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# What is the Fungal Diversity of Marine Ecosystems in Europe?

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## ABSTRACT

In 2001 the European Register of Marine Species 1.0 was published (Costello *et al.* 2001 and <http://erms.biol.soton.ac.uk/>, and latterly: <http://www.marbef.org/data/stats.php>) [Costello MJ, Emblow C, White R, 2001. European register of marine species: a check list of the marine species in Europe and a bibliography of guides to their identification. *Collection Patrimoines Naturels* 50, 463p.]. The lists of species (from fungi to mammals) were published as part of a European Union Concerted action project (funded by the European Union Marine Science and Technology (MAST) research programme) and the updated version (ERMS 2) is EU-funded through the Marine Biodiversity and Ecosystem Functioning (MARBEF) Framework project 6 Network of Excellence. Among these lists, a list of the fungi isolated and identified from coastal and marine ecosystems in Europe was included (Clipson *et al.* 2001) [Clipson NJW, Landy ET, Otte ML, 2001. Fungi. In@ Costelloe MJ, Emblow C, White R (eds), European register of marine species: a check-list of the marine species in Europe and a bibliography of guides to their identification. *Collection Patrimoines Naturels* 50: 15–19.]. This article deals with the results of compiling a new taxonomically correct and complete list of all fungi that have been reported occurring in European marine waters.

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## 1. Introduction

The objective of the European Register of Marine Species (ERMS) project was to produce a complete listing of marine species in Europe, linked to a bibliography of identification guides, a register of taxonomic experts, locations of collections of reference specimens and an information pack on European marine biodiversity. The register is currently being used as a standard reference for marine biodiversity training, research and management in Europe. The ERMS is a participant of Species 2000europa, a collaboration of European species databases, which feeds into the global Species 2000 species database network (<http://www.sp2000.org>). Under the ERMS umbrella, the Society for Management of European Biodiversity Data Ltd. was founded on 11 February 2000 for the continual management of the lists included in the ERMS. Thus, with further

funding allocated to ERMS by MARBEF, resources have been allocated to update the web-based initial lists and database.

The area covered by the project is all of the continental shelf seas of Europe, from the Canaries and Azores to Greenland and north-west Russia, including the Mediterranean shelf and Baltic Seas (Fig. 1). The project covers species occurring in the marine environment, defined as all areas up to the strandline or splash zone above the high-tide mark and all areas including estuaries with salinity in excess of 0.5 ppt. The fungal list and associated database of information on these fungi will be of use to mycologists and ecologists as it includes data on geographical distribution, species isolation/identification details, and taxonomic references. Also, the research encompasses information that will aid mycologists in their field and laboratory studies, as it brings together information on all aspects of fungal diversity in marine ecosystems

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**Fig. 1** – The area encompassed by the ERMS project. The boundary includes the 45° W line of longitude from the North Pole, including the East coast of Greenland and the Mid-Atlantic Ridge to the West of Iceland and the Azores. The area reaches to the 26° line of latitude to the south of the Canary Isles. The Eastern boundary stretches from the pole, along the west and south coast of Nova Zemlya, to the East of the Barents Sea, to include Franz Josef Land and the Black Sea, as well as the Mediterranean, Baltic and Aegean seas.

in Europe, including substrate preferences, ecosystems in which fungi are most likely to occur, pseudonyms, media for isolation, geographical distribution of species and references for consultation.

ERMS is important at an international level due to the interest in conservation of biodiversity by organizations such as the United Nations. Conservation of biodiversity and the protection of the Oceans, all kinds of seas (including enclosed and semi-enclosed seas, and coastal areas) and the development of their living resources is a specific remit of [Agenda 21 \(1992\)](#).

## 2. Materials and Methods

The 'List' has been updated in recent months in accordance with [Ainsworth and Bisby's Dictionary of the fungi \(2001\)](#), a broad search of research publications and correspondence with authors of papers on fungi from marine environments. For your information, the following journals were searched for records of fungi in Europe from their first published issue to November 2004:

*Applied and Environmental Microbiology, Aquatic Botany, Botanical Journal of the Linnean Society, Botanica Marina, Canadian Journal of Botany, Canadian Journal of Microbiology, Fungal*

*Diversity, Journal of Mycology, Limnology and Oceanography, Mycological Research, Mycologia, Mycologist, Mycorrhiza, Mycotaxon, New Phytologist, Nova Hedwiga and Sydowia.*

Furthermore, general searches of online journal databases (Science Direct and EBSCOhost Electronic Journal Service) were carried out to find relevant articles, containing species of fungi previously unregistered in ERMS 1.0.

