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WORLD FEDERATION FOR CULTURE COLLECTIONS

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Number 23

December 1995

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An Interdisciplinary Commission of the International Union of Biological Sciences and the International Union of Microbiological Societies.

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### WFCC EXECUTIVE BOARD

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Centre for Bacterial Diversity and

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Ex-officio:  
Mrs. Barbara Kirsop (UK)  
(Past President)

Dr. H. Sugawara (Japan)  
(Director WDC)

## WFCC Committees

Committee on Education  
Committee on Standards  
Committee on Patents  
Committee on Biodiversity

Committee on Publication & Publicity  
Committee on Membership  
Committee on World Data Centre (WDC)  
Committee on Endangered Culture Collections

Committee on Postal, Quarantine & Safety Regulations

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This WFCC Newsletter was edited by Dr. Dieter Claus, Chemnitzerstrasse 3, D-37085 Göttingen, Germany.

All material for inclusion in the next Newsletter should be sent to this address

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## MEMBERS OF WFCC COMMITTEES

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Dr. R. Colwell  
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Dr. D. Hawksworth  
Dr. U. Shimizu  
Dr. E. Stackebrandt

**Committee on Membership:**

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Dr. D. Fritze  
Dr. D. v.d. Mei  
Dr. T. Nakase

**Committee on Postal, Quarantine  
and Safety Regulations:**

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Mme. Ch. Bizet  
Dr. A. Hocking  
Dr. J. Hunter-Ceverra  
Dr. C. Morris  
Dr. Ch. Rohde  
Dr. L. Sigler  
Mr. F. Simione  
Dr. T. Suzui  
Dr. J. Young

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Dr. V. Arunpairojana  
Dr. K.A. Malik  
Dr. J. Martinez-Cruz  
Dr. G. Pinaev  
Dr. I. Sastramihardja  
Dr. T.-S. Tao  
Dr. A. Ventosa

**Committee on Standards:**

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Dr. T. Deak  
Dr. L. Kalakoutskii  
Dr. A. Ventosa

**Committee on Publications  
and publicity:**

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Mr. P. Burke

**Committee on Endangered Culture Collections:**

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Dr. R.G. Butenko  
Dr. R. Colwell  
Dr. G. Hennebert  
Dr. S.C. Jong  
Dr. M.L. Suihko  
Dr. Z. Wang  
Dr. K. Yamasato

**Committee on Patents:**

Chair: Mrs. B. Brandon  
Members are all IDA representatives

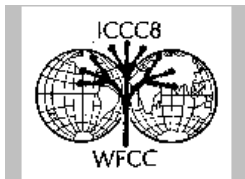
**Committee on World Data Centre:**

Chair: Dr. D. Fritze  
Dr. V. Canhos  
Dr. T. Hasegawa  
Dr. M. Krichevsky  
Mr. J. Ma  
ex officio: Dr. L. Sly

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WFCC ANNOUNCEMENT

**EIGHTH INTERNATIONAL CONGRESS FOR CULTURECOLLECTIONS**



World Federation for Culture Collections (WFCC)

Netherlands Culture Collections (NCC)

*"Culture Collections to improve the quality of life"*

25-29 August, 1996

Veldhoven, The Netherlands

Culture collections play a central role in the network of biological, agricultural, biomedical sciences and biotechnology worldwide. The central conference theme emphasises the ambitious mission: *Culture Collections to improve the quality of life.*

The programme will be focused on the transfer of knowledge beyond the traditional area of culture collection management into the vast realm of applications in e.g. biotechnology, agriculture, biomedical and pharmaceutical research, environmental technology and data communication. The conference is designed to be a meeting place for all those working on the crossroads of culture management and culture application: bacteriologists, virologists, mycologists, algologists, protozoologists, cell biologists, biochemists, plant and animal pathologists, biotechnologists with affiliated disciplines.

In the tradition of the WFCC, the conference is designed to optimize formal and informal exchange of expertise and to strengthen personal relations. The schedule include: plenary lectures, workshops, symposia, paper-poster presentations, lunch meetings, exhibitions, audiovisual presentations, social events, programme for accompanying persons.

Themes of the Conference include

#### Research

- natural biodiversity: conservation, application, culturing
- taxonomy and phylogeny
- molecular characterisation and fingerprinting
- quality of production organisms

#### Methodology

- storage and handling
- computerized information services, expert systems

#### Management and procedures

- legislation: from corporate to the international level
- safety aspects of working conditions, quality control
- marketing cultures and expertise
- new trends in patenting

#### Applications

- in biomedicine, agriculture, biotechnology, environmental science

- culture collections in developing countries

## TENTATIVE PROGRAMME

*Sunday, 25 August, 1996*

6.00 to 8.00 pm

Get-together welcome party

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8.00 pm Opening Ceremony

Opening address by the president of the Royal Netherlands Academy of Arts and Sciences

Opening lecture by D.L. Hawksworth: *Microbial collections as a tool in biodiversity and bio-systematic research*

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*Monday, 26 August, 1996*

Plenary morning symposium 1  
(convener: E. Stackebrandt)

Special symposium 2  
(convener: R. Cypess)

Special symposium 3  
(convener: J. Field)

Special symposium 4  
(convener: D. Fritze)

The role of culture collections in relation to bio-  
diversity

Quality control in culture collections

Fungal bioremediation

Legal aspects

*Tuesday, 27 August, 1996*

Plenary morning symposium 5  
(convener: A. Stouthamer)

