Cyanophyceae, 77 Pheophyceae, une Chrysophyceae, 95 Rhodophyceae, sept Xanthophyceae, une Charophyceae et 66 Ulvophyceae. Vingt-six espèces sont signalées pour la première fois en Islande. De nombreuses espèces, posant des problèmes systématiques et taxinomiques particuliers, ont fait l'objet d'annotations.

algues marines benthiques / Cyanophyceae / checklist / Islande / Phaeophyceae / Ulvophyceae / Rhodophyceae / Xanthophyceae

INTRODUCTION

Systematic studies of the benthic marine algae of Iceland began in the last century with Strömfelt's (1887) studies, primarily of the algal flora of the southwest and the east coast. In the beginning of the twentieth century H. Jónsson (1901, 1903a and b) made extensive studies of the benthic flora in the waters all around Iceland. Since H. Jónsson published his account of the marine algal vegetation in the series "Botany of Iceland" (H. Jónsson, 1912), studies of the marine algae were interrupted until in the sixties when S. Jónsson started his studies on the colonization of marine algae on the new volcanic island of Surtsey (see S. Jónsson *et al.*, 1987). Since then phycological activities have continued with studies of the benthic algae of Iceland by a number of authors.

The first comprehensive checklist of the marine algae of Iceland was published by H. Jónsson in 1912 and a revision of the checklist was published in 1972

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(Caram & S. Jónsson, 1972). In the time interval since then a number of new records have been added to the species list of the Icelandic marine algae (e.g. Jónsson & Gunnarsson, 1978; Gunnarsson, 1985). In addition, major taxonomic revisions have been made in several algal groups in the North Atlantic (see e.g. Lokhorst, 1978; Lokhorst & Trask, 1981; Prud'homme van Reine, 1982; Pedersen, 1984; Nielsen, 1979, 1980, 1983, 1984; Koeman, 1985; Fletcher, 1987; Maggs & Hommersand, 1993; Irvine & Chamberlain, 1994; Brodie *et al.*, 1998) and many nomenclatural changes (e.g. Anagnostidis & Komárek, 1985, 1988, 1990; Komárek & Anagnostidis, 1986, 1989; Silva *et al.*, 1996).

The present list encompasses the Cyanophyceae, Phaeophyceae, Chrysophyceae, Rhodophyceae, Xanthophyceae, Charophyceae and Ulvophyceae growing at the coast of Iceland both in littoral and sublittoral zones. In total 269 species are included, distributed amongst the classes as follows: Rhodophyceae 95 species, Phaeophyceae 77 species, Ulvophyceae 66 species, Charophyceae one species, Xanthophyceae seven species, Chrysophyceae one species and 22 species of Cyanophyceae. In the list the numbers in parenthesis indicate notes given at the end of the list. Names in brackets refer to names not in current use but applied for the Cyanophyceae by Petersen (1928) and H. Jónsson (1903b) and in the checklists of marine benthic algae by H. Jónsson (1912) and Caram and S. Jónsson (1972). Included in the list are 26 species (marked with an asterisk) seen and determined by the authors in the years 1972 to 1999 and not recorded in the above mentioned lists (see note 1).

PROKARYOTA

Cyanophyceae (2)

Chroococcales

Aphanothece Nägeli, 1849

stagnina (Sprengel) A. Braun (3)

Chroococcus Nägeli, 1849

turgidus (Kützing) Nägeli

Cyanocystis Borzi, 1882

prasina (Reinsch) Komárek et Anagnostidis

[*Dermocarpa prasina* (Reinsch) Bornet et Thuret]

Gomphosphaeria Kützing, 1836

aponina Kützing (4)*

Merismopedia Meyen, 1839

glauca (Ehrenberg) Kützing

Pleurocapsa Thuret, 1885

amethystea Rosenvinge

Sarcinastrum Lagerheim, 1900

urosporae Lagerheim (5)*

Oscillatoriales

Geitlerinema (Anagnostidis et Komárek) Anagnostidis, 1989

amphibia (C. Agardh) Anagnostidis

[*Oscillatoria amphibia* C. Agardh]

Leptolyngbya Anagnostidis et Komárek, 1988

norvegica (Gomont) Anagnostidis et Komárek

[*Plectonema norvegicum* Gomont]

- Lyngbya** C. Agardh ex Gomont, 1892
aestuarii (Mertens) Liebman
confervoides C. Agardh (4)*
- Microcoleus** Desmazières ex Gomont, 1892
chthonoplastes (Mertens in Horneman) Thuret ex Gomont (6)
- Oscillatoria** Vaucher ex Gomont, 1892
limosa C. Agardh
- Phormidium** Kützing ex Gomont, 1892
autumnale (C. Agardh) Gomont
- Pseudanabaena** Lauterborn, 1915
limnetica (Lemmermann) Komárek (7)
 [*Oscillatoria limnetica* Lemmermann]
- Spirulina** Turpin ex Gomont, 1892
major Gomont (4)*
subsalsa Oersted

Nostocales

- Anabaena** Bory de Saint-Vincent ex Bornet et Flahault, 1886
pseudoscillatoria Bory de Saint-Vincent
 [*Anabaena oscillatorioides* Bory de Saint-Vincent]
- Calothrix** C. Agardh ex Bornet et Flahault, 1886
crustacea Thuret (4)*
scopulorum (Weber et Mohr) C. Agardh
- Rivularia** (Roth) C. Agardh ex Bornet et Flahault, 1886.
atra Roth
- Trichormus** (Ralfs ex Bornet et Flahault) Komárek et Anagnostidis, 1989
variabilis (Kützing) Komárek et Anagnostidis
 [*Anabaena variabilis* Kützing]

EUKARYOTA

Chrysophyceae

Sarcinochrysidales

- Phaeosaccion** Farlow, 1882
collinsii Farlow

Phaeophyceae

Ectocarpales

- Ectocarpus** Lyngbye, 1819
fasciculatus Harvey
siliculosus (Dillwyn) Lyngbye
 [incl. *Ectocarpus confervoides* (Roth) Le Jolis and *Ectocarpus penicillatus* (C. Agardh) Kjellman]
- Gononema** Kuckuck et Skottsberg in Skottsberg, 1921
aecidioides (Rosenvinge) P.M. Pedersen (8)
 [*Streblonema aecidioides* Rosenvinge, *Entonema aecidioides* (Rosenvinge) Kjellman]
- Hincksia** J.E. Gray, 1864
granulosa (J.E. Smith) P. Silva (9)
 [*Giffordia granulosa* (J.E. Smith) Hamel]

- hincksiae* (Harvey) P. Silva
 [*Ectocarpus hincksiae* Harvey, *Giffordia hincksiae* (Harvey)
 Hamel]
ovata (Kjellman) P. Silva
 [*Giffordia ovata* (Kjellman) Kylin]
secunda (Kützing) P. Silva
 [*Giffordia secunda* (Kützing) Batters]
Laminariocolax Kylin, 1947
tomentosoides (Farlow) Kylin
 [*Ectocarpus tomentosoides* Farlow]
Mikrosyphar Kuckuck, 1895
polysiphoniae Kuckuck
Spongonema Kützing, 1849
tomentosum (Hudson) Kützing
 [*Ectocarpus tomentosus* (Hudson) Lyngbye]

Chordariales

- Chordaria** C. Agardh, 1817
flagelliformis (O.F. Müller) C. Agardh
Dermatocelis Rosenvinge, 1898
laminariae Rosenvinge
 [*Myrionema laminariae* (Rosenvinge) Jónsson]
Eudesme J. Agardh, 1880
virescens (Carmichael ex Berkeley) J. Agardh
 [*Castagnea virescens* (Carmichael ex Berkeley) Sauvageau]
Elachista Duby, 1830
fucicola (Velley) Areschoug
Jonssonia S. Lund, 1959
pulvinata S. Lund
Leptonematella P. Silva, 1959
fasciculata (Reinke) P. Silva
 [*Leptonema fasciculatum* Reinke]
Leathesia S. Gray, 1821
difformis (Linnaeus) Areschoug
Microspongium Reinke, 1888
immersum (Levring) Pedersen (10)
 [*Myrionema globosum* (Reinke) Foslie, *Microspongium globo-*
sum Reinke]
Myrionema Greville, 1827
corunnae Sauvageau
faeroensis Börgesen
foecundum (Strömfelt) Sauvageau (11)
 [*Ascocyclus islandicus* H. Jónsson]
strangulans Greville
Petroderma Kuckuck, 1897
maculiforme (Wollny) Kuckuck
Phaeostroma Kuckuck in Reinbold, 1893
pustulosum Kuckuck in Reinbold
Pseudolithoderma Svedelius in Kjellman et Svedelius, 1910
extensum (P. Crouan et H. Crouan) S. Lund
 [*Lithoderma fatiscens* Kuckuck]

- Ralfsia** Berkeley, 1831
fungiformis (Gunnerus) Setchell et Gardner
 [Ralfsia *deusta* C. Agardh]
ovata Rosenvinge
verrucosa (Areschoug) Areschoug
- Sorapion** Kuckuck, 1894
kjellmanii (Wille) Rosenvinge (11)*
- Stragularia** Strömfelt, 1886
clavata (Harvey in Hooker) Hamel
 [Ralfsia *clavata* (Harvey in Hooker) P. Crouan et H. Crouan]
- Streblonema** Derbès et Solier, 1851
sphaericum (Derbès et Solier) Thuret (13)
stilophorae (P. Crouan et H. Crouan) Hamel
- Tilopteridales**
- Haplospora** Kjellman, 1872
globosa Kjellman
- Isthmoplea** Kjellman, 1877
sphaerophora (Carmichael ex Harvey in Hooker) Kjellman (14)
- Phloeospora** Areschoug, 1873.
curta (Foslie) Jaasund (15)
 [Fosliea *curta* (Foslie) Reinke]
- Pylaiella** Bory de Saint-Vincent, 1823 (16)
littoralis (Linnaeus) Kjellman
varia Kjellman (16)
 [Pylaiella *littoralis* (Linnaeus) Kjellman var. *varia* (Kjellman)
 Kuckuck]
- Sphacelariales**
- Sphacelaria** Lyngbye in Hornemann, 1818 (18)
arctica Harvey (19)*
caespitula Lyngbye
 [Sphacelaria *olivacea* Greville]
nana Nägeli ex Kützing
 [Sphacelaria *britannica* Sauvageau]
plumosa Lyngbye
 [Chaetopteris *plumosa* (Lyngbye) Kützing]
radicans (Dillwyn) C. Agardh
- Desmarestiales**
- Desmarestia** Lamouroux, 1813
aculeata (Linnaeus) Lamouroux
ligulata (Lightfoot) Lamouroux
viridis (O.F. Müller) Lamouroux
- Dictyosiphonales**
- Coelocladia** Rosenvinge, 1893
arctica Rosenvinge (20)
 [Litosiphon *subcontinuus* (Rosenvinge) S. Lund]
- Delamarea** Hariot, 1889
attenuata (Kjellman) Rosenvinge

- Dictyosiphon** Greville, 1830
chordaria Areschoug
ekmanii Areschoug
foeniculaceus (Hudson) Greville
[incl. *Dictyosiphon corymbosus* Kjellman and *Dictyosiphon hippuroides* (Lyngbye) Kützing]
- Pogotrichum** Reinke, 1892
filiforme Reinke
[*Litosiphon filiformis* (Reinke) Batters]
- Stictyosiphon** Kützing, 1843
tortilis (Ruprecht) Reinke
- Trachynema** P.M. Pedersen, 1985
mortensenii (S. Lund) P.M. Pedersen
[*Litosiphon mortensenii* S. Lund]