Contributions to ERMS 1.0 were also made by Portsmouth University Marine Fungal Collection (notes of Mr. Graham Bremer), Prof. E.B.G. Jones (University of Hong Kong) and a search of the International Mycological Institute Database of Fungal Records (<http://www.indexfungorum.org/>).

The scientific names in the list followed those of the international "Species 2000: indexing the world's known species" project, a larger version of ERMS that will include all known species worldwide and connect species databases on the Internet (<http://www.sp2000.org>). Additionally our database to accompany the published list includes information on pseudonyms (former species names), place of collection (Map coordinates where available, otherwise region), general ecosystem area class (e.g. saltmarsh, open sea, coastal dune etc.) and broadscale environmental class (i.e. Atlantic, Baltic etc.), fungal substrate, information on culturability and growth media for maintenance of species, and, published references.

As we are concerned with calculating the diversity of European Marine waters only, we wish to include all records of fungi in the marine ecosystems of Europe (defined above) and within this list we can delineate true obligate marine fungi i.e. those that can complete lifecycles in marine environments or facultative marine fungi i.e. those that are able to grow in freshwater or terrestrial habitats as well as in marine environments (Kohlmeyer & Kohlmeyer 1979). The remainder of the species listed will be assumed to be transient fungi i.e. those that occur infrequently or remain dormant in the marine habitat.

### 3. Results and Discussion

The list of European marine fungi extends to 338 species. Based upon a total worldwide estimate (1000) for the number of reported marine fungal species (Jones & Mitchell 1996), the European component may account for 33.8 % of known obligate and facultative marine fungi worldwide. The European list is comprised largely of ascomycetes and deuteromycetes, but also some basidiomycetes and zygomycetes. Since 2001, 79 species from the original list were renamed, 26 new species records have been added (25 added to Ascomycota and 1 added to Basidiomycota) and 141 species have been reclassified (i.e. 19 new Families, 11 new Orders, 14 Subclasses, 3 new Classes and a new Phylum) due to the presence of defunct taxa in the original list (Table 1).

Our aims for the future development of the ERMS list are to ecologically categorize those fungi listed as either obligate or facultative marine fungi or as transients that may not be active. The additional information collated from the literature will build a picture of the distribution and ecology of these fungi not only for oceanic and coastal regions but also for coastal dunes and saltmarshes as well as bay and port areas. Although a substantial number of records, both from the literature and (where available) mycologists notebooks, was used to compile this list, it must be seen as far from exhaustive particularly in giving a comprehensive overview for all European Seas. It is quite clear that records are biased towards N.W. Europe and there is a pressing need for studies outside this region in order to extend the ERMS.

### 4. Call for Contributions

If you would like to volunteer information from papers or collections that you are aware of that could contribute to this list and database by all mycologists and ecologists. Please send your comments with information on species under the categories above to:

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**Table 1 – Draft Taxonomic List of fungi present in European Marine Waters up to 2005**