Special symposium 6  
(convener: J.Tiedje)

Special symposium 7  
(convener: VCanhos)

Special symposium 8  
(convener: L.van Griensven)

Evolution and biodiversity of prokaryotes and  
eukaryotes

Biodiversity: molecular and microbial ecology

Culture collections worldwide

The use of culture collections for breeding edible  
mushrooms

*Wednesday, 28 August, 1996*

Plenary morning symposium 9  
(convener to be announced)

Quality of life: agricultural and environmental  
applications

Special symposium 10  
(convener to be announced)

Special symposium 11  
(conveners: G.Stegehuis/L. Sigler)

Special symposium 12  
(convener: L.Sly)

Evening

Changing spectrum of infectious diseases  
and  
significance of culture collections

Databases

The diversity of culture collections

Conference banquet

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Banquet speech by E. Stackebrandt: *Culture Collections, where do they go?*

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*Thursday, 29 August, 1996*

Plenary morning symposium 13  
(convener: L.Anker)

Special symposium 14  
(convener: S.Peterson)

Special symposium 15  
(convener: T.Nakase)

Quality of life: industrial applications

Emerging techniques for rapid identification of  
cultures in culture collections

Modern culture collection management

#### PRELIMINARY LIST OF MINI SYMPOSIA, WORKSHOPS AND ROUND TABLES

- Health and safety aspects of microorganisms in the working environment and beyond
- Culture collections in developing countries
- Types of culture collections (service, procedures, status and recognition)
- Looking to the future: do collections need trained taxonomists ?
- Handling pathogenic microorganisms
- Rapid and reliable identification
- Degeneration of living cultures in culture collections
- Standardisation of biological indicators for use in efficiency tests of infections in  
waste treatment systems

- Making collection resources available electronically via Internet, CD-ROM, diskettes,
- Customer possibilities to assess collection resources through Internet
- Extremophiles

#### POSTER SESSIONS AND ABSTRACTS

All sessions are open for poster contributions. The poster boards are 180 cm tall and 110 cm wide. On request abstract forms can be obtained from the Scientific secretariat (CBS, Baarn). The original abstract with two copies must be received before May 1, 1996 to ensure proper inclusion into the programme. Abstracts can also be sent as a file on diskettes or by E-mail, preferably written in MS-DOS compatible software or in ASCII.

Further information can be obtained from

Scientific Secretariat ICC8-8

p/a Centraalbureau voor Schimmelcultures

P.O.Box 273

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Tel +31-35-5481211

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Email: [ICCC8@CBS.KNAW.NL](mailto:ICCC8@CBS.KNAW.NL)

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NEW WFCC MEMBERS, NAME CHANGES  
AND NEW ADDRESSES

#### New Ordinary Members

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ATCC  
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Rockville, MD 20852

Shida, O.S.  
Higeta ShoyuCo, Ltd.  
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Coshi, Chiba 288

#### USA

Stackebrandt, Erko, Prof. Dr.  
DSM-Deutsche Sammlung von Mikro-  
organismen und Zellkulturen GmbH  
Mascheroder Weg 1b  
D-38124 Braunschweig, Germany

Culture Collection  
Roche Molecular Systems  
attn. Gina L. Carter  
1145 Atlantic Avenue  
Alameda, CA 94502  
USA

#### Japan

Weih, Vera, Dr.  
DSM-Deutsche Sammlung von Mikro-  
organismen und Zellkulturen GmbH  
Mascheroder Weg 1b  
D-38124 Braunschweig, Germany

#### New Affiliate Members

National Salmonella Centre  
Institute of Maritime and Tropical Medicine  
attn. Prof. Dr. R.G. Glosnicka  
9b Powstania Styczniowego Str.  
PL-81 519 Gdynia  
Poland

#### New Adherent Members

Israel Society of Microbiology

attn. Prof. I. Kahane

Secretariat

P.O. Box 12206

Jerusalem 91120, Israel

#### Changes of Names or Addresses of Members

Czech Collection of  
Microorganisms  
attn. Dr. Ivo Sedlacek  
Masaryk University  
Tvrdeho 14  
CZ-60200 Brno  
Czech Republic

Institute of Cytology  
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attn. Prof. Dr. G. Pinaev  
Tichoretcky, 4  
St. Petersburg, 194064  
Russia

Stevenson, Robert E., Dr.  
117 Princess St.  
Alexandria, VA 22314  
USA

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WFCC PUBLICATIONS ON SALE



Proceedings of the Král Symposium to celebrate the centenary of the establishment of the first recorded service culture collection.

Editors: Lindsay Sly, Teiji Iijima, Barbara Kirsop. Osaka, 1990. ISBN 4-938693-01-1.

During this meeting, which was organized and the Proceedings edited with the financial help of IFO and UNESCO, the past 100 years of collecting cultures of microorganisms were assessed by several speakers and compared with the developments anticipated in the future.

Topics addressed were:

- History of the Král Collection
- The Impact of Chemotaxonomy on Culture Collections
- The Impact of Computers on Culture Collections
- The Impact of Biotechnology on Culture Collections

Fee: Free of charge (one copy) for WFCC members. 5 US\$ (plus 5 US\$ postage) for non-members.

*The Biodiversity of Microorganisms and the Role of Microbial Resource Centres*

Editors: B. Kirsop, D.L. Hawksworth. 1994. ISBN 92 91029 0419.