Punctariales

- Asperococcus** Lamouroux, 1813
fistulosus (Hudson) Hooker
- Coilodesme** Strömfelt, 1886
bulligera Strömfelt
- Omphalophyllum** Rosenvinge, 1893
ulvaceum Rosenvinge
- Petalonia** Derbès et Solier, 1850
fascia (O.F. Müller) Kuntze
[*Phyllitis fascia* (O. F. Müller) Kützing]
zosterifolia (Reinke) Kuntze
[*Phyllitis zosterifolia* Reinke]
- Punctaria** Greville, 1830
plantaginea (Roth) Greville

Scytosiphonales

- Scytosiphon** C. Agardh, 1820
lomentaria (Lyngbye) Link

Laminariales

- Alaria** Greville, 1830
esculenta (Linnaeus) Greville
pylarii (Bory de Saint-Vincent) J. Agardh (21)
- Chorda** Stackhouse, 1797
filum (Linnaeus) Stackhouse
- Halosiphon** Jaasund, 1957
tomentosus (Lyngbye) Jaasund (22)
[*Chorda tomentosa* Lyngbye]
- Laminaria** Lamouroux, 1813
digitata (Hudson) Lamouroux
faeroensis Börgesen (23)
hyperborea (Gunnerus) Foslie
nigripes J. Agardh (24)
saccharina (Linnaeus) Lamouroux
- Phyllaria** Le Jolis, 1856
dermatodea (de la Pylaie) Gobi (25)
[*Saccorrhiza dermatodea* (de la Pylaie) J. Agardh]

Fucales (26)**Ascophyllum** Stackhouse, 1809*nodosum* (Linnaeus) Le Jolis**Fucus** Linnaeus, 1753*ceranoides* Linnaeus*distichus* Linnaeus (27)[*Fucus inflatus* Linnaeus]f. *typica* Jónssonf. *evanescens* (C. Agardh)f. *linearis* (Hudson) Rosenvingef. *exposita* Jónsson*serratus* Linnaeus*spiralis* Linnaeus*vesiculosus* Linnaeus**Pelvetia** Decaisne et Thuret, 1845*canaliculata* (Linnaeus) Decaisne et Thuret**Xanthophyceae****Vaucheriales****Vaucheria** A.P. de Candolle, 1801 (28)*coronata* Nordstedt **intermedia* Nordstedt (29)**litorea* Hofman ex C. Agardh**sescuplicaria* Christensen **subsimplex* P. Crouan et H. Crouan[*Vaucheria sphaerospora* Nordstedt]*synandra* Woronin*velutina* C. Agardh ***Rhodophyceae****Erythropeltidales****Erythrotrichia** Arechoug, 1850*carnea* (Dillwyn) J. Agardh (30)***Porphyropsis** Rosenvinge, 1909*coccinea* (J. Agardh ex Areschoug) Rosenvinge**Sahlingia** Kornmann, 1989*subintegra* (Rosenvinge) Kornmann[*Erythrocladia subintegra* Rosenvinge]**Bangiales****Bangia** Lyngbye, 1819(sporophyte; *Conchocelis* sp.)*atropurpurea* (Roth) C. Agardh[*Bangia fuscopurpurea* (Dillwyn) Lyngbye]**Porphyra** C. Agardh, 1824 (31)(sporophyte; *Conchocelis* sp.)*amplissima* (Kjellman) Setchell et Hus in Hus[*Porphyra miniata* (C. Agardh) C. Agardh, f. *amplissima*(Kjellman) Rosenvinge, *Porphyra helenea* A. Zinova, *Porphyra**thulea* Munda et Pedersen see note (1)]

- dioica* Brodie et Irvine (32)
 [*Porphyra laciniata* Strömfelt, *Porphyra umbilicalis* (Linnaeus)
 J. Agardh f. *laciniata* Strömfelt]
linearis Greville
 [*Porphyra umbilicalis* (Linnaeus) J. Agardh f. *linearis* (Greville)
 Harvey]
miniata (C. Agardh) C. Agardh
purpurea (Roth) C. Agardh
umbilicalis (Linnaeus) Kützing

Acrochaetiales (33)**Acrochaetium** Nägeli, 1862

- alariae* (Jónsson) Bornet (34)
 (tetrasporophyte (?) *Rhodochorton repens* Jónsson)
 [*Chantransia alariae* Jónsson]
hallandicum (Kylin) Hamel (35)
 [*Kylinia hallandica* (Kylin) Kylin]
microscopicum (Nägeli ex Kützing) Nägeli
 [*Chantransia microscopica* (Nägeli) Foslie]
minutum (Suhr) Hamel
 [*Rhodochorton minutum* Suhr]
secundatum (Lyngbye) Nägeli (36)
 [*Chantransia secundata* (Lyngbye) Thuret]
virgatulum (Harvey) Batters (36, 37)
 [*Chantransia virgatula* (Harvey) Thuret]

Audouinella Bory de Saint-Vincent, 1823

- membranacea* (Magnus) Papenfuss
 [*Rhodochorton membranaceum* (Magnus) Hauck]
pectinata (Kylin) Papenfuss (38)*

Rhodochorton Nägeli, 1862

- purpureum* (Lightfoot) Rosenvinge
 [*Rhodochorton rothii* (Turton) Nägeli and *Rhodochorton islandicum*
 Rosenvinge]

Palmariales**Devaleraea** M. Guiry, 1982

- ramentacea* (Linnaeus) M. Guiry (39)
 [*Halosaccion ramentaceum* (Linnaeus) J. Agardh]

Halosacciocolax S. Lund, 1959

- kjellmanii* S. Lund (40)

Meiodiscus Saunders et McLachlan, 1991

- spetsbergensis* (Kjellman) G.W. Saunders et McLachlan
 [*Rhodochorton penicilliforme* (Kjellman) Rosenvinge]

Palmaria Stackhouse, 1801

- palmata* (Linnaeus) Kuntze
 [*Rhodymenia palmata* (Linnaeus) Greville]

Rhodophysema Batters, 1897

- elegans* (P. Crouan et H. Crouan) Dixon
 [*Rhododermis parasitica* Batters]

Ahnfeltiales**Ahnfeltia** Fries, 1835

- plicata* (Hudson) Fries (41)

Bonnemaisoniales

- Bonnemaisonia** C. Agardh, 1822
asparagoides (Woodward) C. Agardh (42)

Cryptonemiales

- Callophyllis** Kützing, 1843
cristata (C. Agardh) Kützing (43)
 [*Euthora cristata* (C. Agardh) J. Agardh]
- Choreocolax** Reinsch, 1875
polysiphoniae Reinsch (44)*
- Dilsea** Stackhouse, 1809
 ?*carnosa* (Schmidel) Kuntze (45)
 [*Dilsea edulis* Stackhouse]
- Dumontia** Lamouroux, 1813
contorta (Gmelin) Ruprecht
 [*Dumontia filiformis* (O.F. Müller) Greville, *Dumontia incrassata*
 (O.F. Müller) Lamouroux]
- Harveyella** Schmitz et Reinke in Reinke, 1889
mirabilis (Reinsch) Schmitz et Reinke in Reinke (46)*
- Peyssonelia** Decaisne, 1841
rosenvingii Schmitz

Hildenbrandiales

- Hildenbrandia** Nardo, 1834
rubra (Sommerfelt) Meneghini
 [*Hildenbrandia rosea* Kützing, *Hildenbrandia prototypus* Nardo]

Corallinales (47)

- Clathromorphum** Foslie, 1898
circumscriptum (Strömfelt) Foslie
 [*Clathromorphum compactum* (Kjellman) Foslie]
- Corallina** Linnaeus, 1758
officinalis Linnaeus
- Kvaleya** Adey et Sperapani, 1971
epilaeve Adey et Sperapani
- Lithophyllum** Philippi, 1837
crouanii Foslie
 [*Lithophyllum orbiculatum* (Foslie) Foslie]
- Lithothamnion** Heydrich, 1897
glaciale Kjellman
 [incl. *Lithothamnion ungeri* Kjellman]
tophiforme Unger
- Phymatolithon** Foslie, 1898
foecundum (Kjellman) Düvel et Wegeberg
 [*Leptophyllum foecundum* (Kjellman) Adey, *Lithothamnion foecundum* Kjellman]
laevigatum (Foslie) Foslie
 [*Lithothamnion laevigatum* Foslie]
lamii (Lemoine) Y. Chamberlain (48)
 [*Phymatolithon rugulosum* Adey]

- lenormandii* (Areschoug in J. Agardh) Adey
 [*Lithothamnion lenormandii* (Areschoug) Foslie, *Lithothamnion flavescens* Kjellman, *Leptophytum laeve* (Strömfelt) Adey, *Lithothamnion laeve* Strömfelt (49)]
purpureum (P. Crouan et H. Crouan) Woelkerling et L. Irvine
 [*Phymatolithon polymorphum* (Linnaeus) Foslie]
- Titanoderma*** Nägeli, 1858
pustulatum (Lamouroux) Nägeli var. *macrocarpum* (Rosanoff) Y. Chamberlain
 [*Dermatolithon macrocarpum* (Rosanoff) Foslie, *Dermatolithon pustulatum* (Lamouroux) Foslie]
- Gigartinales**
- Catenella*** Greville, 1830
caespitosa (Withering) L. Irvine in Parke et Dixon (50)
 [*Catenella repens* (Lightfoot) Batters]
- Ceratocolax*** Rosenvinge, 1898
hartzii Rosenvinge
- Chondrus*** Stackhouse, 1797
crispus Stackhouse
- Coccotylus*** Kützing, 1843
truncatus (Pallas) Wynne et Heine
 [*Phyllophora truncata* (Pallas) Zinova, *Phyllophora brodiaei* (Turner) J. Agardh f. *interrupta* (Greville) Rosenvinge, *Actinococcus subcutaneus* (Lyngbye) Rosenvinge]
- Cruoria*** Fries, 1835
pellita (Lyngbye) Fries
- Cystoclonium*** Kützing, 1843
purpureum (Hudson) Batters
- Erythrodermis*** Batters, 1900
traillii (Holmes ex Batters) Guiry et Garbary (51)*
- Fimbrifolium*** G. Hansen, 1980
dichotomum (Lepeschin) G. Hansen
 [*Rhodophyllis dichotoma* (Lepeschin) Gobi]
- Haemescharia*** Kjellman, 1883
hennedyi (Harvey) Vinogradova et Yakovleva
 [*Petrocelis hennedyi* (Harvey) Batters]
- Mastocarpus*** Kützing, 1843
stellatus (Stackhouse in Withering) M. Guiry (52)
 [*Gigartina mamillosa* (Goodenough et Woodward) J. Agardh, *Gigartina stellata* (Stackhouse) Batters]
- Phyllophora*** Greville, 1830
crispa (Hudson) Dixon
 [*Phyllophora rubens* (Goodenough et Woodward) Grevillei]
pseudoceranoides (Gmelin) Newroth et A.R.A. Taylor
 [*Phyllophora membranifolia* (Goodenough et Woodward) J. Agardh]
- Schizymenia*** J. Agardh, 1851
dubyi (Chauvin ex DUBY) J. Agardh
 (tetrasporophyte (?)) *Haematocelis rubens* J. Agardh (53)*
- Turnerella*** Schmitz, 1896
pennyi (Harvey) Schmitz
 (tetrasporophyte *Cruoria arctica* Schmitz in Rosenvinge (54))