Phylum Ascomycota
Class Ascomycetes
Subclass Chaetothyriomycetidae
Order Chaetothyriales
Family Herpotrichiellaceae
<i>Capronia ciliomaris</i> (Kohlm.) E. Mull., Petrini & P.J. Fischer. Samuels & Rossman, 1987
Subclass Dothideomycetidae
Order Dothideales
Family Botryosphaeriaceae
<i>Amarenomyces ammophilae</i> (Lasch) O.E. Erikss., 1981
<i>Macrophoma gymnogongri</i> Feldmann, 1941
Family Dothioraceae
<i>Aureobasidium pullulans</i> var. <i>pullulans</i> (de Bary) G. Arnaud, 1918
Family Incertae sedis
<i>Monodictys putredinis</i> (Wallr.) S. Hughes, 1958
<i>Passeriniella obiones</i> (P. Crouan & H. Crouan) K.D. Hyde & Mouzouras, 1988.
<i>Thalassoascus tregoubovii</i> Ollivier, 1926.
<i>Thalassoascus tregoubovii</i> (Ollivier) Kohlm., 1981.
Family Incertae sedis
<i>Ascochyta obiones</i> (Jaap) P.K. Buchanan, 1987
Family Zophiaceae
<i>Halothia posidoniae</i> (Dur. & Mont.) Kohlm., 1963
<i>Pontoporeia biturbinata</i> (Dur. & Mont.) Kohlm., 1963
Order Microthyriales
Family Microthyriaceae
<i>Microthyrium gramineum</i> E. Bommer, M. Rousseau & Sacc., 1891
<i>Lichenopeltella nigroannulata</i> (J. Webster) P.M. Kirk ined.
Order Mycosphaerellales
Family Mycosphaerellaceae
<i>Cladosporium alagrum</i> Cooke & Massee in Cooke
<i>Cladosporium herbarum</i> (Pers.: Fr) Link, 1816
<i>Cladosporium macrocarpum</i> Preuss, 1848
<i>Clavariopsis aquatica</i> DeWild, 1895
<i>Micronectriella agropyri</i> Apinis & Chesters, 1964
<i>Mycosphaerella allicina</i> (Fr.) Vesterg., 1896.
<i>Mycosphaerella ascophylli</i> Cotton, 1909
<i>Mycosphaerella lineolata</i> (Roberge ex Desm.) J. Schrot., 1894
<i>Mycosphaerella salicorniae</i> (Auerswald) Petrak, 1903
<i>Mycosphaerella saticicola</i> (Pat.) S. Dias
<i>Mycosphaerella tassiana</i> (De Not.) Johanson, 1884
<i>Pharcidia balani</i> (Winter) Bauch, 1936
<i>Pharcidia laminaricola</i> Kohlm., 1974
<i>Pharcidia rhachiana</i> Kohlm., 1974.
<i>Sphaerulina albispiculata</i> Tubaki, 1967.
<i>Sphaerulina orae-maris</i> Linder, 1944
<i>Sphaerulina pedicellata</i> T.W. Johnson, 1957
Order Pleosporales
Family Arthopyreniaceae
<i>Collempsidium pelvetiae</i> (G.K. Sutherl.) Kohlm. D. Hawksw. & Volkm-Kohlm, 2004.
Family Incertae sedis
<i>Camarosporium obiones</i> Jaap [as 'obionis'] 1905
<i>Camarosporium roumegueri</i> [as 'roumeguerii'] Sacc.
<i>Didymella fucicola</i> (G.K. Sutherl.) Kohlm., 1968
<i>Didymella magnei</i> Feldmann., 1958.
<i>Phoma laminariae</i> Cooke & Massee
<i>Phoma suaedae</i> Jaap, 1907
Family Leptosphaeriaceae
<i>Coniothyrium obiones</i> Jaap [as 'obionis'], 1907
<i>Leptosphaeria albopunctata</i> (Westend.) Sacc. 1883
<i>Leptosphaeria culmifraga</i> Sacc., 1863
<i>Leptosphaeria discors</i> Sacc. & Ellis, 1882

continued on next page

**Table 1 (continued)**

*Leptosphaeria littoralis* Sacc., 1877  
*Leptosphaeria luctuosa* Niessl ex Sacc., 1883  
*Leptosphaeria marina* Ellis & Everh., 1885  
*Leptosphaeria microspora* Ellis & Everh.  
*Leptosphaeria orae-maritis* Linder, 1944  
*Leptosphaeria pelagica* E.B.G. Jones, 1962  
*Ophiobolus littoralis* (P. Crouan & H. Crouan) Sacc., 1883  
*Ophiobolus culmorum* (P. Crouan & H. Crouan) Sacc., 1883

**Family Lophiostomataceae**  
*Massarina arundinacea* (Sowerby) Leuchtman., 1984  
*Massarina thalassiae* Kohlm. & Volkm.-Kohlm., 1987  
*Massariosphaeria typhicola* (P. Karst.) Leuchtman., 1984  
*Lophiotrema littorale* Speng., 1879

**Family Phaeosphaeriaceae**  
*Lautitia danica* (Berl.) S. Schatz, 1984  
*Phaeosphaeria fuckelii* (Niessl ex W. Voss) L. Holm, 1957  
*Phaeosphaeria macrosporidium* (E.B.G. Jones) Shoemaker & Babcock, 1989  
*Paraphaeosphaeria michotii* (Westend.) O.E. Erikss., 1967  
*Phaeosphaeria microscopica* (P. Karst.) O.E. Erikss., 1967  
*Phaeosphaeria neomaritima* (R.V. Gessner & Kohlm.) Shoemaker & C.E. Babcock, 1989  
*Phaeosphaeria nigrans* (Roberge ex Desm.) L. Holm, 1957  
*Phaeosphaeria pontiformis* (Fuckel) Leuchtman., 1984  
*Phaeosphaeria spartinae* (Ellis & Everh.) Shoemaker & C.E. Babcock, 1989  
*Phaeosphaeria typharum* (Desm.) L. Holm, 1957  
*Phaeosphaeria vagans* (Niessl) O.E. Erikss., 1967  
*Trichodelitschia bisporula* (P. Crouan & H. Crouan) Munk, 1953

