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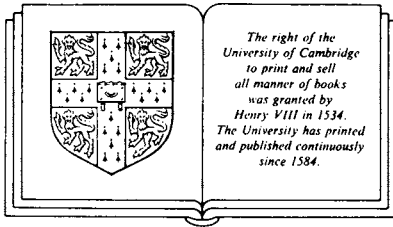
Filamentous Fungi

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D. L. Hawksworth and B. E. Kirsop

in collaboration with

S. C. Jong, J. I. Pitt, R. A. Samson and K. Tubaki



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CONTRIBUTORS

Allner, K. Public Health Laboratory Service Centre for Applied Microbiology and Research, Porton Down, Salisbury, Wiltshire SP4 0JG, UK (Chapter 3)

Allsopp, D. CAB International Mycological Institute, Ferry Lane, Kew, Surrey TW9 3AF, UK (Chapter 7)

Bousfield, I. J. National Collections of Industrial and Marine Bacteria Ltd, Torry Research Station, 135 Abbey Road, PO Box 31, Aberdeen AB9 8DG, UK (Chapter 6)

DaSilva, E. J. Division of Scientific Research and Higher Education, United Nations Educational Scientific and Cultural Organisation, 7 Place de Fontenoy, 75700 Paris, France (Chapter 8)

Fabricius, B.-O. Department of Microbiology, University of Helsinki, SF-00710 Helsinki, Finland (Chapter 2)

Hawksworth, D. L. CAB International Mycological Institute, Ferry Lane, Kew, Surrey TW9 3AF, UK (Chapters 1, 3, 5)

Jong, S. C. American Type Culture Collection, 12301 Parklawn Drive, Rockville, Maryland 20852, USA

Kirsop, B. E. Microbial Strain Data Network, Institute of Biotechnology, University of Cambridge, 307 Huntingdon Road, Cambridge CB3 0JX, UK (Chapter 8)

Krichevsky, M. I. Microbial Systematics Section, Epidemiology and Oral Disease Prevention Program, National Institute of Dental Research, Bethesda, Maryland 20892, USA (Chapter 2)

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viii *Contributors*

Onions, A. H. S. CAB International Mycological Institute,
Ferry Lane, Kew, Surrey TW9 3AF, UK (Appendix)

Pitt, J. I. Division of Food Research, CSIRO, PO Box 52, North
Ryde, New South Wales 2113, Australia (Appendix)

Samson, R. A. Centraalbureau voor Schimmelcultures, P.O.
Box 273, 3740 AG Baarn, The Netherlands

Simione, F. P. American Type Culture Collection, 12301
Parklawn Drive, Rockville, Maryland 20852, USA (Chapter 7)

Smith, D. CAB International Mycological Institute, Ferry
Lane, Kew, Surrey TW9 3AF, UK (Chapter 4)

Sugawara, H. Life Science Research Information Section,
RIKEN, Wako, Saitama 351-01, Japan (Chapter 2)

Tubaki, K. University of Tsukuba, Institute of Biological
Sciences, Sakura-mura, Ibaraki 305, Japan

SERIES INTRODUCTION

The rapid advances taking place in biotechnology have introduced large numbers of scientists and engineers to the need for handling microorganisms, often for the first time. Questions are frequently raised concerning sources of cultures, location of strains with particular properties, requirements for handling the cultures, preservation and identification methods, regulations for shipping, or for the deposit of strains for patent purposes. For those in industry, research institutes or universities with little experience in these areas, resolving such difficulties may seem overwhelming. The purpose of the World Federation for Culture Collections' (WFCC) series, *Living Resources for Biotechnology*, is to provide answers to these questions.

Living Resources for Biotechnology is a series of practical books that provide primary data and guides to sources for further information on matters relating to the location and use of different kinds of biological material of interest to biotechnologists. A deliberate decision was taken to produce separate volumes for each group of microorganism rather than a combined compendium, since our enquiries suggested that inexpensive specialised books would be of more general value than a larger volume containing information irrelevant to workers with interests in one particular type of organism. As a result each volume contains specialised information together with material on general matters (information centres, patents, consumer services, the international coordination of culture collection activities) that is common to each.

The WFCC is an international organisation concerned with the establishment of microbial resource centres and the promotion of their activities. In addition to its primary role of coordinating the work of culture collections throughout the world, the committees of the WFCC

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are active in a number of areas of particular relevance to biotechnology, such as patents, microbial information centres, postal and quarantine regulations, educational and conservation matters (see Chapter 8). The Education Committee of the WFCC proposed the preparation of the current volumes.

The WFCC is concerned that this series of books is of value to biotechnologists internationally, and the authors have been drawn from specialists throughout the world. The close collaboration that exists between culture collections in every continent has made the compilation of material for the books a simple and pleasurable process, since the authors and contributors are for the most part colleagues. The Federation hopes that the result of their labours has produced valuable source books that will not only accelerate the progress of biotechnology, but will also increase communication between culture collections and their users to the benefit of both.

Barbara Kirsop
*President, World Federation
for Culture Collections*

PREFACE

The filamentous fungi represent the group of microorganisms with the largest number of species, showing an immense variety not only in morphology but also in physiological and biochemical attributes. About 63 700 species (excluding yeasts) are currently known, but around 1500 are described as new to science each year, and the number in nature may well exceed 250 000. Over 3000 secondary metabolites have already been characterised, but actual numbers are far in excess of this and the biological activities of most remain to be determined. The biotechnological importance of the filamentous fungi is, therefore, of considerable significance, and the potential of this vast resource is only now starting to be appreciated by biotechnologists. Fortunately they have at their disposal over 170 000 strains maintained in culture collections throughout the world.

This book provides an introduction to these resources and describes how information can be obtained on what is available, how filamentous fungi can be preserved and identified, how collections operate, and the additional support services available from them.

In preparing this volume, I have been fortunate in securing the assistance of colleagues from different parts of the world who are experienced with the work of culture collections, as curators or users, as well as from the individual collections themselves. Without their help the international overview this text aims to provide could not have been presented.

Kew
January 1987

D. L. Hawksworth
*Director
CAB International Mycological
Institute*

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The co-ordinator is also grateful to Dr A. H. S. Onions (CAB International Mycological Institute) for reading and commenting on a complete draft of the work.

The details on individual collections incorporated into Chapter 1, Section 1.5 were compiled from drafts prepared by the collections themselves specially for this volume.