Plocamiales***Plocamium*** Lamouroux, 1813.*cartilagineum* (Linnaeus) Dixon[*Plocamium coccineum* (Hudson) Lyngbye]**Rhodymeniales*****Lomentaria*** Lyngbye, 1819*clavellosa* (Turner) Gaillon*orcadensis* (Harvey) Collins ex W.R. Taylor[*Lomentaria rosea* (Harvey) Thuret ex Farlow]**Ceramiales (55)*****Aglaothamnion*** Feldmann-Mazoyer, 1940*scopulorum* (C. Agardh) Feldmann-Mazoyer (56)[*Callithamnion scopulorum* C. Agardh]*sepositum* (Gunnerus) Maggs et Hommersand[*Callithamnion arbuscula* (Dillwyn) Lyngbye]***Antithamnionella*** Lyle, 1922*floccosa* (O.F. Müller) Whittick[*Antithamnion floccosum* (O.F. Müller) Kleen]***Callithamnion*** Lyngbye, 1819*tetragonum* (Withering) S.F. Gray***Ceramium*** Roth, 1797*circinnatum* (Kützing) J. Agardh (57)*deslongchampii* Chauvin ex Duby*virgatum* Roth (58)[*Ceramium arborescens* J. Agardh, *Ceramium atlanticum* Petersen, *Ceramium fruticosum* (Kützing) J. Agardh, *Ceramium rubrum* (Hudson) C. Agardh]*shuttleworthianum* (Kützing) P. Silva[*Ceramium acanthonotum* (Carmichael ex Harvey in Hooker) J. Agardh]***Delesseria*** Lamouroux, 1813*sanguinea* (Hudson) Lamouroux***Membranoptera*** Stackhouse, 1809*alata* (Hudson) Stackhouse[*Delesseria alata* (Hudson) Lamouroux]***Odonthalia*** Lyngbye, 1819*dentata* (Linnaeus) Lyngbye***Pantoneura*** Kylin, 1919*baerii* (Postels et Ruprecht) Kylin[*Delesseria baerii* (Post. et Rupr.) J. Agardh var. *corymbosa* (J. Agardh) Rosenvinge]***Phycodrys*** Kützing, 1843*rubens* (Linnaeus) Batters[*Delesseria sinuosa* (Goodenough et Woodward) Lamouroux]***Plumaria*** Schmitz, 1896*plumosa* (Hudson) Kuntze[*Plumaria elegans* (Bonnemaison) Schmitz]***Polysiphonia*** Greville, 1823*arctica* J. Agardh*?brodiaei* (Dillwyn) Sprengel (59)

- ?elongata* (Hudson) Sprengel (59)
fucoides (Hudson) Greville
 [*Polysiphonia nigrescens* (Hudson) Greville in Hooker]
lanosa (Linnaeus) Tandy
 [*Polysiphonia fastigiata* (C. Agardh) Greville]
stricta (Dillwyn) Greville
 [*Polysiphonia urceolata* (Lightfoot ex Dillwyn) Greville ex
 Harvey in Hooker]
Pterosiphonia Falkenberg, 1897
 parasitica (Hudson) Falkenberg
Ptilota C. Agardh, 1817
 serrata Kützing
 [*Ptilota pectinata* (Gunnerus) Kjellman]
 gunneri P. Silva, Maggs et L. Irvine in Maggs et Hommersand
 [*Ptilota plumosa* (Hudson) C. Agardh]
Rhodomela C. Agardh, 1822
 confervoides (Hudson) P. Silva
 lycopodioides (Linnaeus) C. Agardh
Scagelothamnion Athanasiadis, 1996
 pusillum (Ruprecht) Athanasiadis
 [*Antithamnion plumula* (Ellis) Thuret var. *boreale* Gobi,
 Antithamnion boreale (Gobi) Kjellman]

Charophyceae (60)

Klebsormidiales

- Stichococcus*** Nägeli, 1849
 bacillaris Nägeli

Ulvophyceae (60)

Chlorococcales

- Chlorochytrium*** Cohn, 1872
 cohnii Wright
 dermatocolax Reinke
 schmitzii Rosenvinge
 willei Printz (61) *
Codiolum A. Braun, 1852
 pusillum (Lyngbye) Kjellman in Foslie
Halochlorococcum Dangeard, 1965
 marinum Dangeard (62)*
Sykidion Wright, 1881
 droebakiense Wille (63)*

Codiales

- Bryopsis*** Lamouroux, 1809
 plumosa (Hudson) C. Agardh (64)
Codium Stackhouse, 1797
 fragile (Suringar) Hariot (65)*
Derbesia Solier, 1846
 marina (Lyngbye) Solier
 (gametophyte *Halicystis ovalis* (Lyngbye) Areschoug (66)*)

Ostreobium Bornet et Flahault, 1889*quekettii* Bornet et Flahault**Siphonocladales** (*sensu* Schmitz 1879)**Chaetomorpha** Kützing, 1845*ligustica* (Kützing) Kützing (67)[*Chaetomorpha tortuosa* (Dillwyn) Kleen, *Lola implexa* (Harvey) A. Hamel et G. Hamel]*melagonium* (Weber et Mohr) Kützing**Cladophora** Kützing, 1843 (68)*flexuosa* (O.F. Müller) Kützing[incl. *Cladophora gracilis* Kützing and *Cladophora hirta* Kützing]*fracta* (O.F. Müller ex Vahl) Kützing (69)*ruchingeri* (C. Agardh) Kützing (70)**rupestris* (Linnaeus) Kützing*sericea* (Hudson) Kützing[incl. *Cladophora glaucescens* (Griffiths ex Harvey) Kützing]**Rhizoclonium** Kützing, 1843*implexum* (Dillwyn) Kützing (71)[*Rhizoclonium riparium* (Roth) Harvey, f. *implexum* (Dillwyn) Rosenvinge]*riparium* (Roth) Harvey**Uronema** Lagerheim, 1887*curvatum* Printz (72)**Ulothricales****Ulothrix** Kützing, 1833 (73)*flacca* (Dillwyn) Thuret in Le Jolis[incl. *Ulothrix islandica* (Jónsson) Printz, *Ulothrix consociata* Wille, *Ulothrix consociata* Wille var. *islandica* Jónsson, *Ulothrix pseudoflacca* Wille]*speciosa* (Carmichael ex Harvey in Hooker) Kützing[*Ulothrix flacca* (Dillwyn) Thuret in Le Jolis *pro parte*]*subflaccida* Wille**Acrosiphoniales** (74)**Acrosiphonia** J. Agardh, 1846 (75)*arcta* (Dillwyn) J. Agardh(sporophyte: *Codiolum petrocelidis* Kuckuck *pro parte*)[incl. *Acrosiphonia albescens* Kjellman, *Acrosiphonia spinescens* (Kützing) Kjellman]*sonderi* (Kützing) Kornmann[*Acrosiphonia flabelliformis* Jónsson, *Acrosiphonia hystrix* (Strömfelt) Jónsson and *Acrosiphonia penicilliformis* (Foslie) Kjellman,]*centralis* (Lyngbye) Kjellman[*Acrosiphonia incurva* Kjellman]**Spongomorpha** Kützing, 1843 (75)*aeruginosa* (Linnaeus) van den Hoek[*Spongomorpha vernalis* (Kjellman) Wille](sporophyte; *Chlorochytrium inclusum* Kjellman, *Codiolum petrocelidis* Kuckuck *pro parte*)

Urospora Areschoug, 1866 (76)*bangioides* (Harvey) Holmes et Batters[*Urospora hartzii* Rosenvinge *pro parte* (77)]*neglecta* (Kornmann) Lokhorst et Trask[*Urospora mirabilis* Areschoug *pro parte* (78)]*penicilliformis* (Roth) Areschoug[*Urospora mirabilis* Areschoug *pro parte* and *Urospora hartzii* Rosenvinge *pro parte* (78)]*wormskioldii* (Mertens in Hornemann) Rosenvinge(sporophyte: *Codiolum gregarium* Braun) [*Urospora hartzii* Rosenvinge *pro parte*]**Monostromatales*****Blidingia*** Kylin, 1947*marginata* (J. Agardh) P. Dangeard ex Bliding[*Enteromorpha intestinalis* (Linnaeus) Link f. *micrococca* (Kützing) Rosenvinge]*minima* (Nägeli ex Kützing) Kylin[*Enteromorpha intestinalis* (Linnaeus) Link f. *minima* (Nägeli ex Kützing) Rosenvinge]***Capsosiphon*** Gobi, 1879*fulvescens* (C. Agardh) Setchell et Gardner[*Enteromorpha aureola* (C. Agardh) Kützing]*groenlandicum* (J. Agardh) Vinogradova (79)[*Monostroma groenlandicum* J. Agardh, *Enteromorpha groenlandica* (J. Agardh) Setchell et Gardner]***Gomontia*** Bornet et Flahault, 1888*polyrhiza* (Lagerheim) Bornet et Flahault (80)[*Codiolum polyrhizum* Lagerheim]***Kornmannia*** Bliding, 1968*leptoderma* (Kjellman) Kornmann (81)****Monostroma*** Thuret, 1854 (82)*grevillei* (Thuret) Wittrock*undulatum* Wittrock**Ulvales*****Enteromorpha*** Link in Nees, 1820 (83)*muscoides* (Clemente y Rubio) Cremades (84)*compressa* (Linnaeus) Nees[*Enteromorpha intestinalis* (Linnaeus) Nees f. *compressa* (Linnaeus) Rosenvinge]*flexuosa* (Wulfen) J. Agardh*intestinalis* (Linnaeus) Nees*linza* (Linnaeus) J. Agardh*prolifera* (O.F. Müller) J. Agardh (85)[*Enteromorpha intestinalis* (Linnaeus) Nees f. *prolifera* (O.F. Müller) Börgesen]***Percursaria*** Bory de Saint-Vincent, 1823*percursa* (C. Agardh) Rosenvinge

Ulva Linnaeus, 1753

lactuca Linnaeus

rigida C. Agardh

Ulvaria Ruprecht, 1851

fusca (Postels et Ruprecht) Ruprecht

[*Monostroma fuscum* (Postels et Ruprecht) Wittrock, *Ulvaria*

obscura (Kützing) Gayral]

Prasiolales

Prasiola (C. Agardh) Meneghini, 1838

crispa (Lightfoot) Kützing

furfuracea (Mertens) Meneghini

stipitata Suhr in Jessen

Rosenvingiella P. Silva, 1957

polyrhiza (Rosenvinge) P. Silva

[*Prasiola polyrhiza* (Rosenvinge) Börgesen]

Ctenocladales (86)

Acrochaete N. Pringsheim, 1863

operculata J.A. Correa et R. Nielsen (87)*

repens N. Pringsheim

[*Acrochaete parasitica* Oltmanns]

viridis (Reinke) R. Nielsen (88)*

wittrockii (Wille) R. Nielsen

[*Ectochaete wittrockii* (Wille) Kylin, *Entoderma wittrockii* (Wille)

Lagerheim]

Bolbocoleon N. Pringsheim, 1863

piliferum N. Pringsheim

Epicladia Reinke, 1889

flustrae Reinke

Eugomontia Kornmann, 1960

sacculata Kornmann (80)

Ochlochaete Thwaites in Harvey, 1849

hystrix Thwaites in Harvey var. *ferox* (Huber) R. Nielsen

[*Ochlochaete ferox* Huber]

Pringsheimiella von Höhnel, 1920

?*scutata* (Reinke) Marchewianka (89)

[*Pringsheimia scutata* Reinke *pro parte*]

Pseudendoclonium Wille, 1901

submarinum Wille

fucicola (Rosenvinge) R. Nielsen

[*Ulvella fucicola* Rosenvinge, *Pseudopringsheimia fucicola* (Rosenvinge) Wille]

Syncoryne R. Nielsen et P.M. Pedersen, 1977 (89).

reinkei R. Nielsen et P.M. Pedersen

[*Pringsheimia scutata* Reinke *pro parte*]

Tellamia Batters, 1895

contorta Batters (90)*

NOTES

1. The additions of new records to the present checklist are based on specimens seen by the authors. In a long series of articles, Munda (1976, 1977, 1978, 1980a, 1980b, 1983, 1984, 1985, 1992, 1994, 1999) has described the intertidal seaweed vegetation in different parts of Iceland. A list of selected algae, recorded as new for Iceland was given by Munda in 1979. Some of these new records have been questioned as they fall outside the known biogeographical boundaries in the North Atlantic (see Prud'homme van Reine, 1982; Cambridge *et al.*, 1990). A new species *Porphyra thulea* described by Munda & Pedersen from eastern Iceland (Munda & Pedersen, 1978) has by molecular genetic analysis been shown to belong to *P. amplissima* (Brodie *et al.*, 1998). The authors have not had the opportunity to re-examine the material collected by Munda as none of her specimens is available. We therefore chose not to incorporate these records in the present list pending further investigation.