**Family Pleosporaceae**  
*Alternaria alternata* (Fr.:Fr.) Keissl., 1912.  
*Alternaria maritima* G.K. Sutherl., 1916  
*Kirschsteiniotelia maritima* (Linder) D. Hawksw., 1985  
*Pleospora gaudefroyi* Pat. 1886  
*Pleospora herbarum* (Pers.) Rabenh., 1863  
*Pleospora infectoria* Fuckel, 1870  
*Pleospora lignicola* J. Webster & Lucas, 1961  
*Pleospora pelvetiae* G.K. Sutherl., 1915  
*Pleospora rubelloides* (Plowr. Ex Cooke) J. Webster, 1957  
*Pleospora rubicunda* Niessl., 1876  
*Pleospora spartinae* (J. Webster & Lucas) Apinis & Chesters., 1964  
*Pleospora straminis* Sacc. & Speng., 1879  
*Pleospora triglochynicola* J. Webster, 1969  
*Pyrenophora tritici-repentis* (Died.) Drechsler, 1923  
*Pleospora typharum* Fuckel  
*Stemphylium maritimum* Johnson, 1957  
*Trematea halophila* Kohlm. & Volkm.-Kohlm. & O.E. Erikss., 1995

**Family Sporormiaceae**  
*Preussia funiculata* Fuckel., 1870  
*Preussia fleischhakei* (Auersw.) Cain, 1961  
*Preussia terricola* Cain., 1961

**Order Pyrenulales**

**Family Monoblastiaceae**  
*Microthelia verruculosa* Anastasiou, 1963

**Subclass Eurotiomycetidae**

**Order Eurotiales**

**Family Trichocomaceae**  
*Aspergillus flavus* Link, 1809  
*Aspergillus fumigatus* Fresen., 1863  
*Aspergillus glaucus* (L: Fr) Link, 1809  
*Aspergillus niger* var. *niger* Tiegh., 1867  
*Aspergillus stellatus* Curzi, 1934  
*Aspergillus terreus* Thom, 1918  
*Aspergillus ustus* (Bainier) Thom. & Church, 1926  
*Aspergillus versicolor* (Vuill.) Tirab., 1908

**Table 1 (continued)**

*Byssoschlamys nivea* Westling, 1909  
*Emericella nidulans* (Eidam) Vuill., 1927  
*Paecilomyces aegyptiacus* S. Ueda & Udagawa, 1983  
*Penicillium chrysogenum* var. *chrysogenum*, 1910  
*Penicillium digitatum* (Pers.: Fr) Sacc., 1883  
*Penicillium dupontii* Griffon & Maubl., 1911  
*Penicillium glabrum* (Wehmer) Westling, 1911  
*Penicillium spinulosum* Thom., 1910  
*Penicillium variabile* Sopp., 1912

**Order Incertae sedis**

**Family Monascaceae**  
*Monascus purpureus* Went, 1895

**Order Onygenales**

**Family Onygenaceae**  
*Amauroascus albicans* (Apinis) Arx, 1971  
*Auxarthron umbrinum* (Boud.) G.F. Orr & Plunkett, 1963