The 104-page book contains the following chapters:

- Microbial Diversity and the 1992 Convention on Biological Diversity
- Culture Collections Worldwide
- Patent Aspects of the Convention at the Microbial Level
- Views of a Developing Country-The Brazilian Experience
- The WFCC World Data Centre on Microorganisms and Global Statistics on Microbial Resource Centres
- The Uncertainties of Microbial Diversity
- International Initiatives in Microbial Diversity

Further information is included in the Annexes:

- The Convention on Biological Diversity 1992
- Guidelines for the Establishment and Operation of Collections of Cultures of Microorganisms
- Further Reading and Contact Information

Fee: Free of charge (one copy) for WFCC members. 10 US\$ (plus 5 US\$ postage) for non-members.

*Guidelines for the Establishment and Operation of Collections of Cultures of Microorganisms*

Editors: D. Hawksworth, I. Sastramihardja, R. Kokke, R. Stevenson.1990.

The Guidelines were prepared by the WFCC Standards Committee with the financial help of UNEP and UNESCO. The increasing demands on culture collections for authenticated, reliable biological material alerted the WFCC to the need for providing recommendations for good practice in culture collections so that new collections have guidance and existing collections have approved standards of operation to adhere to or endeavour to attain.

Fee: Free of charge (one copy) for WFCC members. 5 US\$ (plus 5 US\$ postage) for non-members.

The three publications described above may be obtained directly from the WFCC Secretary.

#### *WDC DIRECTORY - World Directory of Collections of Cultures of Microorganisms*

Eds: H. Sugawara, J. Ma, S. Miyazaki, J. Shimura, Y. Takishima, 1993. ISBN 4-930813-56-5.

The 4th edition of the WDC-Directory has been compiled by the WFCC World Data Centre on Microorganisms (WDCM), located at RIKEN Institute, Japan. The Directory is built upon two core databases of the Data Centre and includes information on nearly 500 Culture Collections worldwide.

Scientists from academia and industry will find all relevant details on the organizational structures of culture collections, the kinds of biological material held, the expertise available and the services offered. Lists of all bacterial and fungal species held by registered collections adds to the value of the 1.152 pages book.

This publication should be ordered through your bookseller. Price: ¥ 15.450.

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### NEWS FROM AND FOR CULTURE COLLECTIONS

#### WFCC World Data Centre on Microorganisms (WDCM)

The WDCM recently developed a new data-base for culture collections, CCINFO-PC, that runs on IBM PCs and compatibles. The database includes information about the activities of 484 culture collections from 58 countries, an integrated list of their holdings (bacteria, fungi and yeasts), and a data entry system for culture collections. Details of the database are described by J. Ma, S. Miyazaki & H. Sugawara: *A handy database for culture collections worldwide: CCINFO-PC* in CABIOS 11, 209-212 (1995). The database will be distributed to culture collections registered with the WDCM.

In addition, WDCM has set up a World Wide Web (WWW) server. Databases, stored at WDCM, may be searched, eg STRAIN (a list of more than 10 000 species names of bacteria and nearly 20 000 species names of fungi and yeasts preserved in culture collections registered with WDCM), ALGAE (a comprehensive world catalogue of collections of algae), JSCC (a database of bacteria and fungi/yeasts preserved in culture collections in Japan), CCINFO and others. Also links to MSDN, BIN21 and Species 2000 are installed. WDCM also started WWW for WFCC with a ICC8's Home Page.

#### Classification of microorganisms on the basis of hazards

The European Union has published a list of biological agents (bacteria, fungi, parasites, viruses) known to

infect humans. The agents have been classified for inclusion in Group 2 to 4. The Council Directive 93/88/EEC has been published in the Official Journal of the European Communities, No L 268/71 of 29.10. 1993. The list came into force on 30 April 1994.

Regulations on protective measures against the introduction into member states of the European Union of organisms harmful to plants or plant products has been published in the Commission Directive 92/103/EE published in the Official Journal of the European Communities No L 363/1 of 11.12.1992.

#### Japan Society for Culture Collections

In 1993, the *Japanese Federation for Culture Collections (JFCC)* changed its name to *Japan Society for Culture Collections (JSCC)*. From Volume 10, 1994, the name of the official journal of the society changed from *Bulletin of the Japanese Federation for Culture Collections (Bull. JFCC)* to *Microbiology and Culture Collections (Microbiol. Cult. Coll.)*.

#### European Culture Collections' Organization (ECCO)

The European Culture Collections's Organization has recently published the 2nd edition of its brochure *European culture collections: Microbial diversity in safe hands*. This useful publication gives information on the holdings and services of 46 European culture collections and can be obtained from the secretary of ECCO (see also page 16 of this Newsletter).

#### New shipping brochure available

An updated edition of *Shipping of Infectious, Non-Infectious and Genetically Modified Biological Materials, International Regulations* has been published in 1995. The 52 pages brochure, edited by Christine Rohde and Dieter Claus, provides also information on the European classification of microorganisms on the basis of hazard. In addition, transport associated accidents are outlined and a step by step instruction for packing and shipping of biological materials is given. The brochure can be ordered for DM 25 (US \$15) from the DSM, the German Collection of Microorganisms and Cell Cultures, Mascheroder Weg 1b, D-38124 Braunschweig, Germany (Fax +49 531 2616418). It is also available as disk.

A short version of the brochure (5 pages) will be published as UNESCO/WFCC Education Committee Technical Information Sheet No. 14: *Packing and shipping of biological materials: some instructions, legal requirements and international regulations* in *World Journal of Microbiology & Biotechnology* 11, 1995.