2. Provisional list. Regarding recent treatments of the systematics of the Cyanophyceae see Anagnostidis & Komárek (1985, 1988, 1990) and Komárek & Anagnostidis (1986, 1989).

3. Hariot (1893) records this species amongst algae collected by M. Bouchet in the head of Ísafjörður and in Arnarfjörður. No date is given for the collection.

4. New record; Found at Melabakkar, W-Iceland, 1977.

5. New record; Found in Eyjafjörður, N-Iceland in 1974, Skerjafjörður, SW-Iceland, 1975 and Reykjavík harbour in 1990, parasitic on *Ulothrix* spp.

6. New record for marine habitat in Iceland; Found at Melabakkar, W-Iceland, 1977. Also recorded by Broady (1978) from freshwater habitat in North Iceland.

7. New record for marine habitat in Iceland; This species was found in salt pans in Melabakkar W-Iceland in 1977. It has been recorded earlier in freshwater lake Mývatn (Jónsson & Aðalsteinsson, 1979).

8. *Gononema aecidioides* is placed by Burkhardt & Peters (1998) in the genus *Laminariocolax*.

9. A specimen with recurved branches was recorded in Surtsey in 1977 (S. Jónsson & Gunnarsson, 1982) agreeing with Kuckucks description and illustration of *Hincksia recurvata* (Kuckuck, 1961). This entity was considered to be a synonym of *Hincksia granulosa* (as *Giffordia granulosa*) by Kornmann (*in* Kuckuck, 1961), however, Cardinal (1964) has shown that the species differs significantly from *Hincksia granulosa* and merits a status as an independent species. The species was initially described (with diagnosis in German) and illustrated in 1901 by Kuckuck but not published until 1961 (Kuckuck, 1961). More recently *Ectocarpus recurvatus* Kuckuck has been considered as *nomen nudum* (South & Tittle, 1986) leading to the invalidation of *Giffordia recurvata* (Kuckuck) Cardinal.

10. Pedersen (1984) has examined the material that H. Jónsson collected and determined as *Myrionema globosum* (Reinke) Foslie (= *Microspongium globosum* Reinke) (H. Jónsson, 1903a). According to Pedersen (1984) the correct name for the plants is *Microspongium immersum*.

11. This species has been referred to the genus *Hecatonema* by Pedersen (1984) and *Chilionema* by Fletcher (1987). Here we follow Sauvageau (1897) who considered upright filaments from each cell in the basal disc the main character for the genus *Myrionema*.

12. New record; plants agreeing with Wærn's (1952) description of *Porterinema fluviatilis* (Hobard C. Porter) Waern were found growing on *Ulvaria obscura* in the littoral zone in Örfirisey, Reykjavík in April 1975. Pedersen (1981) has shown *Porterinema fluviatilis* to be a part of the life cycle of *Sorapion kjellmanii*.

13. Pedersen (1978) has studied the life cycle of this species. The species has an heteromorphic life cycle. *Streblonema sphaericum* possibly represents a microthallus of *Myriotrichia clavaeformis* Harvey.

14. The life cycle of this species in Iceland has been studied by S. Jónsson (1977). The Icelandic plants had four chromosomes.

15. This species was considered by H. Jónsson (1903a) to be synonymous with *Isthmoplea sphaerophora*.

16. Silva *et al.* (1999) have proposed to conserve the name *Pylaiella* for this genus. According to Pedersen (1984) species in the genus *Pylaiella* (as *Pilayella*) differ significantly from species in the Ectocarpales as *e.g.* species of *Ectocarpus* by having intercalary sporangia and partly multiseriate thallus. The genus is closely related to *Isthmoplea sphaerospora* and is accordingly placed in the Tilopteridales.

17. For the taxonomic status of this species see Pedersen (1984), Kornmann (1990), and Siemer & Pedersen (1995). Petersen's (1984) study includes material from Steingrímsfjörður, NW-Iceland.

18. Regarding the taxonomy of *Sphacelaria* see Prud'homme van Reine (1982).

19. New record; Found in a tide pool in Örfirisey, Reykjavík, in April 1977.

20. Regarding the taxonomy of this species see Pedersen (1976). On the relationship between *Coelocladia arctica* and *Stictyosiphon arcticus* see Pedersen & Kristiansen 1992.

21. Specimens of *Alaria* with short stipe, broad blade and wide sporophylls with asymmetrical bases are here referred to *Alaria pylaii*. According to Widdowson (1971) this species is confined to the western Atlantic and has probably often been confused with sheltered water forms of *A. esculenta* with long stipes and wide thin blades in the eastern Atlantic. South (1984), South and Tittley (1986) and Lüning (1990) consider that the North-Atlantic harbours only one species, *A. esculenta*, of which three morphological forms can be recognised. In a molecular genetic study Kraan & Guiry (2000) considered *A. esculenta* a homogenous species.

22. This species was separated from *Chorda* and placed in the genus *Halosiphon* by Jaasund (1957) on the bases of presumed differences in life history. Although Jaasund had mistaken an epiphyte for the gametophyte, it was later shown by Sundene (1963) and Maier (1984) that the species differed from species of *Chorda* in certain life history traits. Peters (1998) has produced additional molecular genetic evidence supporting the separation of this species from the genus *Chorda*.

23. *Laminaria faeroensis* has been considered synonymous with *L. longicuris* de la Pylae (Kain, 1976; Egan & Yarrish, 1988) which in turn has been considered a possible synonym of *L. saccharina*, which has priority in that case (Mann, 1971; Chapman, 1974, 1975; Lüning *et al.*, 1978; Sjøtun & Gunnarsson, 1995). Pending further studies the epithet *L. faeroensis* Börgesen is retained here.

24. *Laminaria nigripes* has been considered to be synonymous with *Laminaria digitata* (South & Hooper, 1980; South & Tittley, 1986). Contrary to *L. digitata*, *L. nigripes* has mucilage ducts in the stipe, resembling *L. hyperborea* in that respect (Agardh, 1868; Rosenvinge, 1892; H. Jónsson, 1903). This character seems to be a stable species character in the Digitatae section of the genus and the species is therefore retained here (see Gunnarsson, 1991 for discussion).

25. Henry & South (1987) have proposed to replace *Phyllaria* with the name *Phyllariopsis* based on the assumption that *Phyllaria dermatodea*, the type species of the genus, is more related to *Sacchorhiza polyschides* (Lightfoot) Batters than it is to *Phyllaria reniformis* (Lamouroux) Rostafinski (= *Phyllariopsis brevipes* (C. Agardh) Henry *et al.*) and *P. purpurescens* (C. Agardh) Rostafinski the other species previously placed in the genus *Phyllaria*. Morphologically, *P. dermatodea* differs significantly from *S. polyschides*, but shares many common morphological characters with *P. brevipes* and *P. purpurescens*, such as the morphology of the stipe, sori being formed only on the lamina, and having unbranched haptera as in some forms of *P. brevipes* (Pérez-Cirera *et al.*, 1991). The name *Phyllaria dermatodea* is therefore retained here.

26. Recent molecular studies by Rousseau *et al.* (1998) and Serrão *et al.* (1999) have shed light on the phylogenetic relationships within the Fucales that appears to be a monophyletic group.

27. *Fucus distichus* Linnaeus *emend.* Powell has been split into two distinct species, *F. distichus* Linnaeus and *F. evanescens* C. Agardh by Rice & Chapman (1985) on the basis of morphological characters. H. Jónsson (1903a) considered the complex consisting of one species (as *F. inflatus* Linnaeus), having four different forms and Powell (1957) split the species into four subspecies. Serrão *et al.* (1999) failed to detect genetic difference between the two taxa using internal transcribed spacers (ITS). There is an enormous form

variability in this complex and pending transplant and further molecular genetic studies only one species, with four forms, is retained in the present list.

28. Gunnarsson (1985) gives an account of the species and distribution of the genus *Vaucheria* in W-Iceland, adopted here, and lists new records.

29. New record; found in Gerðartangi, Vatnsleysuströnd, SW-Iceland in July 1963.

30. New record; found by Steffen Lundsteen (pers. comm.) in Lónakot, SW-Iceland in 1983.

31. Concerning the taxonomy of North-Atlantic *Porphyra* species see Brodie *et al.* (1998).

32. See Brodie & Irvine (1997) for the description of this species and the identity of species earlier described under the name *Porphyra laciniata* Strömfelt.

33. The generic circumscription is according to Lee & Lee (1988). See also Papenfuss (1945), Dixon (in Parke & Dixon, 1976) and Stegenga *et al.* (1997).

34. Concerning the life history of *Acrochaetium alariae* see Lee (1983), Lee & Kurogi (1983) and Kuiper (1983). According to Lee & Kurogi (1983) the species has a heteromorphic life cycle in Korea, where *A. alariae* is the gametophyte and *Rhodochorton repens* represents the tetrasporophyte.

35. Stegenga & Borsje (1977) have shown that *Acrochaetium hallandicum* has a heteromorphic life cycle and the entity referred to the present species is the gametophyte. The tetrasporophyte is recognised as *A. polyblastum* (Rosenvinge) Børgesen, which has not been recorded in Iceland. Considered by some authors to be a synonym of *A. parvulum* (Kyllin) Hoyt, possibly is the gametophyte of *A. virgatula* (see Borsje, 1973).

36. Abdel-Rahman & Bidoux (1989) have shown that *Acrochaetium secundatum* in France, has a heteromorphic life cycle, with the tetrasporophyte corresponding to the type of the species. Woelkerling (1973) considers *A. secundatum* a synonym of *A. virgatulum*, the former name having priority.

37. Borsje (1973) studied the life history of *Acrochaetium virgatulum* in the Netherlands and obtained gametangial plants resembling *A. parvulum* and *A. ripidandrum* (Rosenvinge) Hamel. *A. parvulum* has been considered a synonym with *A. hallandicum* that is recorded in Iceland. *A. ripidandrum* has not been recorded in Iceland. Abdel-Rahman (1984) cultured *A. parvulum* and obtained controversial results, *A. parvulum* being the tetrasporophyte and gametophytic plants resembling *A. maluinum* Hamel and *A. battersianum* Hamel. Further studies are needed.

38. New record; found by Steffen Lundsteen (pers. comm.) in Lónakot, SW-Iceland in 1983 and Surtsey S-Iceland 1984. According to Boillot & Magne (1973) the species has a heteromorphic life cycle with *A. pectinatum* as the tetrasporophytic phase and *Kylinia rosulata* Rosenvinge as the gametophytic phase. *K. rosulata* has not been recorded from Iceland. The identity of the tetrasporophyte has been questioned by Stegenga & Van Wissen (1979).