**Family Gymnoascaceae**  
*Arachniotus ruber* (Teigh) J. Schrot., 1893  
*Gymnoascus reesi* Baran., 1872

**Subclass Incertae sedis**

**Order Incertae sedis**

**Family Incertae sedis**  
*Arthrospis hispanica* Gene, Ulfig & Guarro, 1995  
*Asteromyces cruciatus* Moreau & M. Moreau ex Hennebert, 1941  
*Biflua physasca* Jorgen Koch & E.B.G. Jones, 1989  
*Cephalotrichum stemonitis* (Pers.) Nees, 1809  
*Cirrenalia fusca* I. Schmidt, 1969  
*Cirrenalia macrocephala* (Kohlm.) Meyers & R.T. Moore, 1960  
*Crinigera maritima* I. Schmidt, 1989  
*Cumulospora marina* I. Schmidt, 1985  
*Dictyosporium pelagicum* (Linder) G.C. Hughes ex E.B.G. Jones [as 'pelagica'], 1963  
*Dictyosporium toruloides* (Corda) Guég., 1905  
*Dryosphaera navigans* J.Koch&E.B.G. Jones, 1989  
*Eiona tunicata* Kohlm., 1968  
*Gliomastix guttuliformis* Brown & Kendrick, 1958  
*Gliomastix murorum* var. *murorum* (Corda) S. Hughes, 1958  
*Humicola alopallonella* Meyers & R.T. Moore, 1960  
*Marisolaris ansata* J. Koch & E.B.G. Jones, 1989  
*Orbimyces spectabilis* Linder, 1944  
*Orcadia ascopylli* G.K. Sutherl., 1915  
*Phialophorophoma litoralis* Linder, 1944  
*Piricauda pelagica* T. Johnson, 1958  
*Pochonia bulbilosa* (W. Gams & Malla) Zare & W. Gams (2001)  
*Pontogeneia calospora* (Pat.) Kohlm.  
*Pontogeneia cnormis* (Pat.) Kohlm., 1975  
*Scolecobasidium salinum* (G.K. Suth.) M.B. Ellis, 1976  
*Scolecobasidium arenarium* (Nicot) M.B. Ellis, 1976  
*Scytalidium hyalinum* C.K. Campb. & J.L. Mulder, 1977  
*Sporidesmium salinum* E.B.G. Jones, 1963  
*Stachybotrys* sp. Group A  
*Tetracladium marchalianum* De Wild., 1893  
*Torpedospora ambispinosa* Kohlm., 1960  
*Torpedospora radiata* Meyers, 1957  
*Trichocladium achrasporum* (Meyers & R.T. Moore) M. Dixon ex Shearer & J.L. Crane, 1971.  
*Trichocladium asperum* Harz., 1871  
*Trichocladium constrictum* I. Schmidt, 1985  
*Trichocladium lignicola* [as 'lignincola'] I. Schmidt, 1985  
*Trichothecium roseum* (Pers.: Fr.) Link, 1809  
*Zalerion maritima* (Linder) Anastasiou, 1963  
*Zalerion varia* Cabello, Aramb. & Liggieri, 1963.

**Family Myxotrichaceae**  
*Geomyces pannorum* (Link) Sigler & J.W. Carmich. [as 'pannorus'], 1976

**Table 1 (continued)**

*Pseudogymnoascus roseus* Raïllo, 1929  
*Myxotrichum ochraceum* Berk. & Broome, 1875  
*Oidiodendron maius* Barron, 1962  
*Oidiodendron tenuissimum* (Peck) Hughes, 1958  
**Family Pseudeurotiaceae**  
*Pseudeurotium zonatum* J.F.H. Beyma, 1937

**Subclass Laboulbeniomycetidae**  
**Order Laboulbeniales**  
**Family Laboulbeniaceae**  
*Laboulbenia marina* F. Picard

**Subclass Lecanoromycetidae**  
**Order Lecanorales**  
**Family Dactylosporaceae**  
*Dactylospora canariensis* Kohl.&Volkm.-Kohlm., 1995

**Subclass Leotiomycetidae**  
**Order Incertae sedis**  
**Family Incertae sedis**  
*Amylocarpus encephaloides* Currey, 1986  
**Order Helotiales**  
**Family Dermateaceae**  
*Cejpia hystrix* (De Not.) Baral, 1994  
*Diplonaevia paulula* (Roberge ex Desm.) Scheuer, 1991  
*Pyrenopeziza arenivaga* (Desm.) Boud., 1907  
*Pyrenopeziza arundinacea* (DC.) Boud., 1907  
*Mollisia palustris* (Roberge ex Desm.) P. Karst., 1871  
**Family Helotiaceae**  
*Hymenoscyphus robustior* (P. Karst.) Dennis, 1964  
**Family Hyaloscyphaceae**  
*Albotricha acutipila* (P. Karst.) Raitv., 1970  
*Lachnum carneolum* (Sacc.) Rehm  
*Lachnum controversum* (Cooke) Rehm, 1889  
*Lachnum palearum* (Desm.) Korf, 1982  
*Lachnum rhodoleucum* (Sacc.) Rehm  
**Family Sclerotiniaceae**  
*Botrytis cinerea* Pers, 1794  
**Order Thelebolales**  
**Family Thelebolaceae**  
*Thelebolus microsporus* (Berk. & Broome) Kimbr., 1967

**Subclass Pezizomycetidae**  
**Order Pezizales**  
**Family Ascobolaceae**  
*Ascobolus crenulatus* P. Karst, 1868  
**Family Pezizaceae**  
*Iodophanus carneus* (Pers.) Korf, 1967  
**Family Pyronemataceae**  
*Neottiella rutilans* (Fr.) Dennis, 1960

**Subclass Sordariomycetidae**  
**Order Diaporthales**  
**Family Valsaceae**  
*Gnomonia salina* E.B.G. Jones, 1962  
**Order Halosphaeriales**  
**Family Halosphaeriaceae**  
*Aniptodera chesapeakeensis* C. Shearer & J. Miller, 1977  
*Anisostagma rotundatum* K.R.L. Petersen & J. Koch, 1996  
*Appendichordella amicta* (Kohlm.) Johnson, Jones & Moss, 1987  
*Arenariomyces trifurcatus* Hohnk., 1954  
*Bovicornua intricata* Jorgen Koch & E.B.G. Jones, 1993  
*Buxetrolidia bisaccata* KRL Petersen & Jørg. Koch, 1997  
*Carbosphaerella leptosphaeroides* I. Schmidt, 1969  
*Carbosphaerella pleosporoides* I. Schmidt, 1969

