

SPECIES LISTS

FUNGI

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Fungi from coastal and marine ecosystems are a neglected but significant part of marine biodiversity. Fungi in general are able to degrade a wide range of recalcitrant biological molecules and particularly in coastal ecosystems fungal activity may be critical in the early stages of biodegradative pathways. Fungi in the marine environment have only been fully recognised since about 1960, and within the group, marine fungi have shown high decadal indices (% increases in species number over a 10 year period). Between 1981 and 1991, Hawksworth (1991, *Mycological Research* 95, 641-655) calculated that marine fungi had the highest decadal index (49%) for any fungal group. Furthermore, Hawksworth put forward the opinion that less than 10% of fungal biodiversity had yet been discovered. Recent collections of marine fungi have largely been restricted to the Far East, with only slight extension of the European list over the last 15 years. Although no precise figure presently exists for a total worldwide number of marine fungal species, this is probably in excess of 1000. Our provisional list for European marine fungi extends to 318 species, largely of ascomycetes and deuteromycetes, but also several basidiomycetes (see accompanying list).

Two problems have arisen during the production of this list. Firstly, maximal fungal activity in marine systems is found adjacent to terrestrial areas. No precise definition of a marine fungus exists, although they are generally defined as fungi that can complete lifecycles in marine environments. In coastal regions where fungal isolations are made many terrestrial species are found. The sporulating nature of fungi means that it is unclear whether such species exist actively in the marine environment and, except where there is clear evidence that they fulfil our definition, they have been excluded from this list. Secondly, the taxonomy of microeukaryotes is very confused and molecular evidence now restricts the Fungi to a monophyletic group consisting of chytridiomycetes, zygomycetes, ascomycetes and basidiomycetes. Only members of these have been included.

The list at present is preliminary and it is expected that further species will be added. Nevertheless, we believe that the list at present includes in excess of 90% of identified European species. We continue to identify and approach experts in this area to validate this list. We are grateful to Mr G. Bremer and the University of Portsmouth Marine Fungal Collection who have allowed us to use information from this collection and Dr. E.B.G. Jones of the University of Hong Kong for his expertise and editorial input.

References

Kohlmeyer, J. & Kohlmeyer, E. 1979 *Marine Mycology – The Higher Fungi*. Academic Press, New York.

KINGDOM FUNGI

PHYLUM ZYGOMYCOTA

incertae sedis

Rhizopus
stolonifer var. *stolonifer*

Class Zygomycetes

Order Mucorales

Family Mortierellaceae

Mortierella
alpina Peyronel, 1913
gamsii Milko, 1974
minutissima Tiegh, 1878
parvispora Linnem., 1941
polycephala Coem., 1863
turficola Y. Ling, 1930

Family Mucoraceae

Absidia
spinosa Lendn., 1905
Actinomucor
repens Schostak, 1898
Mucor
hiemalis Wehmer, 1903
plumbeus Bonard, 1864
racemosus Tiegh, 1878

PHYLUM ASCOMYCOTA

incertae sedis

Order Diaporthales

Family Valsaceae

Gnomonia
salina E.B.G. Jones, 1962

Order Dothideales

Family Arthrosporiaceae

Leiophloea
pelvetia (G.K. Sutherl.) Kohlm. & E. Kohlm., 1979

Family Didymosphaeriaceae

Lautitia
danica (Berl.) Schatz, 1984

Family Herpotrichiellaceae

Capronia
ciliomaris (Kohlm.) E. Mull., Petrini & P.J. Fischer.
Samuels & Rossman, 1987

incertae sedis

Didymella
fucicola (G.K. Sutherl.) Kohlm., 1968
Passeriniella
obiones (AM Crouan & P.L. Crouan) K.D. Hyde & Mouzouras, 1988
Pontogeneia
calospora (Pat.) Kohlm.
cnormis (Pat. & Hariot) Kohlm.
Thalassoscus
tregoubovii Ollivier
cystoseirae (Ollivier) Kohlmeyer

Family Leptosphaeriaceae

Leptosphaeria
arundinacea (Sowerby) Sacc., 1873
chondrii Rosenv., 1906
culmifraga Sacc., 1863
fuckelii Niessl., 1882
luctuosa Niessl ex Sacc., 1875
marina Rostr.
miclotii (Westend.) Sacc., 1878
microscopica P. Karst, 1872
microspora Ellis & Everh.
neomaritima R. Gessner & Kohlm., 1976

nigrans (Desm.) Ces & De Not., 1863
orae-maris Linder, 1944
pelagica E.B.G. Jones, 1962
pontiformis (Fuckel) Sacc., 1883
spartinae Ellis & Everh., 1885
Ophiobolus
culmorum
littoralis (P. Crouan & H. Crouan) Sacc.