39. Regarding the life history and the nuclear cycle of this species in Iceland see S. Jónsson & Chesnoy (1982).

40. The ultrastructure of *Halosaccocolax kjellmanii* S. Lund in Iceland and its relationship with its host is described in S. Jónsson & Chesnoy (1988). Meiosis and tetrasporogenesis in the Icelandic plants are described by Chesnoy & S. Jónsson (1989).

41. Tetrasporophytic phase of this species, *Porphyrodiscus simulans* Batters, has not been recorded in Iceland.

42. In the herbarium of the Botanical Museum in Copenhagen there are specimens of this species labelled "ad littora Islandiae pr. Reykjavik" collected by Faber who travelled in Iceland in the years 1819-1821.

43. Hansen (1986) has proposed a resurrection of the genus *Euthora* for this species.

44. New record; found on *Polysiphonia lanosa* in various localities in SW- and W-Iceland and on *P. arctica* in Eyjafjörður, N-Iceland.

45. Specimens in H. Jónsson's herbarium in the Botanical Museum in Copenhagen, collected at Öndverðarnes W-Iceland and marked with the species name *Dilsea edulis* Stackhouse (syn. *D. carnosa* (Schmidel) Kuntze), are not *D. carnosa* but resemble small specimens of *Schizymenia dubyi*.

46. This species was recorded in Breiðifjörður, W-Iceland growing on *Rhodomela confervoides* in the shallow sublittoral (Gunnarsson & Þórisson, 1979).
47. See Irvine & Chamberlain (1994).
48. Regarding the taxonomy of this species and its synonymy with *Phymatolithon rugulosum* Adey see Chamberlain (1991).
49. Düvel & Wegeberg (1996) have studied the type material of *Lithothamnion laeve* Strömfelt collected by Strömfelt in Eyrarbakki, S-Iceland. They conclude that it belongs to *Phymatolithon lemormandii*.
50. This species was first found in Heimaey in the Vestmannaeyjar archipelago S-Iceland in August 1966. The locality was covered with new lava during the volcanic eruption in Heimaey in 1973. The species has not been found in the area since.
51. New record; found in Vestmannaeyjar, S-Iceland and Grindavík, SW-Iceland. Maggs (1989) has cultured this species from Britain and obtained a heteromorphic life history. Maggs identified the sporophyte as *Erythrodermis allenii* Batters. The sporophytic phase *E. allenii* has not been recorded in Iceland.
52. This species exhibits basically two types of life cycles in the North Atlantic; (i) an heteromorphic life cycle where the tetrasporophyte is a crust described as, *Petrocelis cruenta* J. Agardh and the blade like gametophytes are monoecious, and (ii) a direct, apomictic life history with dioecious, blade like gametophytes and no tetrasporophytes. Specimens from two different populations in Iceland show the latter type of development (Guiry & West, 1983).
53. New record; this crustose *Haematocelis*-stage has been found in the littoral zone in various places on the Reykjanes peninsula SW-Iceland, growing together with *Schizymenia dubyi*. Ardré (1980) discovered a heteromorphic life cycle of *Schizymenia dubyi* in France, involving *Haematocelis rubens* as the tetrasporophyte.
54. For the life cycle of this species see South, Hooper & Irvine (1972).
55. For the taxonomy of the Ceramiales see Maggs & Hommersand (1993).
56. *Aglaothamnion scopulorum* was considered to be a form variety of *Aglaothamnion hookeri* (Dillwyn) Maggs & Hommersand, by Dixon & Price (1981). *A. scopulorum* has some distinct morphological characters separating it from *A. hookeri* a.o. lack of cortication (see Maggs & Hommersand, 1993). The name *A. scopulorum* is maintained here pending further studies of Icelandic specimens.
57. *C. circinatum* was first recorded by H. Jónsson (1912) for Iceland. It has been recorded widely in the north Atlantic (South & Tittley, 1986), however Maggs & Hommersand (1993) consider it a Mediterranean species with its northern distribution limit in Southern England. *C. circinatum* is maintained on the present list pending further studies of specimens collected by H. Jónsson.
58. Maggs & Hommersand (1993) used the name *Ceramium nodulosum* (Lightfoot) Ducluzeau for this species. Silva *et al.* (1996) considered this name change erroneous and suggested conserving the name *Ceramium rubrum* (Hudson) C. Agardh after considering the pervasive application of the name and difficulties in finding the earliest valid name for the species. Maggs *et al.* (2000) have suggested using the name *C. virgatum* Roth for this species.
59. A specimen of this species exists in the algal herbarium of the Botanical Museum in Copenhagen labelled *Ex. Islandia*. But as neither the collector nor the sampling locality are known, H. Jónsson (1901) considered it a doubtful record for the Icelandic flora.
60. Classes within green algae follow Melkonian's & Surek's (1995) concept.
61. New record; found growing endophytically in *Enteromorpha* spp. and *Blidingia minima* in the littoral zone in Vestmannaeyjar (Eiðið) S-Iceland in August 1966. It produced biflagellate swimmers.
62. *Halochlorococcum marinum* grew up in stock culture of various algae collected in Örfirisey SW-Iceland in autumn 1964. Produced biflagellate swimmers in culture.
63. New record; The species was found in Melabakkar, W-Iceland in 1977 and in Reykjavík harbour in April 1990, growing on *Rhizoclonium implexum*.
64. For the life history of this species in Iceland see S. Jónsson (1980).

65. New record; found in Hvalfjörður, W-Iceland 1974 at 1-3 m depth (S. Jónsson & Gunnarsson, 1975) and in a tide pool in Keilnes, SW-Iceland in 1997. The specimens are referable to the subspecies *tomentosoides* (van Goor) Silva.
66. New record; The gametophyte of *Derbesia marina*, *Halicystis ovalis* was found at 15 m depth on crustose corallines in Hvaleysi, Hafnarfjörður, SW-Iceland in May, 1994. Sporophytes with sporocysts had been recorded before (Caram & S. Jónsson, 1973).
67. For the discussion on the nomenclature of this species see Silva *et al.* (1996).
68. See S. Jónsson *et al.* (1989) for the species delimitation adapted here.
69. A specimen of this species is in the Natural History Museum in Paris (PC, No 369) collected in an expedition of Prince Napoléon to Reykjavík and NW-Iceland in 1856.
70. This species was collected by Rietema in 1983, amongst *Laminaria* in overflow from a tide-pool, between Eyrarbakki and Stokkseyri, S-Iceland (Cambridge *et al.*, 1990).
71. Specimens of *Rhizoclonium* with cell diameter of 10 to 15 µm were referred to this species as opposed to *R. riparium* with cell diameter of 20-48 µm (for comments see Silva *et al.* 1996, pp. 936-937).
72. New record; found by Steffen Lundsteen (pers. comm.) in Lónakot, SW-Iceland in 1983. Kornmann & Sahling (1994) classified this species as *Urospora* but Rueness (1992) suggested that it belongs to Cladophoraceae within the order Siphonocladales.
73. See Lokhorst (1978) for a revision of the genus.
74. For the species concept adopted in the present paper see S. Jónsson (1999) and Silva *et al.* (1996) for discussion of the *Acrosiphonia-Spongomorpha* complex.
75. For the typification of this genus see S. Jónsson (1991)
76. Icelandic specimens of this genus have been reexamined by Lokhorst & Trask (1981).
77. Lockhorst & Trask (1981) reexamined specimens of *Urospora* spp. collected by H. Jónsson in Iceland and kept in Botanical Museum of Copenhagen. They found that some of the specimens identified as *Urospora hartzii* by H. Jónsson belonged to *U. ban-gioides* and others to *U. penicilliformis* or *U. wormskioldii*.
78. Lockhorst & Trask (1981) reexamined specimens of *Urospora* spp. collected by H. Jónsson in Iceland and kept in Botanical Museum of Copenhagen. They found that some of the specimens identified as *Urospora mirabilis* by H. Jónsson belonged to *U. neglecta* and others to *U. penicilliformis*.
79. This species was transferred to *Capsosiphon* by Vinogradova (1969).
80. It has been demonstrated that *Gomontia polyrhiza* represents two species, differing by their life history: *Eugomontia sacculata* that is filamentous with isomorphic generations (Kornmann, 1960) and *G. polyrhiza* that has a parenchymatous gametophyte alternating with a shell boring unicellular sporophyte (Kornmann, 1959; Nielsen & Correa, 1987). In addition the sporophyte of *Monostroma grevillei* which may also be calcicole can resemble *G. polyrhiza* (Kornmann, 1962; S. Jónsson, 1968).
81. New record; The species was found in Eyjafjörður, N-Iceland in May 1974.
82. For the generic concept adopted in the present paper see a.o. Golden & Garbary (1984).
83. See Koeman (1985) for the species delimitation adopted here.
84. Blomster *et al.* (1999) have shown by molecular analysis using internal transcribed spacers (ITS) that *Enteromorpha clathrata* and *E. muscoides* (Clemente et Rubio) Cremades are synonyms, the latter name having priority.
85. For life history and influence of different environmental factors inducing the gametogenesis in *Enteromorpha prolifera* in Iceland, see S. Jónsson (1983).
86. See Nielsen, 1979, 1980, 1983, 1984.
87. New record; The species was found in the littoral zone at Hvassahraun, SW-Iceland in September 1998, endophytic in *Chondrus crispus*.
88. New record; The species was found in the lower littoral zone in Eyjafjörður, N-Iceland in May 1974.
89. Nielsen & Pedersen (1977) showed that the algae usually referred to as *Pringsheimiella scutata*, actually comprised two distinct species and separated *Syncoryne reinkei* from the complex as a new species. In the Botanical Museum in Copenhagen (C) specimens sampled by Ostenfeld at Brimnes, Reykjavík, Njarðvík and Ísafjörður and

referred to *Pringsheimia scutata* Reinke by H. Jónsson (1903a) are all *Syncoryne reinkei* (R. Nielsen, pers. comm.). H. Jónsson (1903a) refers to the same species an alga growing on *Chaetopteris plumosa* and found by A. Mörk. Neither *Pringsheimiella scutata* nor *Syncoryne reinkei* could be found on this host in C (R. Nielsen, pers. comm.). Whether *Pringsheimiella scutata* grows in Iceland needs further studies.

90. New record; The species was found in the littoral zone at Straumur, SW-Iceland in September 1998, growing in the periostrachum of *Littorina obtusata* (Linnaeus, 1758).