**Table 1 (continued)**

*Ceriosporopsis caduca* E.B.G. Jones & Zainal, 1988  
*Ceriosporopsis calyptrata* Kohlm., 1960  
*Ceriosporopsis cambrensis* I.M.Wilson, 1954  
*Ceriosporopsis circumvestita* (Kohlm.) Kohlm., 1972  
*Ceriosporopsis halima* Linder., 1944  
*Ceriosporopsis longissima* Kohlm., 1962  
*Chadefaudia corallinarum* (P. Crouan & H. Crouan) E. Müll. & Arx, 1973  
*Corollospora armoricana* Kohlm. &Volkm.-Kohlm., 1997  
*Corollospora comata* (Kohlm.) Kohlm., 1962  
*Corollospora cristata* (Kohlm.) Kohlm., 1962  
*Corollospora intermedia* E.B.G. Jones, 1970  
*Corollospora lacera* (Linder) Kohlm., 1962  
*Corollospora luteola* Nakagiri and Tubaki, 1982  
*Corollospora maritima* Werderm., 1922  
*Corollospora pulchella* (Kohlm.) I. Schmidt & Nair, 1967  
*Corollospora trifurcata* (Hohnk) Kohlm., 1962  
*Haligena amicta* (Kohlm.) Kohlm. & E. Kohlm., 1979  
*Haligena elaterophora* Kohlm., 1961  
*Haligena salina* C.A. Farrant & E.B.G. Jones, 1986.  
*Haligena unicaudata* E.B.G. Jones & Camp.-Als., 1971.  
*Halosarpheia retorquens* Shearer & J.L.Crane, 1981  
*Halosarpheia spartinae* (E.B.G. Jones) Shearer & J.L. Crane, 1981.  
*Halosphaeria appendiculata* Linder, 1944  
*Halosphaeria mediosetigera* var. *mediosetigera* Cribb & J.W. Cribb, 1956  
*Halosphaeria pileata* (Kohlm.) Kohlm. [as 'pilleata'], 1972  
*Halosphaeria quadri-remis* (Höhnk) Kohlm., 1972  
*Halosphaeria torquata* Kohlm., 1960  
*Halosphaeria tubulifera* Kohlm., 1960  
*Iwilsoniella rotunda* E.B.G. Jones, 1991  
*Kohlmeyeriella tubulata* (Kohlm.)E.B.G. Jones, R.G. Johnson & S.T. Moss, 1983  
*Lignincola laevis* Hohnk, 1955  
*Limacospora sundica* Jorgen Koch & E.B.G. Jones, 1995  
*Luttrellia estuarina* Shearer, 1978  
*Nais inornata* Kohlm., 1962  
*Naufragella spinibarbata* (J. Koch) Kohlm. & Volkm.-Kohlm., 1998  
*Nautosphaeria cristaminuta* E.B.G. Jones, 1964  
*Ocostaspora apilongissima* E.B.G. Jones, R.G. Johnson & Moss, S.T., 1983  
*Panorbis viscosus* (I.Schmidt) J. Campb., J.L. Anderson & Shearer, 2003.  
*Phaeonectriella lignicola* Eaton & E.B.G. Jones, 1971  
*Remispora crispa* Kohlm., 1981  
*Remispora galerita* Tubaki, 1967  
*Remispora hamata* (Höhnk) Kohlm, 1961  
*Remispora maritima* Linder, 1944  
*Remispora stellata* Kohlm., 1960  
*Remispora trullifera* Kohlm., 1963  
*Sigmoidea marina* Haythorn and Jones, 1980  
*Tirisporea unicaudata* E.B.G. Jones & Vrijmoed, 1994  
*Trailia ascophylli* G.K. Sutherl., 1915  
*Tunicatispora australiensis* K.D. Hyde, 1990

**Order Hypocreales**  
**Family Bionectriaceae**  
*Bionectria ochroleuca* (Schwein.) Schroers & Samuels, 1997  
*Nectriella laminariae* O. Erikss., 1964  
**Family Ceratostomataceae**  
*Sphaerodes fimicola* (E.C. Hansen) P.F. Cannon & D. Hawksw., 1982  
**Family Clavicipitaceae**  
*Claviceps purpurea* (Fr.) Tul., 1883  
*Neobarya aurantiaca* (Plowr. & A.S. Wilson) Lowen, 1986  
**Family Hypocreaceae**  
*Gliocladium roseum* Bainier, 1907  
*Trichoderma koningii* Oudem., 1902  
*Trichoderma viride* Pers.: Fr., 1794