#### Prevention of Biological Warfare Proliferation: Export Control of Dual-Use Goods by the European Union

The non-obligatory gentlemen's agreement of the Australian Group on the introduction of controls is for the first time established in the EU member states in order to prevent uncontrolled export of certain biological materials: The "Council Regulation EC no 3381/94 on the Control of Exports of Dual-Use Goods from the Community of 19 December 1994" is effective from 1st July 1995 and controls the export of biological materials pathogenic to humans, animals or plants, of toxins and of genetically modified microorganisms.

The list of biological materials is given in Annex I of the "Council Decision of 19th December 1994 on the Joint Action adopted by the Council on the Basis of Article J.3 of the Treaty on European Union concerning the Control of Export of Dual-Use Goods from the Community" (94/942/PESC) [Publication L367/8/CEC of 31.12.1994 in the Official Journal of the European Communities].

Council Regulation 3381/94 is amended by Council Regulation (EC) no 837/95 of 10th April 1995 [Publication L90/1 of 21.04.1995]. Council Decision 94/942/PESC is amended by Council Decision of 10th

April 1995 (95/ 127/PESC) [Publication L90/2 of 21.04. 1995].

### The use of patent strains in publications

The Instructions to Authors in Volume 45 No. 1 of the International Journal of Systematic Bacteriology request that authors should inform the editor and indicate in the text whenever patent strains have been studied. Strains other than the type strain should carry the superscript "PP" if the patent is pending and "P" if a patent has been issued for a type or any other strain. The description of a new species cannot be published while a patent is pending upon the intended type strain because that strain would not be available for study. In this circumstance, authors are to wait until the patent is issued.

The matter has been recently discussed by D.P. Labeda, C.P. Kurtzman and J.L. Swezey in the paper *Taxonomic note: Use of patent strains as type strains in the valid description of new microbial taxa*, published in Int. J. Syst. Bacteriol. 45, 868-869, 1995.

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### NEW CATALOGUES OF CULTURE COLLECTIONS

ATCC/NIH *Repository Catalogue of Human and Mouse DNA Probes and Libraries*, 8th ed., 1995.

ATCC *Yeasts Reference Guide*, 1995.

The Culture Collection of Algae and Protozoa (CCAP, Institute of Freshwater Ecology, The Windermere Laboratory, Far Sawery, Ambleside, Cumbria LA22 0LP, UK, FAX +44 15394 46914, Email [ccap@ife.ac.uk](mailto:ccap@ife.ac.uk)) has published a new catalogue of strains. The catalogue lists other CCAP products and services and provides full details of culture media. Price: £ 7.00.

MAFF *Catalogue of Microorganisms*, 2nd ed. (edited by T. Suzuki et al.), Genetic Resources Center, National Institute of Agrobiological Resources, Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan, 1993. ISBN 4-9900110-1-5.

PCC *Pasteur Culture Collection of Cyanobacterial Strains in Axenic Culture*. Catalogue & Taxonomic Handbook, Vol. I: Catalogue of Strains (Authors: R. Rippka and M. Herman). Institut Pasteur, Paris, 1992. ISBN 2-901320-07-4.

CCRC *Catalogue of Strains, Supplement II*, 1994. Culture Collection and Research Centre (CCRC), Food Industry Research and Development Institute, Hsinchu, Taiwan.

IFO *Catalogue of newly accepted strains November 1992 - November 1994*. IFO Research Communications No. 17, 114-155, 1995.

FCR *Culture Collection Catalogue* (edited by A.D. Hocking et al.), Food Research Laboratory, CSIRO Division of Food Science and Technology, North Ryde, NSW, Australia.

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REPORT ON MICROBIAL DIVERSITY

On behalf of the International Union of Biological Sciences (IUBS) and the International Union of Microbiological Societies (IUMS) a report on *MICROORGANISMS: An essential component of biological diversity* was issued by an international committee. The report, prepared by Lindsay Sly, President of WFCC, outlines a series of recommendations for cataloging and preserving global microbial diversity. It recommends support of electronic information networks to document and describe microbial culture collections, increased training of microbial systematists and ecologists and to establish centres of expertise in microbial biodiversity in developing and developed countries.

Copies of the report can be obtained free of charge from

Secretary General,  
International Union of Microbiological  
Societies,  
15 rue Descartes, F-67084 Strasbourg  
Cedex, France  
(Fax: +33 88 61 06 80).

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A Guide to the Convention on Biological Diversity

A publication from IUCN (International Union for Conservation of Nature and Natural Resources)  
- The World Conservation Union -

L. Glowka, F. Burhenne-Guilmin, H. Synge in collaboration with J.A. McNeely and L. Gündling

IUCN Gland and Cambridge, 1994, 161 p., ISBN 2 8317 0222 4

## From the Editorial Note

The primary goal of *A Guide to the Convention on Biological Diversity* is to explain the Convention's text. Where appropriate, options for implementing a Convention article are provided. In many instances, these suggestions draw on existing environmental policy documents and action plans such as the *World Conservation Strategy, Caring for the Earth*, the *Global Biodiversity Strategy and Agenda 21*. We have tried to make the Guide as objective as possible in order to avoid prejudging the Convention's future interpretation by the Parties, whether collectively or individually.