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REFERENCES

- ABDEL-RAHMAN M.H., 1984 — Le cycle de développement de l'*Acrochaetium parvulum* (Rhodophycée, Acrochaetiales). *Cryptogamie, Algologie* 5: 1-13.
- ABDEL-RAHMAN M.H. & BIDOUX C., 1989 — Le cycle de développement de l'*Acrochaetium secundatum* (Rhodophyceae, Acrochaetiales). *Cryptogamie, Algologie* 10: 235-245.
- AGARDH J.G., 1868 — Bidrag til kännendomen af Spetsbergens alger. *Kongelig Svenska Vetenskaps-Akademi Handlingar* Bd. 7, no. 8: 1-14.
- ANAGNOSTIDIS K. & KOMÁREK J., 1985 — Modern approach to the classification system of Cyanophytes 1. Introduction. *Archiv für Hydrobiologie Supplementband. Algological studies* 71: 291-302.
- ANAGNOSTIDIS K. & KOMÁREK J., 1988 — Modern approach to the classification system of Cyanophytes 3 – Oscillatoriales. *Archiv für Hydrobiologie Supplementband. Algological studies* 80: 291-302.
- ANAGNOSTIDIS K. & KOMÁREK J., 1990 — Modern approach to the classification system of Cyanophytes 5 – Stigonematales. *Archiv für Hydrobiologie Supplementband. Algological studies* 86: 1-73.
- ARDRE F., 1980 — Observations sur le cycle de développement du *Schizymenia dubyi* (Rhodophycée), Gigartinales en culture et remarques sur certains genres de Némastomacées. *Cryptogamie, Algologie* 1: 111-140.
- BLOMSTER J., MAGGS C.A. & STANHOPE M.J., 1999 — Extensive intraspecific morphological variation in *Enteromorpha muscooides* (Chlorophyta) revealed by molecular analysis. *Journal of Phycology* 35: 575-586.
- BOILLOT A. & MAGNE F., 1973 — Le cycle biologique de *Kylinia rosulata* Rosenvinge (Rhodophycées, Acrochaetiales). *Bulletin de la Société Phycologique de France* 18: 47-53.
- BORSJE W.J., 1973 — The life history of *Acrochaetium virgatulum* (Harv.) J. Ag. in culture. *British phycological Journal* 8: 205.
- BROADY P.A., 1978 — The terrestrial algae of Glerárdalur, Akureyri, Iceland. *Acta Botanica Islandica* 5: 3-62.
- BRODIE J., HAYES P.K., BAKER G.L., IRVINE L.M. & BARTSCH I., 1998 — A reappraisal of *Porphyra* and *Bangia* (Bangiophyceae, Rhodophyta) in northeast Atlantic based on the *rbcL-rbcS* intergenic spacer. *Journal of Phycology* 34: 1069-1074.
- BRODIE J. & IRVINE L.M., 1997 — A comparison of *Porphyra dioica* sp. nov. and *Porphyra purpurea* (Roth) C. Ag. (Rhodophyta: Bangiophyceae) in Europe. *Cryptogamie, Algologie* 18: 283-297.
- BURKHARDT E. & PETERS A.F., 1998 — Molecular evidence from nrDNA ITS sequences that *Laminariocolax* (Phaeophyceae, Ectocarpales *sensu lato*) is worldwide clade of closely related kelp endophytes. *Journal of Phycology* 34: 682-691.

- CAMBRIDGE M.L., BREEMAN A.M. & HOEK C. VAN DEN, 1990 — Temperature limits at the distribution boundaries of four tropical to temperate species of *Cladophora* (Cladophorales: Chlorophyta) in the North Atlantic Ocean. *Aquatic Botany* 38: 135-151.
- CARAM B. & JÓNSSON S., 1972 — Nouvel inventaire des algues marines de l'Islande. *Acta Botanica Islandica* 1: 5-31.
- CARAM B. & JÓNSSON S., 1973 — Sur la présence du *Derbesia marina* (L.) Kjellm. en Islande. *Acta Botanica Islandica* 2: 25-28.
- CARDINAL A., 1964 — Étude sur les Ectocarpacées de la Manche. *Beihefte zur Nova Hedwigia* 15, 86 pp., 41 figs.
- CHAMBERLAIN Y.M., 1991 — Observations on *Phymatolithon lamii* (Lemoine) Y. Chamberlain comb. nov. (Rhodophyta, Corallinales) in the British Isles with an assessment of its relationship to *P. rugulosum*, *Lithophyllum lamii* and *L. melobesioides*. *British phyycological Journal* 26: 219-233.
- CHAPMAN A.R.O., 1974 — The genetic basis of morphological differentiation in some *Laminaria* populations. *Marine Biology* 24: 84-91.
- CHAPMAN A.R.O., 1975 — Inheritance of mucilage canals in *Laminaria* (section Simplicis) in eastern Canada. *British phyycological Journal* 10: 219-233.
- CHESNOY L. & JÓNSSON S., 1989 — *Halosacciocolax kjellmanii*, parasite arctique de *Develeraea ramentacea* (Palmariales, Rhodophyta): tétrasporogénèse. *Bulletin de la Société botanique de France* 136: 45-60.
- DIXON P.S. & PRICE J., 1981 — The genus *Callithamnion* (Rhodophyta, Ceramiaceae) in the British Isles. *Bulletin of the British Museum of Natural History (Botany)* N.S. 7: 23-30.
- DÜWEL L. & WEGEBERG S., 1996 — The typification and status of *Leptophytum* (Corallinaceae, Rhodophyta). *Phycologia* 35: 470-483.
- EGAN B. & YARRISH C., 1988 — The distribution of the genus *Laminaria* (Phaeophyta) at its southern limit in the Western Atlantic Ocean. *Botanica Marina* 31: 155-161.
- FLETCHER R.L., 1987 — *Seaweeds of the British Isles*. Volume 3, Fucophyceae (Phaeophyceae), Part 1. London, The Natural History Museum, HMSO Books, [I]-vii, 1-359.
- GOLDEN L. & GARBARY D., 1984 — Studies on *Monostroma* (Monostromataceae, Chlorophyta) in British Colombia with emphasis on spore release. *Japanese Journal of Phycology* 32: 319-332.
- GUIRY M.D. & WEST J.A., 1983 — Life history and hybridization studies on *Gigartina stellata* and *Petrocelis cruenta* (Rhodophyta) in the North Atlantic. *Journal of Phycology* 19: 474-494.
- GUNNARSSON K., 1985 — The genus *Vaucheria* (Xanthophyceae) in Iceland I. Marine and brackish water species from West Iceland. *Acta Botanica Islandica* 8: 21-27.
- GUNNARSSON K., 1991 — Populations de *Laminaria hyperborea* et *Laminaria digitata* (Phaeophycées) dans la baie de Breiðfjörður, Islande. *Rit Fiskideildar* 12: 1-148.
- GUNNARSSON K. & ÞÓRISSESSON K., 1979 — Nýjung í sæflöru Íslands; *Harveyella mirabilis*. *Náttúrufræðingurinn*, 48: 157-161.
- HANSEN G.I., 1986 — A reevaluation of *Callophyllis cristata* (Kallymeniaceae). *Second Northwest algal symposium*. Bamfield BC, Canada, Bamfield Marine Station (Abstract), p. 1.
- HARIOT M.P., 1893 — Contribution à l'étude des algues d'eau douce d'Islande. *Journal de Botanique* 7: 313-319.
- HENRY E. & SOUTH R.G., 1987 — *Phyllariopsis* gen. nov. and a reappraisal of the Phyllariaceae Tilden 1935 (Laminariales, Phaeophyceae). *Phycologia* 26: 9-16.
- IRVINE L.M., & CHAMBERLAIN Y.M., 1994 — *Seaweeds of the British Isles*. Volume 1 Rhodophyta, Part 2b Corallinales, Hildenbrandiales. HMSO Books. The Natural History Museum, London, [I]-7, 1-276 p.
- JAASUND E., 1957 — Marine algae from northern Norway II. *Botaniska Notiser* 110: 205-231.
- JÓNASSON P. M. & AÐALSTEINSSON H., 1979 — Phytoplankton production in shallow eutropic lake Mývatn, Iceland. *Oikos* 32: 113-138.

- JÓNSSON H., 1901 — The marine algae of Iceland. 1. Rhodophyceae. *Botanisk Tidsskrift* 24: 127-155.
- JÓNSSON H., 1903a — The marine algae of Iceland. 2. Phaeophyceae. *Botanisk Tidsskrift* 25: 141-195.
- JÓNSSON H., 1903b — The marine algae of Iceland. 3. Chlorophyceae. 4. Cyanophyceae. *Botanisk Tidsskrift* 25: 337-385.
- JÓNSSON H., 1912 — The marine algal vegetation of Iceland. *Botany of Iceland* 1: 1-186.
- JÓNSSON S., 1968 — Sur le cycle ontogénique et chromosomique du *Monostroma grevillei* (Thur.) Witttr. de Roscoff. *Comptes Rendus de l'Académie des sciences, Série D*, 267: 402-405.
- JÓNSSON S., 1977 — Existence d'une race haploïde agame dans le complexe polyploïde intraspécifique de l'*Isthmoplea spaerophora* (Carm.) Kjellm. Phaeophycée. *Comptes Rendus de l'Académie des sciences, Série D*, 284 (6) : 433-435.
- JÓNSSON S., 1980 — Le cycle de développement du *Bryopsis plumosa* (Hudson) C. Agardh (Chlorophyta) d'Islande, en culture: un cycle monogénétique dans la population nord Atlantique. *Cryptogamie, Algologie* 1: 51-60.
- JÓNSSON S., 1983 — Effets de la lumière colorée et de quelques autres facteurs sur la formation des gamètes chez l'*Enteromorpha prolifera*, Chlorophycée marine. *Rit Fiskideildar* 7 (2): 61-72.
- JÓNSSON S., 1991 — Typification of *Spongomorpha* (Kützling) Wille and *Acrosiphonia* J.G. Agardh) Wille (Acrosiphoniales, Chlorophyta). *Cryptogamie, Algologie* 12: 171-181.
- JÓNSSON S., 1999 — The status of the Acrosiphoniales (Chlorophyta). *Rit Fiskideildar* 16: 187-196.
- JÓNSSON S. & CHESNOY L., 1982 — Étude du cycle chromosomique de l'*Halosaccion ramentaceum* (Rhodophyta, Palmariales) d'Islande. *Cryptogamie, Algologie* 3: 273-278.
- JÓNSSON S. & CHESNOY L., 1988 — *Halosaccicolax kjellmanii*, parasite arctique de *Develeraea ramentacea* (Palmariales, Rhodophyta): organisation et rapports hôte-parasite. *Bulletin de la Société botanique France* 135: 211-227.
- JÓNSSON S. & GUNNARSSON K., 1975 — La présence de *Codium fragile* (Sur.) Hariot en Islande et son extension dans l'Atlantique nord. *Nova Hedwigia* 26: 725-732.
- JÓNSSON S. & GUNNARSSON K., 1978 — Botnþörungar í sjó við Ísland. *Greingalykill. Hafrannsóknir* 15: 5-94.
- JÓNSSON S. & GUNNARSSON K., 1982 — Marine algal colonization at Surtsey. *Surtsey Research Progress Report* 9: 33-45.
- JÓNSSON S., GUNNARSSON K. & BRIANE J.-P., 1987 — Évolution de la nouvelle flore marine de l'île volcanique de Surtsey, Islande. *Rit Fiskideildar* 10: 1-30.
- JÓNSSON S., HOEK C. VAN DEN & BOT P.V.M., 1989 — Clé de détermination des *Cladophora* des côtes françaises. *Cryptogamie, Algologie* 10: 15-22.
- KAIN J.M., 1976 — New and interesting marine algae from the Shetland Isles II. Hollow and solid stiped *Laminaria* (Simplices). *British phycological Journal* 11: 1-11.
- KOEMAN R.T.P., 1985 — *The taxonomy of Ulva Linnaeus 1753, and Enteromorpha Link 1820, (Chlorophyceae) in the Netherlands*. Rijksuniversiteit te Groningen, The Netherlands, Dr. Thesis, November 1985.
- KOMÁREK J. & ANAGNOSTIDIS K., 1986 — Modern approach to the classification system of Cyanophytes 2 - Chroococcales. *Archiv für Hydrobiologie Supplementband. Algological studies* 73: 157-226.
- KOMÁREK J. & ANAGNOSTIDIS K., 1989 — Modern approach to the classification system of Cyanophytes 4 - Nostocales. *Archiv für Hydrobiologie Supplementband. Algological studies* 82: 247-345.
- KORNMANN P., 1959 — Die heterogene Gattung *Gomontia* I. Der sporangial Anteil, *Codiolum polyrhizum*. *Helgoländer wissenschaftliche Meeresuntersuchungen* 6 (3): 229-238.
- KORNMANN P., 1960 — Die heterogene Gattung *Gomontia* II. Der fädige Anteil *Eugomontia sacculata* nov. gen., nov. spec. *Helgoländer wissenschaftliche Meeresuntersuchungen* 7 (2): 59-71.