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**Table 1 (continued)****Family Incertae sedis**

*Acremonium strictum* W. Gams, 1971  
*Cephalosporium curtipes* Sacc., 1881  
*Emericellopsis stolckiae* D.E. Davidson & M. Christensen, 1971  
*Emericellopsis terricola* J.F.H. Beyma, 1940  
*Halonectria milfordensis* E.B.G. Jones, 1965  
*Tolypocladium geodes* W. Gams, 1971

**Family Nectriaceae**

*Fusarium culmorum* (W.G.Sm.) Sacc., 1895  
*Fusarium oxysporum* Schldt.:Fr., 1824  
*Nectria haematococca* Berk. & Broome, 1873  
*Nectria inventa* Pethybr., 1919  
*Nectria radicola* Gerlach & L. Nilsson, 1963  
*Tubecularia pulverulenta* Spegazzini  
*Volutella ciliata* (Alb. & Schwein.: Fr.) Fr., 1832

**Order Incertae sedis****Family Apiosporaceae**

*Apiospora montagnei* Sacc., 1875  
*Arthrimum phaeospermum* (Corda) M.B. Ellis, 1965

**Family Incertae sedis**

*Abyssomyces hydrozoicus* Kohlm., 1970  
*Cryptovalsa suaedicola* Spooner, 1981  
*Marinosphaera mangrovei* K.D. Hyde, 1989

**Family Magnaporthaceae**

*Gaeumannomyces graminis* var. *tritici* Walker, 1972

**Order Lulworthiales****Family Lulworthiaceae**

*Lindra inflata* Wilson, 1956  
*Lindra marinera* Meyers, 1969  
*Lulworthia crassa* Nagakiri, 1984  
*Lulworthia floridana* Meyers, 1957  
*Lulworthia fucicola* Suth., 1916  
*Lulworthia kniepii* Kohlm.  
*Lulworthia lignoarenaria* J. Koch & E.B.G. Jones, 1984  
*Lulworthia longirostris* (Linder) Cribb & J.W. Cribb, 1955  
*Lulworthia medusa* (Ellis & Everh.) Cribb & J.W. Cribb, 1955  
*Lulworthia opaca* (Linder) Cribb & Cribb, 1955  
*Lulworthia purpurea* (I.M. Wilson) T.W. Johnson, 1958  
*Lulworthia rufa* (I.M. Wilson) T.W. Johnson, 1958  
*Lulworthia submersa* Johnson, 1958  
*Lulworthia uniseptata* Nagakiri, 1984

**Order Microascales****Family Microascaceae**

*Cephalotrichum microsporum* (Sacc.) Kirk, 1984  
*Cephalotrichum nanum* (Ehrenb.) S. Hughes, 1958  
*Microascus cirrosus* Curzi, 1930  
*Microascus brevicaulis* S.P. Abbott, 1998  
*Scopulariopsis fusca* Zach, 1934

**Order Phyllachorales****Family Incetae sedis**

*Haloguignardia cystoseira* Kolhm. & Demoulin, 1981  
*Haloguignardia oceanica* (Ferd. & Winge) Kohlm., 1971

**Family Phyllachoraceae**

*Colletotrichum typhae* H.C. Greene, 1955-56

**Order Sordariales****Family Chaetomiaceae**

*Chaetomium aterrimum* Ellis & Everh., 1910  
*Chaetomium bostrychodes* Zopf., 1877  
*Chaetomium cochlioides* [as 'cochliodes'] Palliser, 1910  
*Chaetomium elatum* Kunze & Schmidt, 1824  
*Chaetomium erectum* Skolko & J.W. Groves, 1948  
*Chaetomium funicola* Cooke, 1873  
*Chaetomium globosum* Kunze, 1817  
*Chaetomium indicum* Corda, 1840  
*Corynascus sepedonium* (C.W. Emmons) Arx, 1973  
*Thielavia terrestris* (Apinis) Malloch & Cain, 1972

**Table 1 (continued)**

*Thielavia terricola* (J.C. Gilman & E.V. Abbott) C.W. Emmons, 1930

**Family Chaetosphaeriaceae**

*Chaetosphaeria chaetosa* Kohlmeyer, 1963

**Family Coniochaetaceae**

*Coniochaeta ligniaria* (Grev.) Masee, 1887

**Family Incertae sedis**

*Savoryella lignicola* E.B.G. Jones & Eaton, 1969

**Family Lasiosphaeriaceae**

*Biconiosporella corniculata* Schaumann, 1972  
*Podospora curvula* (de Bary ex G. Winter) Niessl, 1883  
*Podospora decipiens* (G. Winter ex Fuckel) Niessl, 1883  
*Podospora tetraspora* (G. Winter) Cain, 1962