The Guide has been designed as a reference document for anyone desiring more information on the Convention on Biological Diversity and possible steps for its implementation. This book is not meant to be read "cover to cover". We hope that the table of contents, pagination, index and the cross-references made in the commentary will give the reader easy access to the Guide itself and provide a comprehensive view of what could be involved with fulfilling the Convention or its individual articles. A bibliography provides references to materials used in the commentary.

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List of Acronyms

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- K. Bostian  
Living culture collections: evolutionary directions?  
ASM News 60 (No. 11), 582-583, 1994.
- T.N. Bryant  
Setting up Internet services: A user's experience.  
BINARY 7, 103-108, 1995.
- R.J. Cano, M.K. Borucki  
Revival and identification of bacterial spores in 25- to 40- million-year-old Dominican amber.  
Science 268 (5213), 1060- 1064, 1995.  
See also a comment to this paper by J. Postgate and F.G. Priest under the title  
*Putative oligocene spores* in Microbiology 141, 2763-2764, 1995.
- R.H. Cypess  
ATCC: Facing today's challenge. ASM News 61 (No. 6),  
274-275, 1995.
- A. Edwards, B. Kirsop,  
D. McKenney  
The Internet and the microbiologist.  
BINARY 7, 91-95, 1995.
- H. Gurtler, L. Anker  
Industries requirements with regard to identification of bacteria.  
In: F.G. Priest, A. Ramos-Cormenzana, B. Tindall (eds), Bacterial Diversity and Systematics.  
Plenum Press, New York, 1994. ISBN 0-306-44832-7.
- K. Kaya, M.M. Watanabe  
Chemistry and toxicology of the cyclic heptapeptide toxins, the microcystins, from cyanobacteria. Microbiol.  
Cult. Coll. 10, 5-33, 1994.
- P. Knight  
Microbiology resources on the Internet.  
ASM News 61  
(No. 8), 397-400, 1995.
- J. Lunel  
Biotechnology regulations and guidelines in Europe. Curr.  
Opin. Biotechnol. 6, 267-272, 1995.
- J. Ma, S. Miyazaki,  
H. Sugawara  
A handy database for culture collections worldwide:  
CCINFO-PC. CABIOS 11, 209-212 (1995).
- Skulberg, O.M. et al.  
Taxonomy of toxic Cyanophyceae (Cyanobacteria), p. 145- 164.  
In: Algal Toxins in Seafood and Drinking Water.  
Ed. I.R. Falconer, Academic Press, London, 1993.
- TH.T. Terry  
Teaching microbiology with the World Wide Web.  
ASM News 61 (No. 8), 397-400, 1995.
- Multiple Authors  
The future of numerical taxonomy. BINARY 7, 31-76, 1995.
- Review of UK microbial culture collections.  
HMSO, London, 1994, ISBN 0 11 430110. Price £ 10.95.
- Uncertain future for microbial culture collections,  
ASM News 61 (No. 6), 276-278, 1995.

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NEW BOOKS RELEVANT TO CULTURE  
COLLECTION WORK

M. Alexander

Biodegradation and Bioremediation. Academic Press, New York, 1994, 302 p., \$ 49.95. ISBN 0 12 049860 X.

D. Allsopp,  
D.L.Hawksworth,  
R.R.Colwell (eds)

Microbial Diversity and Ecosystem Function. CAB International, Wallingford, 1995. 496 pp, Price: £ 57.50  
(This book includes several articles of interest to culture collections, eg  
The microbial species concept and biodiversity; Described and estimated species numbers:  
An objective assessment of current knowledge; Living reference collections;  
Dried reference collections as a microbiological resource; Microorganisms,  
indigenous intellectual property rights and the convention on biodiversity;  
Extent and development of the human resource; Biodiversity information transfer:  
Some existing initiatives and how to link them; Progress in the synthesis and delivery of information  
on the diversity of known bacteria).

L.L. Barton (ed)

Sulfate-Reducing Bacteria. Biotechnology Handbooks, Vol. 8. Plenum Publishing Corp. New York, 1995. \$ 85.00.  
ISBN 0 306 44857 2.

R.G. Board, R. Fuller

Microbiology of the Avian Egg. Chapman & Hall, London, 181p., 1994. ISBN 0 412 47570 7.

C.H. Collins

Laboratory-acquired Infections. 3rd ed. Butterworth-Heinemann, Oxford, 1993. ISBN 0 7506 0642 8.

Day and McLellan

Cryopreservation and freeze-drying protocols. Humana Press, USA, 1995. ISBN 0 89603 296 5.

A. Doyle, J.B. Griffiths,  
D.G. Newell (eds)

Cell & Tissue Culture. Laboratory Procedures. Wiley, Chichester, 1994, Price: £ 350.00. ISBN 0471928526  
(Looseleaf format with updates, subsequent updates £ 65).

D.O. Fleming,  
J.H. Richardson,  
J.I. Tuli, D. Vesley (eds)

Laboratory Safety. Principles and Practice. 2nd edition.  
ASM Press, Washington, D.C., 1995.  
ISBN 1-55581-047-0.

R.I. Freshney

Culture of Animal Cells. A Manual of Basic Techniques. Third edition.  
Wiley, Chichester, 1994, Price: £ 49.95. ISBN 0471 589667.

M. Goodfellow,  
A.G. O'Donell

Chemical Methods in Prokaryotic Systematics.  
Wiley, Chichester, 1994, Price: £ 65.00, ISBN 0471941913.