- KORNMANN P., 1962 — Die Entwicklung von *Monostroma grevillei*. *Helgoländer wissenschaftliche Meeresuntersuchungen* 8 (2): 95-202.
- KORNMANN P., 1990 — *Pilayella macrocarpa* Foslie (Ectocarpales, Phaeophyceae) in Helgoland and the rejection of *Pilayella varia* Kjellman. *Botanica Marina* 33: 257-259.
- KORNMANN P. & SAHLING P.-H. 1994 — Meeresalgen von Helgoland: Zweite Ergänzung. *Helgoländer wissenschaftliche Meeresuntersuchungen* 48: 365-406.
- KRAAN S. & GUIRY M., 2000 — Sexual hybridisation experiments and phylogenetic relationships as inferred from Rubisco spacer sequences in the genus *Alaria* (Phaeophyceae). *Journal of Phycology* 35: 190-198.
- KUCKUCK P., 1961 — Ectocarpaceen-Studien VII, *Giffordia*. Ausgegeben von P. Kornmann. *Helgoländer wissenschaftliche Meeresuntersuchungen* 8: 119-152.
- KUIPER J., 1983 — The life history of *Chromastrum alariae* (Jónsson) Papenfuss (Rhodophyta, Achrochaetiaceae). *Acta Botanica Neerlandica* 32: 129-151.
- LEE Y.P. & LEE I.K., 1988 — Contribution to the classification of the Rhodochortaceae (Rhodophyta, Nemaliales). *Botanica Marina* 31: 119-131.
- LEE Y.P. & KUROI M., 1983 — The life history of *Audouinella alariae* (Jónsson) Woelkerling (Rhodophyta, Acrochaetiaceae) in nature and culture. *Journal of the Faculty of Science, Hokkaido University, Ser. V (Botany)*, 13: 57-76.
- LEE Y.P., 1983 — Sexual reproduction in *Audouinella alariae* (Jónsson) Woelkerling (Acrochaetiaceae, Rhodophyta) from the North Atlantic Ocean. *Bulletin of the Korean Fisheries Society* 16: 265-272.
- LOKHORST G.M., 1978 — Taxonomic studies on the marine and brackish-water species of *Ulothrix* (Ulotricales, Chlorophyceae) in Western Europe. *Blumea* 24: 191-299.
- LOKHORST G.M., & TRASK B.J., 1981 — Taxonomic studies on *Urospora* (Acrosiphoniales, Chlorophyceae) in Western Europe. *Acta Botanica Neerlandica* 30: 354-431.
- LÜNING K. 1990 — *Seaweeds; Their environment, biogeography, and ecophysiology*. New York, John Wiley & sons, 527 p.
- LÜNING K., CHAPMAN A.R.O., & MANN K.H., 1978 — Crossing experiments in the non-digitate complex of *Laminaria* from both sides of the Atlantic. *Phycologia* 17: 293-298.
- MAGGS C., 1989 — *Erythrodermis allenii* Batters in the life history of *Phyllophora trallii* Holmes ex Batters (Phyllophoraceae, Rhodophyta). *Phycologia* 28: 305-317.
- MAGGS C. & HOMMERSAND M.H., 1993 — *Seaweeds of the British Isles*. Volume 1, *Rhodophyta, Part 3a Ceramiales*. London, The Natural History Museum, HMSO Books, [i]-xv, 1-444.
- MAGGS C., McIVOR L.M., EVANS C.M. & STANHOPE M.J., 2000 — The type species of *Ceramium* (Rhodophyta), *Ceramium virgatum* Roth; Typification and phylogeny. *Journal of Phycology* 36 (Suppl.): 45.
- MAIER I., 1984 — Culture studies of *Chorda tomentosa* (Phaeophyta, Laminariales). *British phycological Journal* 19: 95-106.
- MANN K.H., 1971 — Relationship between length, environment and taxonomic characters of *Laminaria*. *Journal of the Fisheries Research Board of Canada* 28: 778-780.
- MELKONIAN M. & SUREK B., 1995 — Phylogeny of the Chlorophyta: Congruence between ultrastructural and molecular evidence. *Bulletin de la Société Zoologique France* 120 (2): 191-208.
- MUNDA I.M., 1976 — Some aspects of the benthic algal vegetation of the South Icelandic coastal area. *Research Institute Nedri ás, Bulletin* 25: 1-69.
- MUNDA I.M., 1977 — The benthic algal vegetation of the Island Grímsey (Eyjafjarðarsýsla, North Iceland). *Research Institute Nedri ás, Bulletin* 28: 1-69.
- MUNDA I.M., 1978 — Survey of the benthic algal vegetation of the Dýrafjörður, northwest Iceland. *Nova Hedwigia* 29: 281-403.
- MUNDA I.M., 1979 — Addition to the check-list of benthic marine algae from Iceland. *Botanica Marina* 22: 459-463.
- MUNDA I.M., 1980a — Survey of the benthic algal vegetation of the Borgarfjörður southwest Iceland. *Nova Hedwigia* 32 (4): 855-927.

- MUNDA I.M., 1980b — Contribution to the knowledge of the benthic algal vegetation of the Mýrar area (Faxaflói, SW-Iceland). *Research Institute Nedri ás, Bulletin* 33: 1-48.
- MUNDA I.M., 1983 — Survey of the benthic algal vegetation of Reyðarfjörður as a typical example of the east Icelandic vegetation pattern. *Nova Hedwigia* 37: 545-640.
- MUNDA I.M., 1984 — The benthic algal vegetation of the Snæfellsnes Peninsula, south-west Iceland. *Hydrobiologia* 116-117: 371-373.
- MUNDA I.M., 1985 — General survey of the benthic algal vegetation along the Barðaströnd coast (Breiðafjörður, West Iceland). *Research Institute Nedri ás, Bulletin* 44: 1-62.
- MUNDA I.M., 1992 — Hornstrandir a conspicuous area of vegetation shift in the extreme Northwest Iceland. *Acta Botanica Islandica* 11, 17-88.
- MUNDA I.M., 1994 — The benthic algal vegetation of the Mjóifjörður, Eastern Iceland. *Nederlands Journal of Aquatic Ecology* 28, 35-49.
- MUNDA I.M., 1999 — The benthic algal vegetation of land locked fjords in southeastern Iceland. *Hydrobiologia* 393: 169-180.
- MUNDA I.M. & PEDERSEN P.M., 1978 — *Porphyra tulaea* sp. nov. (Rhodophyceae, Bangiales) from east Iceland and west Greenland. *Botanica Marina* 21: 283-288.
- NIELSEN R., 1979 — Culture studies on the type species of *Acrochaete*, *Bolbocoleon* and *Entocladia* (Chaetophoraceae, Chlorophyceae). *Botaniska Notiser* 132: 441-449.
- NIELSEN R., 1980 — A comparative study of five marine Chaetophoraceae. *British phycological Journal* 15: 131-138.
- NIELSEN R., 1983 — Culture studies of *Acrochaete leptochaete* comb. nov. and *A. wittrockii* comb. nov. (Chaetophoraceae, Chlorophyceae). *Nordic Journal of Botany* 3: 689-694.
- NIELSEN R., 1984 — *Epicladia flustrae*, *E. phillipsii* stat. nov. and *Pseudendoclonium dynamenae* sp. nov., living in bryozoans and hydroids. *British phycological Journal* 19: 371-379.
- NIELSEN R. & CORREA J.A., 1987 — A comparative study of *Gomontia polyrhiza* and *Chlorojackia pachylados* gen. et sp. nov. (Chlorophyta). *Canadian Journal of Botany* 65: 2467-2472.
- NIELSEN R., & PEDERSEN P.M., 1977 — Separation of *Syncoryne reinkei* nov. gen., nov. sp. from *Pringsheimiella scutata* (Chlorophyceae, Chaetophoraceae). *Phycologia* 16: 411-416.
- PAPENFUSS G.F., 1945 — Review of the *Acrochaetium-Rhodochorton* complex of the red algae. *University of California Publications in Botany* 18: 299-334.
- PARKE M. & DIXON P., 1976 — Check-list of British marine algae, third revision. *Journal of the Marine Biological Association of the United Kingdom* 56: 527-594.
- PEDERSEN P.M., 1976 — Culture studies on marine algae from West Greenland II. *Coleocladia arctica* (Dictyosiphonales, Coelocladaceae fam. nov.). *Norwegian Journal of Botany* 23: 243-249.
- PEDERSEN P.M., 1978 — Culture studies on the pleomorphic brown alga *Myriotrichia clavaeformis* (Dictyosiphonales, Myriotrichiaceae). *Norwegian Journal of Botany* 25: 281-291.
- PEDERSEN P.M., 1981 — *Porterinema fluviatile* as a stage in the life history of *Sorapion kjellmanii* (Fucophyceae, Ralfsiaceae). In: Levring T. (ed.), *Proceedings of the Xth international Seaweed Symposium*, pp. 203-208.
- PEDERSEN P.M., 1984 — Studies on primitive brown algae (Fucophyceae). *Opera Botanica* 74: 1-76.
- PEDERSEN P.M. & KRISTIANSSEN AA., 1992 — *Stictyosiphon arcticus* (Fucophyceae, Stictyosiphonaceae) a new species from Greenland, North Norway, and Baffin Island. *Nordic Journal of Botany* 12: 461-464.
- PETERS A.F., 1998 — Ribosomal DNA sequences support taxonomic separation of the two species of *Chorda*: reinstatement of *Halosiphon tomentosus* (Lyngbye) Jaasund (Phaeophyceae, Laminariales) *European Journal of Phycology* 33: 65-71.
- PETERSEN J.B., 1928 — The freshwater Cyanophyceae of Iceland. *Botany of Iceland* 2 (7): 249-324.