Family Lophiostomataceae

Lophiotrema
littorale Speg.
Massarina
thalassiae Kohlm. & Volkm.-Kohlm., 1987

Family Microthyriaceae

Microthyrium
graminum E. Bommer, M. Rousseau & Sacc., 1891
nigroannulatum J. Webster, 1952

Family Monoblastiaceae

Microthelia
lindleri Kohlm., 1971
verruculosa Anastasiou

Family Mycosphaerellaceae

Micronectriella
agropyri Apinis & Chesters, 1964
Mycosphaerella
ascophylli Cotton, 1909
elymifoliae Munk, 1952
lineolata (Roberge ex Desm.) J. Schrot., 1894
pelvetiae Sutherland, 1915
salicorniae (Auerswald) Petrak, 1903
saticicola (Pat.) S. Dias
tassiana (De Not.) Johanson, 1884
Pharcidia
balani (Winter) Bauch, 1936
laminaricola Kohlm.
rhachiana Kohlm.

Sphaerulina
albispiculata Tubaki
orae-maris Linder, 1944

Family Phaeosphaeriaceae

Lautitia
danica (Berlesse) Schatz, 1984
Phaeosphaeria
albopunctata (Westend.) Shoemaker & C.E. Babcock, 1989
ammophilae (Lasch) Kohlm. & E. Kohlm., 1979
macrosporidium (E.B.G. Jones) Shoemaker & Babcock, 1989
typharum (Desm.) L. Holm, 1957

Family Pleomassariaceae

Kirschsteinothelia
maritima (Linder) D.L. Hawks, 1985

Family Pleosporaceae

Pleospora
gaudefroyi Pat., 1886
herbarum P. Karst, 1863
infectoria Fuckel, 1870
lignicola J. Webster & Lucas, 1961
pelvetiae G.K. Sutherl., 1915
rubelloides (Plowr. ex Cooke) J. Webster, 1957
rubicunda Niessl, 1876
spartinae (J. Webster & Lucas) Apinis & Chesters, 1964
straminis Sacc. & Speg., 1879
trichostoma (Fr.) Fuckel
triglochinoicola J. Webster, 1969
Trematcia
halophila Kohlm. & Volkm.-Kohlm. & O.E. Erikss, 1995

Family Sporomiaceae

Preussia
funiculata Fuckel., 1870
terricola Cain, 1961

vulgare

Family Zopfiaceae

Halothia
posidoniae (Dur. & Mont.) Kohlm., 1963
Pontoporeia
biturbinata (Dur. & Mont.) Kohlm.

Order Eurotiales

Family Monascaceae

Monascus
purpureus Went, 1895

Family Trichocomaceae

Byssochlamys
nivea Westling, 1909
Emericella
nidulans (Eidam) Vuill., 1927
Emericellopsis
stolkiae Davidson & Christensen.
terricola J.F.H. Beyma, 1939
Talaromyces
dupontii (Griffon & Maubl.) Apinis, 1963

Order Halosphaeriales

Family Halosphaeriaceae

Aniptodera
chesapeakeensis C. Shearer & J. Miller
Anisostagma
rotundatum K.R.L. Petersen & J. Koch
Arenariomyces
trifurcatus Hohnk., 1954
Appendichordella
amicta (Kohlm.) Johnson, Jones & Moss, 1987
Bovicornua
intricata Jorgen Koch & E.B.G. Jones, 1993
Carbosphaerella
leptosphaeroides I. Schmidt
pleosporoides I. Schmidt
Ceriosporopsis
caduca E.B.G. Jones & Zainal, 1988
cambrensis I.M. Wilson, 1954
halima Linder, 1944
tubulifera (Kohlm.) P.W. Kirk ex Kohlm., 1972
Chaetodofaudia
corallinarum (P. Crouan & H. Crouan) E. Mull. & Arx, 1973
Corollospora
armoricana Kohlm. & Volkm.-Kohlm., 1997
intermedia I. Schmidt
lacera (Linder) Kohlm.
luteola Nakagiri and Tubaki, 1982
maritima Werderm, 1922
pulchella (Kohlm.) I. Schmidt & Nair
Haligena
elaterophora Kohlm., 1961
salina C.A. Farrant & E.B.G. Jones, 1986
Halosphaeria
appendiculata Linder, 1944
Halosarpheia
hamata
retorquens Shearer & J.L. Crane, 1981
spartinae (E.B.G. Jones) C. Shearer & J.L. Crane, 1981
trullifera (Kohlm.) E.B.G. Jones, S.T. Moss & Cuomo, 1983
unicaudata (E.B.G. Jones & LeChampion-Alsumard) R.G. Johnson, E.B.G. Jones & S.T. Moss, 1987
viscosa (I Schmidt) Shearer & J.L. Crane ex Kohlm. & Volkm.-Kohlm., 1991
Halosphaeriopsis
mediosetigera (Cribb & J.W. Cribb) T.W. Johnson, 1958
Iwiloniella
rotunda E.B.G. Jones, 1991
Kohlmeyeriella
tubulata (Kohlm.) E.B.G. Jones, R.G. Johnson & S.T.