**Family Nitschkiaceae**

*Groenhiella bivestia* J.Koch, E.B.G. Jones & S.T. Moss, 1983

**Family Sordariaceae**

*Gelasinospora calospora* (Mouton) C. Moreau & Moreau, 1949  
*Gelasinospora retispora* Cain, 1950

*Sordaria fimicola* (Roberge ex Desm.) Ces. & deNot., 1863

**Order Xylariales****Family Amphisphaeriaceae**

*Amphisphaeria culmicola* Sacc., 1873

**Family Incertae sedis**

*Phomatospora dinemasporium* J. Webster, 1955

**Family Xylariaceae**

*Anthostomella lugubris* (Roberge & Desm.) Sacc., 1882  
*Anthostomella phaeosticta* (Berk.) Sacc., 1878  
*Sphaeria typharum* Rabenh.

**Class Saccharomycetes****Subclass Saccharomycetidae****Order Saccharomycetales****Family Incertae sedis**

*Candida albicans* (C.P. Robin) Berkhout, 1923  
*Candida colliculosa* (M. Hartmann) S.A. Mey. & Yarrow, 1978  
*Candida famata* (F.C. Harrison) E.K. Novák & Zsolt, 1961  
*Candida guilliermondii* (Castell.) Langeron & Guerra, 1938  
*Candida humicola* (Dasz.) Diddens & Lodder, 1942  
*Candida inconspicua* (Lodder & Kreger) S.A. Mey. & Yarrow, 1978  
*Candida rugosa* (H.W. Anderson) Diddens & Lodder, 1942  
*Candida zeylanoides* (Castell.) Langeron & Guerra, 1938

**Family Metschnikowiaceae**

*Metschnikowia bicuspidata* (Metschnikoff) Kamienski, 1899

**Family Saccharomycetaceae**

*Williopsis salicorniae* Hinzelin, Kurtzman & M.T. Sm., 1991

**Phylum Basidiomycota****Class Basidiomycetes****Subclass Agaricomycetidae****Order Agaricales****Family Agaricaceae**

*Agaricus litoralis* (Wakef. & A. Pearson) Konrad & Maubl. [as 'littoralis'], 1952

**Family Cortinariaceae**

*Inocybe decipiens* Bres., 1892

**Family Hydnangiaceae**

*Laccaria trullisata* (Ellis) Peck., 1912

**Family Marasmiaceae**

*Marasmius oreades* (Bolton: Fr.) Fr., 1836

**Family Niaceae**

*Nia epidermoidea* Rossello and Descals, 1993

*Nia globispora* Barrata & Basilio, 1997

*Nia vibrissa* R.T. Moore & Meyers, 1961

**Family Tulostomataceae**

*Tulostoma macrocephalum* Long, 1944

**Order Polyporales**

**Table 1 (continued)****Family Atheliaceae***Digitatispora marina* Douget, 1962**Class Ustilaginomycetes****Subclass Ustilaginomycetidae****Order Urocystales****Family Melanotaeniaceae***Melanotaenium ruppiae* G. Feldmann, 1959**Phylum Incertae sedis****Class Incertae sedis****Subclass Incertae sedis****Order Incertae sedis****Family Incertae sedis***Ostracoblabe implexa* Born & Flahault, 1891**Phylum Zygomycota****Class Zygomycetes****Subclass Incertae sedis****Order Mucorales****Family Mortierellaceae***Mortierella alpina* Peyronel, 1913*Mortierella minutissima* Tiegh, 1878 [1976]*Mortierella parvispora* Linnem, 1941*Mortierella polycephala* Coem, 1863*Mortierella gamsii* Milko, 1974*Mortierella turficola* Y. Ling, 1930**Family Mucoraceae***Absidia spinosa* var. *spinosa* Lendn, 1905*Actinomucor elegans* C.R. Benjamin. & Hesselstine, 1957*Mucor hiemalis* Wehmer, 1903*Mucor plumbeus* Bonard, 1864*Mucor racemosus* Bull, 1791*Rhizopus stolonifer* var. *stolonifer* Ehrenb., 1902

It is intended to publish a finite list (in an academic journal) and database (ERMS website) during 2006, thus all contributions shall involve either co-authorship or due acknowledgment, as appropriate.

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