- PÉREZ-CIRERA J.L., CREMADES J., BÁRBARA I. & LÓPEZ M.C., 1991 — Contribución al conocimiento del género *Phyllariosis* (Phyllariaceae, Phaeophyta) an el Atlántico europeo. *Nova Acta Científica Compostelana (Biología)* (Spain) 2: 3-11.
- POWELL H.T., 1957 — Studies in the genus *Fucus* L. I. *Fucus distichus* L. emend. Powell. *Journal of the Marine Biological Association of the United Kingdom* 36: 407-432.
- PRUD'HOMME VAN REINE W.F., 1982 — A taxonomic revision of the European *Sphacelariaceae* (Sphacelariales, Phaeophyceae). *Leiden botanical series* 6, 293 p.
- RICE E.L. & CHAPMAN A.R.O., 1985 — A numerical taxonomic study of *Fucus distichus* (Phaeophyta). *Journal of the Marine Biological Association of the United Kingdom* 65: 433-459.
- ROSENVINGE L.K., 1892 — Deuxième mémoire sur les algues marines du Groenland. *Meddelelser om Grönland* 20: 1-125 + 1 pl.
- ROUSSEAU F., LECLERC M.-C. & REVIERS B.de, 1997 — Molecular phylogeny of European Fucales (Phaeophyceae) based on partial large-subunit rDNA sequence comparisons. *Phycologia* 36: 438-446.
- RUENESS J., 1992 — Field and culture observations on *Uronema curvatum* Printz (Chlorophyta). *Acta Phytogeographica Suecica* 78: 125-130
- SAUVAGEAU C., 1897 — Sur quelques Myrionématacées. *Annales des Sciences Naturelles, Sér. 8 Botanique*, 5: 1-130.
- SERRÃO E.A., ALICE L.A. & BRAWLEY S.H., 1999 — Evolution of the Fucaeae (Phaeophyceae) inferred from nrDNA-ITS. *Journal of Phycology* 35: 382-394.
- SIEMER B.L. & PEDERSEN P.M., 1995 — The taxonomic status of *Pilayella littoralis*, *P. varia* and *P. macrocarpa* (Pilayellaceae, Fucophyceae). *Phycologia* 34: 257-266.
- SILVA P.C., BASSON P.W. & MOE R.L., 1996 — Catalogue of the benthic marine algae of the Indian Ocean. *University of California publications in botany* 79, xiv + 1259 p. Berkeley, University of California Press.
- SILVA P.C., LAMY D., LOISEAUX-de GOËR S. & REVIERS B. de, 1999 — Proposal to conserve the name *Pylaiella* Bory (Phaeophyceae) with a conserved spelling. *Taxon* 48: 139-140.
- SJØTUN K. & GUNNARSSON K., 1995 — Seasonal growth pattern of Icelandic *Laminaria* population (section *Simplices*, Laminariaceae, Phaeophyta) containing solid and hollow-stiped plants. *European Journal of Phycology* 30: 281-287.
- SOUTH G.R., 1984 — Checklist of marine algae of eastern Canada, second revision. *Canadian Journal of Botany* 62: 680-704.
- SOUTH G.R. & HOOPER R.G., 1980 — Catalogue and atlas of the benthic marine algae of the Island of Newfoundland. *Memorial University of Newfoundland Occasional Papers in Biology* 3: 136 p.
- SOUTH G.R., HOOPER R.G. & IRVINE L.M., 1972 — The life history of *Turnerella pennyi* (Harv.) Schmitz. *British phycological Journal* 7: 221-233.
- SOUTH R.G. & TITTLE I., 1986 — A checklist and distributional index of the benthic marine algae of the North Atlantic Ocean. St Andrews and London, Huntsman Marine Laboratory and British Museum (Natural History), 76 p.
- STEGENGA H. & BORSJE W.J., 1977 — The morphology and life history of *Acrochaetium polyblastum* (Rosenv.) Børg. and *Acrochaetium hallandicum* (Kylin) Hamel (Rhodophyta, Nemaliales). *Acta Botanica Neerlandica* 26: 451-470.
- STEGENGA H. & WISSEN M.J. VAN, 1979 — Remarks on the life histories of three Acrochaetoid algae (Rhodophyta, Nemaliales). *Acta Botanica Neerlandica* 28: 97-115.
- STEGENGA H., BOLTON J.J. & ANDERSON R.J., 1997 — *Seaweeds of South African west coast*. University of Cape Town. Contributions of the Bolus Herbarium no. 18, 655 p.
- STRÖMFELT H.F.G., 1887 — Om algevegetationen vid Islands kuster. *Göteborg Kongliga Vetenskaps och Vittenhets Samhallets Handlingar, Göteborg*, 87 p +3 pls.
- SUNDENE O., 1963 — Reproduction and ecology of *Chorda tomentosa*. *Nytt Magasin for Botanik* 10: 159-168 + 4 pls.

- VINOGRADOVA K.L., 1969 — A contribution to the taxonomy of the order Ulvales (Chlorophyta). *Botanicheskii Zhurnal (Leningrad)* 54: 1347-1355 +1 fig. (in russian with english summary).
- WIDDOWSON T.B., 1971 — Taxonomic revision of the genus *Alaria* Greville. *Syesis* 4: 11-49.
- WOELKERLING W.J., 1973 — The morphology and systematics of the *Audouinella* complex (Acrochaetiaceae, Rhodophyta) in Northeastern United States. *Rhodora* 75: 529-621.
- WÆRN M., 1952 — Rocky-shore algae in the Öregrund Archipelago. *Acta Phytogeographica Suecica* 30: 1-298.

INDEX TO GENERA

Valid names are written in italics and older names in roman.

<i>Acrochaete</i>	145	<i>Choreocolax</i>	139	<i>Eudesme</i>	134
<i>Acrochaetium</i>	138	<i>Chroococcus</i>	132	<i>Eugomontia</i>	145
<i>Acrosiphonia</i>	143	<i>Cladophora</i>	143	<i>Euthora</i>	139
<i>Actinococcus</i>	140	<i>Clathromorphum</i>	139	<i>Fimbrifolium</i>	140
<i>Aglaothamnion</i>	141	<i>Coccotylus</i>	140	<i>Fosliea</i>	135
<i>Ahnfeltia</i>	138	<i>Codiolum</i>	142, 143, 144	<i>Fucus</i>	137
<i>Alaria</i>	136	<i>Codium</i>	143	<i>Geitlerinema</i>	132
<i>Anabaena</i>	133	<i>Coelocladia</i>	135	<i>Giffordia</i>	134
<i>Antithamnion</i>	141, 142	<i>Coilodesme</i>	136	<i>Gigartina</i>	140
<i>Antithamnionella</i>	141	<i>Conchocelis</i>	137	<i>Gomontia</i>	144
<i>Aphanothece</i>	132	<i>Corallina</i>	139	<i>Gomphosphaeria</i>	132
<i>Ascocyclus</i>	134	<i>Cruoria</i>	140	<i>Gononema</i>	133
<i>Ascophyllum</i>	137	<i>Cyanocystis</i>	132	<i>Haematocelis</i>	140
<i>Asperococcus</i>	136	<i>Cystoclonium</i>	140	<i>Haemescharia</i>	140
<i>Audouinella</i>	138	<i>Delamarea</i>	135	<i>Halicystis</i>	143
<i>Bangia</i>	137	<i>Delesseria</i>	141	<i>Halochlorococcum</i>	142
<i>Blidingia</i>	144	<i>Derbesia</i>	142	<i>Halosacciocolax</i>	138
<i>Bolbocoleon</i>	145	<i>Dermatocelis</i>	134	<i>Halosaccion</i>	138
<i>Bonnemaisonia</i>	139	<i>Dermatolithon</i>	140	<i>Halosiphon</i>	136
<i>Bryopsis</i>	142	<i>Dermocarpa</i>	132	<i>Haplospora</i>	135
<i>Callithamnion</i>	141	<i>Desmarestia</i>	135	<i>Harveyella</i>	139
<i>Callophyllis</i>	139	<i>Devaleraea</i>	138	<i>Hildenbrandia</i>	139
<i>Calothrix</i>	133	<i>Dictyosiphon</i>	136	<i>Hincksia</i>	134
<i>Capsosiphon</i>	144	<i>Dilsea</i>	139	<i>Isthmoplea</i>	135
<i>Castagnea</i>	134	<i>Dumontia</i>	139	<i>Jonssonia</i>	134
<i>Catenella</i>	140	<i>Ectocarpus</i>	133, 134	<i>Kornmannia</i>	144
<i>Ceramium</i>	141	<i>Ectochaete</i>	145	<i>Kvaleya</i>	139
<i>Ceratocolax</i>	140	<i>Elachista</i>	134	<i>Kylinia</i>	138
<i>Chaetomorpha</i>	143	<i>Enteromorpha</i>	144	<i>Laminaria</i>	136
<i>Chaetopteris</i>	135	<i>Entoderma</i>	145	<i>Laminariocolax</i>	134
<i>Chantransia</i>	138	<i>Entonema</i>	134	<i>Leathesia</i>	134
<i>Chlorochytrium</i>	142, 144	<i>Epicladia</i>	145	<i>Leptolyngbya</i>	132
<i>Chondrus</i>	140	<i>Erythrocladia</i>	137	<i>Leptonema</i>	134
<i>Chorda</i>	136	<i>Erythrodermis</i>	140	<i>Leptonematella</i>	134
<i>Chordaria</i>	134	<i>Erythrotrichia</i>	137	<i>Leptophytum</i>	140

Lithoderma	134	<i>Phloeospora</i>	135	Rhodymenia	138
<i>Lithophyllum</i>	139	<i>Phycodrys</i>	141	<i>Rivularia</i>	133
<i>Lithothamnion</i>	139, 140	<i>Phyllaria</i>	136	<i>Rosenvingiella</i>	145
Litosiphon	136	Phyllitis	136	Saccorrhiza	136
Lola	143	<i>Phyllophora</i>	140	<i>Sahlingia</i>	137
<i>Lomentaria</i>	141	<i>Phymatolithon</i>	139, 140	<i>Sarcinastrum</i>	132
<i>Lyngbya</i>	133	Plectonema	132	<i>Scagelothamnion</i>	142
<i>Mastocarpus</i>	140	<i>Pleurocapsa</i>	132	<i>Schizymenia</i>	140
<i>Meiodiscus</i>	138	<i>Plocamium</i>	141	<i>Scytosiphon</i>	136
<i>Membranoptera</i>	141	<i>Plumaria</i>	141	<i>Sorapion</i>	135
<i>Merismopedia</i>	132	<i>Pogotrichum</i>	136	<i>Sphacelaria</i>	135
<i>Microcoleus</i>	133	<i>Polysiphonia</i>	141	<i>Spirulina</i>	133
<i>Microspongium</i>	134	<i>Porphyra</i>	137, 138	<i>Spongomorpha</i>	143
<i>Mikrosyphar</i>	134	<i>Porphyropsis</i>	137	<i>Spongonema</i>	134
<i>Monostroma</i>	144, 145	<i>Prasiola</i>	145	<i>Stichococcus</i>	142
<i>Myrionema</i>	134	Pringsheimia	145	<i>Stictyosiphon</i>	136
<i>Ochlochaete</i>	145	<i>Pringsheimiella</i>	145	<i>Stragularia</i>	135
<i>Odonthalia</i>	141	<i>Pseudendoclonium</i>	145	<i>Streblonema</i>	133, 135
<i>Omphalophyllum</i>	136	<i>Pseudanabaena</i>	133	<i>Sykidion</i>	142
<i>Oscillatoria</i>	133	<i>Pseudolithoderma</i>	134	<i>Syncoryne</i>	145
<i>Ostreobium</i>	143	<i>Pseudopringsheimia</i>	145	<i>Tellamia</i>	145
<i>Palmaria</i>	138	<i>Pterosiphonia</i>	142	<i>Titanoderma</i>	140
<i>Pantoneura</i>	141	<i>Ptilota</i>	142	<i>Trachynema</i>	136
<i>Pelvetia</i>	137	<i>Punctaria</i>	136	<i>Trichormus</i>	133
<i>Percursaria</i>	144	<i>Pylaiella</i>	135	<i>Turnerella</i>	141
<i>Petalonia</i>	136	<i>Ralfsia</i>	135	<i>Ulothrix</i>	143
<i>Petrocelis</i>	140	<i>Rhizoclonium</i>	143	<i>Ulva</i>	145
<i>Petroderma</i>	134	<i>Rhodochorton</i>	138	<i>Ulvaria</i>	145
<i>Peyssonelia</i>	139	Rhododermis	138	<i>Ulvella</i>	145
<i>Phaeosaccion</i>	133	<i>Rhodomela</i>	142	<i>Uronema</i>	143
<i>Phaeostroma</i>	134	Rhodophyllis	140	<i>Urospora</i>	144
<i>Phormidium</i>	133	<i>Rhodophysema</i>	138	<i>Vaucheria</i>	137