D.G. Jones (ed)

Exploitation of Microorganisms. Chapman and Hall, New York, 1993, 488 p., \$ 88.50.

St. Kjelleberg (ed)

Starvation in Bacteria. Plenum Press, New York, 1993, 277 p., \$75.

N.A. Logan

Bacterial Systematics. Blackwell Scientific Publications, Oxford, 1994, 272 pages, £ 18.95. ISBN 063203775X.

F.L. Macrina

Scientific Integrity. ASM Press, Washington, D.C., 1995. 320 p., \$24.95. ISBN 1 55581 069 1AS.

D.A.A. Mossel et al. (eds)

Essentials of the Microbiology of Foods. John Wiley & Sons, Chichester, 1995, 546 p., £ 75.00, ISBN 0471 93036 9.

P.R. Murray (ed)

Manual of Clinical Microbiology. 6th edition. ASM Press, Herdon, 1995. Price: \$98.00. ISBN 1-55581-086-1.

F. O'Gara, D.N. Dowling,  
B. Boesten (eds)

Molecular Ecology of Rhizosphere Microorganisms. VCH, Weinheim, 177 p., 1994, DM 148.00. ISBN 3 527 30052 X.

F.G. Priest,  
A. Ramos-Cormenzana,  
B. Tindall (eds)

Bacterial Diversity and Systematics. FEMS Symposium No. 75.  
Plenum Press, New York, 340 p., 1994, Price: 95\$.  
ISBN 0-306-44832-7.

G. Rheinheimer

Aquatic Microbiology. 4th ed., John Wiley & Sons, New York, 1993, \$79.50.

R. Sharp, R. Williams (eds)

*Thermus* Species. Biotechnology Handbooks, Vol. 9. Plenum Publishing Corp.  
New York, 1995. \$75.00. ISBN 0 306 44925 0.

D. Smith, A.H.S. Onions

The Preservation and Maintenance of Living Fungi. Second Edition.  
CAB International, Wallingford, 1994. 192 pp, Price: £ 17.95. ISBN 0-85198-902-0.

P. Somasegaran,  
H.J.Hoben (eds)

Handbook for Rhizobia. Springer-Verlag, New York, 1994, 450 p., \$69.

WHO

Laboratory Biosafety Manual. 2nd edition. World Health Organization, Geneva, 1993. ISBN 92 4 154450 3.

B.J.B. Wood,  
W.H.Holzapfel

The Genera of Lactic Acid Bacteria. The Lactic Acid Bacteria, Vol. 2.  
Blackie Academic & Professional, London. 1995. ISBN 0 7514 0215 X.

MULTIMEDIA

The World Biodiversity Database

Editor: Expert Centre for Taxonomic Identification (ETI), Amsterdam, The Netherlands

The World Biodiversity Database is a computer-based information system which has been created to foster taxonomic knowledge for worldwide access. Its CD-ROM series provides an important thesaurus for scientific research, monitoring studies, nature conservation and environmental projects, marine and agricultural activities. It is jointly published by ETI and Springer-Verlag, Berlin.

The new series of interactive programs comprises CD-ROMs on animals and plants as well as titles like *Linnaeus Protist* and *Protoctist Glossary*. CD-ROMs on *Toxic algae of the world* and on *Yeasts* are under preparation. For details contact the Springer help desk for electronic media [+49 6221 487 457 (telephone); +49 6221 487 366 (fax); [em.helpdesk@springer.de](mailto:em.helpdesk@springer.de) (mailbox: Internet)] or ETI [+31 20 525 7239 (telephone); +31 20 525 7238 (fax); [info@eti.bio.uva.nl](mailto:info@eti.bio.uva.nl)].

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FOCUS ON CULTURE COLLECTIONS

Under this new heading the WFCC Newsletter offers culture collections, federations or organizations of culture collections the opportunity to present short articles covering the nature and activities of their collection or federation/organization.

European Culture Collections' Organization (ECCO)

The European Culture Collections' Organization (ECCO) was established in 1981. The aim of the organization is to promote collaboration and trade ideas and information about all aspects of culture collection activity.

Membership is open to representatives of any microbial resource centres that provide a professional service on demand and without restriction, that accept cultures for deposit, that provide catalogues and that are housed in countries with microbiological societies affiliated to the Federation of the European Microbiological Societies (FEMS). In addition member collections must be registered with the WFCC.

After 14 years of activity ECCO comprises 47 members from 20 European countries. The total holdings of the collections are ca. 290 000 deposits representing a large pool of biodiversity from different sources, ie. from humans, animals, plants, foodstuffs, environment as well as various organisms of interest for genetic engineering.

Bacteria (ca. 120 000 deposits) represent the largest group maintained at 28 ECCO collections. Filamentous fungi (ca. 105 000 deposits) are maintained at 27 collections and yeasts (ca. 30 000 deposits) at 23 collections. Human, animal and hybridoma cell lines (ca. 15 000 deposits), plasmids (ca. 13 500 deposits), algae (ca. 2 700 deposits), phages (ca. 2 000 deposits), animal viruses (ca. 1 000 deposits), plant cells (ca. 1 000 deposits), plant viruses (ca. 500 deposits) and protozoa (ca. 400 deposits) are mainly concentrated at fewer specialized collections.

ECCO meetings are held annually and are a valuable forum for the exchange of ideas on the future

development of collection activities amongst the members.

A description of each member collections including detailed information on holdings and services is described in a brochure published by ECCO. The brochure can be obtained from the Secretary of ECCO.

The current ECCO Board comprises the following members

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Fax +32-2-2305912  
Email [debr@smtp.belspo.be](mailto:debr@smtp.belspo.be)

NIVA Culture Collection of Algae

The Norwegian Institute for Water Research (NIVA) and its culture collection has long expertise with culturing and maintenance of cultures of prokaryotic and eukaryotic algae. The collection had its early genesis in an assembly of cultures brought together forward to 1964. These cultures were used for comparative studies and biotest purposes in research on water pollution problems. Clone cultures were distributed for research and teaching. Lists of isolates informed about the name of the species and a code number, as well as the source and origin of the organisms concerned. Today, the NIVA Culture Collection serves in the following functions:

- preservation of cultures of new isolates
- maintenance of species with exceptional properties
- storage of strains used for biotests
- deposit of cultures for comparative taxonomic studies (eg. type and neotype strains)
- culture information service and advice

The main purpose of the culture collection is to supply cultures of organisms for use in research, teaching and industry. In addition to maintenance and distribution of strains, some other functions are served, e.g. verification of identity of algae based on morphological, physiological and biochemical characteristics, help information about culture methods and conditions of growth.

Most of the organisms are isolated at NIVA and originate from Norwegian lakes, rivers and coastal waters. Some are soil and airborne species, and some isolates are received from other culture collections.

The collection comprises about 550 strains of algae and cyanophytes belonging to 88 genera and 277 species (1994). The clone cultures of strains are maintained under controlled laboratory conditions. They make up an element of continuity and resource in the research being approached by NIVA.

The collection has particularly been developed for specialized research purposes related to cyanophytes (Table 1). Also test strains used in ISO Standardized Algal Assays are available.

Table 1. Overview of taxonomic diversity

Taxon	Cyanophyceae	Chlorophyceae	Bacillariophyceae	Flagellates
Genera	22	40	10	16
Species	134	100	17	26
Strains	360	135	22	32

The NIVA Culture Collection of Algae is registered as No. 498 in the World Directory of Collections of Cultures of Microorganisms (Sugawara et al., 1993). It is also a member collection of the European Culture Collections' Organization.

Further requests to:

Dr.O.M. Skulberg                      P.O. Box 173 Kjelsas  
NIVA Culture Collection of Algae    N-0411 Oslo, NORWAY  
Norwegian Institute for              Tel. +47-22-185100  
Water Research                        Fax +47-22-185200

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CONFERENCES AND MEETINGS

3rd European Conference on Fungal Genetics, 5 March 27-30, 1996, MÜNSTER, Germany. Contact: P. Tudzynski, ECFG 3 Secretariat, Institut f. Botanik, Schlossgarten 3, D-48149 Münster, Germany

International Congress of the European Tissue Culture Society, April 21-24, 1996, BRNO, Czech Republic.  
Contact: Secretariat of 42nd ETCS Congress, Tissue Bank, University Hospital Brno-Bohunice, Jihlavská 20, CZ-639 00 BRNO, Czech Republic (Phone +42-5-43193997, Fax +42-5-43216200).

1st International Congress on Extremophiles, June 2-6, 1996, Estoril, Portugal. Contact: Prof. G. Antranikian, Technical University Hamburg-Harburg, Technical Microbiology, Denickestr. 15, D-21071 Hamburg, Germany (Email [Antranikian@tu-harburg.d400.de](mailto:Antranikian@tu-harburg.d400.de))

10th International Congress of Virology, August 11-18, 1996, JERUSALEM, Israel. Contact: Prof. Y. Becker, Chairman, National Committee, Dept. of Virology, Faculty of Medicine, The Hebrew University of Jerusalem, P.O. Box 12272 Jerusalem 91120, Israel (Fax +972-3-5175674, Email [VIROLOGY@Kenes.comail.compuserve.com](mailto:VIROLOGY@Kenes.comail.compuserve.com))

8th International Congress of Bacteriology and Applied Microbiology and Mycology Division of the IUMS, August 18-23, 1996, JERUSALEM, Israel. Contact: Prof. I. Kahane, IUMS '96, P.O. Box 50006, Tel Aviv 61500, Israel (Fax +972-3-510014)

6th International Fungal Spore Conference, 25-29 August, 1996, KONSTANZ, Germany. Contact Prof. K. Mendgen, Universität Konstanz, Lehrstuhl Phytopathologie, D-78464 Konstanz, Germany (Fax +49-7531-883035)

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#### WORKSHOPS AND TRAINING COURSES

International Workshop on Advanced Techniques in Plant Cell Cultures, 14-19 April, 1996, BRNO, Czech Republic. Contact: Dr. Ladislav Havel, Department of Botany and Plant Physiology, Mendel University of Agriculture and Forestry, Zemělská 1, CZ-613 00 BRNO (Phone +42-5-45133011, Fax +42-5- 45212044, Email: [botanika@mendel.vszbr.cz](mailto:botanika@mendel.vszbr.cz)).

Lectures and practicals will include: Overview of in vitro plant technology and history, new in vitro culture techniques, preparation of plant cell suspensions, protoplast technology, transformation technology, flow cytometry, molecular biology analysis and characterization, cryopreservation techniques, viability testing, cell injury and modern detection techniques for phytohormones in plant tissue culture.

International Workshop on Techniques in Cryopreservation, April 16-19, 1996, BRNO, Czech Republic. Contact: Dr. Jii Adler, Tissue Bank, University Hospital Brno -Bohunice, Jihlavská 20, CZ-639 00 BRNO, Czech Rep. (Phone +42-5-43193997, Fax +42-5-43216200).

Lectures and practicals will include: Strategies of cryopreservation, cellular response to ice crystal formation, mechanism of freezing injury, factors affecting the viability of frozen cells, cryoprotectants and other additives, freezing and thawing, methods used in cryopreservation of animal and plant cells, spermatozoa and mammalian embryos, red blood cells and lymphocytes, bone marrow, heart valves and skin grafts.

The INTERNATIONAL MYCOLOGICAL INSTITUTE offers the following Training Courses (Contact: Mrs. Stephanie Groundwater, International Mycological Institute, Bakeham Lane, Egham, Surrey TW20 9TY, UK. Tel. +44 1784 470111, Fax +44 1784 470909, Email [s.groundwater@cabi.org](mailto:s.groundwater@cabi.org)).

International Course on the Identification of Fungi of Agricultural & Environmental Significance, 12 August - 20 September, 1996. Course fee £ 2800 to include self catering accommodation with private shower and

toilet. This course is held each year.

The International Course at IMI has been running for 17 years and for 1996, to complement the 1995 edition of the Dictionary of the Fungi, we have reviewed and updated the contents to provide an even more extensive coverage of groups of importance to agriculture and the environment. The course aims to give training in the classification and identification of economically important groups of microfungi. Particular attention will be given to those that are commonly found associated with plant diseases and are difficult to identify. The course will be organised to take account of both tropical and temperate examples in all sections. With prior notice of your particular interests, we can normally provide additional coverage as required. The course will also be of value to those interested in a broad range of fungal identification, perhaps for environmental and biodiversity studies. By use of additional sessions, a wider range of fungal groups can be covered than is normally offered on the formal course. Please contact us to discuss how we can best suit your needs. The training includes lectures and informal discussions, but most of the time will be spent in practical work. An 'option' day enables participants to receive individual training and to specialize in certain aspects of the Institute's work.

Modern Techniques in the Identification of Bacteria and Filamentous Fungi, 22 April - 3 May, 1996. Course fee £ 1300

This two week course is designed to give microbiologists/plant pathologists an introduction to modern techniques currently of use in microbial taxonomy. The course will include lectures and practical work, with opportunities for gaining "hands on" experience of the techniques themselves. Both molecular biological and chemotaxonomic procedures will be used to study filamentous fungi and bacteria of agricultural significance. The course will be especially relevant to those who are considering introducing these techniques to their own work or those who are relatively inexperienced in the techniques and need further help. It is not suitable for those who are already routinely using these methods. Topics to be covered include: RFLP analyses, PCR detection and characterisation methods (including RAPD's), Detection and identification techniques using serological methods, Characterisation of microorganisms by polyacrylamide gel electrophoresis, including analysis of whole-cell proteins and extra- and intracellular isozyme patterns for identification, Identification of bacteria by quantitative fatty acid analysis, Analysis of isoprenoid quinones, Diagnostic uses of secondary metabolites (eg mycotoxins) by TLC, HPLC.

Identification of Industrial & Food Spoilage Fungi, 18 - 22 March 1996. The course fee is £ 585 which includes a course manual, coffee, tea and cold buffet lunches.

This one week course will be of value to those working in food, pharmaceutical and industrial manufacturing, and biotechnology consultancy companies. It will be of particular use to those involved in quality assurance, clean room monitoring and microbiology services.

An introductory course to the groups of microfungi having the potential to cause problems in the industrial situation and those that cause food spoilage. Participants will have the opportunity to examine material of particular relevance and make reference slides for future use. Approximately 60% of this course will be "hands on" practical work, the remainder of the time being spent on lectures and demonstrations. By the end of the course you will be familiar with the identification of key fungi to generic level and the most important ones to species level. Other topics include basic techniques and an introductory practice session looking at a whole range of different fungi, and a series of specialist lectures for either the food or pharmaceutical/ industrial situation where you chose the session of most relevance to you.

Isolation & Identification of Fungi from Natural Habitats, 18-22 November, 1996. The course fee of £ 600 includes tuition and a course manual, coffee, tea and cold buffet lunches.

A new 5 day course designed to help those needing to isolate fungi from a range of different natural habitats and give a group or, in some cases, generic level preliminary identification to the isolations. It will be of use to those involved in natural product screening programmes, ecosystem and biodiversity surveys, environmental consultancy, ecology and soil biology. The course will cover a wide range of techniques for obtaining fungi and suggestions and ideas for maximising the diversity sampled. Habitats to be covered include soil, fresh water, leaf litter, living plant material, insects and air. The course will also include a session on how to go about identifying a fungus and the recognition of the main groups of fungi. If

participants are interested, an optional session on the gathering and handling of data about fungal biodiversity in an ecosystem will be included.

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To all WFCC Members

The Editor of the WFCC Newsletter welcomes any contribution you may have

Did you know/read about

-news of culture collections

-new catalogues

-regulations, e.g. shipping of cultures (in your country or internationally)

-workshops, conferences, meetings relevant to culture collections

-books, publications, reviews

-news of old and new members

Would you like to

-draw the attention to a current topic

-send a feature article

-start a discussion on a problem recently occurred

-to you concerning culture collection matters

-send a letter to the editor

-supply a good idea to improve the newsletter

Please do not hesitate to send material to

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or to the WFCC Secretary

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