

AS CATALOGUE OF CULTURES

Second Edition

中国科学院微生物研究所菌种目录

1988

INSTITUTE OF MICROBIOLOGY
ACADEMIA SINICA
BEIJING CHINA

Q939.1-7
LZQ

112400

WORLD PUBLISHING CORP

CATALOGUE OF CULTURES

Second Edition

Chief Editor Li Zhongqing

Staff Members (surname arranged alphabetically):
Chen Li, Chen Yanyan, Cong Zhaohai, Cui Cunqi,
Guo Fang, Jia Jianghua, Li wannian, Li Zhongqing,
Ma Dejiang, Tang Moli, Wang Weizhi, Xie Yumei,
Yuan Wei, Zhou Yuguang

Staff and Workers: Dong Huaigang, Ji Jiehui,
Li Yingjie, Wang Ji, Wang Peixiu

1988

Institute of Microbiology, Academia Sinica

Center for General Microbiological Culture Collection,
China Committee for Culture
Collections of Microorganisms

BEIJING, CHINA

菌 种 目 录

(第 二 版)

主 编 李 钟 庆

成 员 (以姓氏笔划为序): 马德江,元伟,从兆海,王薇之,
李万年,李钟庆,陈丽,陈燕妍,周宇光,郭芳,唐茉莉,贾建华,
崔存起,谢玉梅

职 工: 王冀,王培秀,纪洁辉,李英杰,董怀刚

一 九 八 八 年

中 国 科 学 院 微 生 物 研 究 所

中国微生物菌种保藏管理委员会普通微生物中心

中 国 北 京

Li Zhongqing (Editor-in-Chief)
CATALOGUE OF CULTURES

Copyright © 1988 World Publishing Corporation, Beijing

Published World Publishing Corporation, Beijing, 1988

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owner.

First published 1988

ISBN 7-5062-0202-6

Printed in People's Republic of China

内 容 简 介

该菌种目录编录了包括细菌、放线菌、酵母菌、小型丝状真菌和担子菌共241个属,1088种,4014株菌种。这些菌种都保藏在中国科学院微生物研究所。对微生物学科研工作者、教学和有关工厂在选择利用微生物资源时,有直接助益,对国际间交流将起桥梁作用。

CATALOGUE OF CULTURES

菌 种 目 录

李钟庆 主编

*

世界图书出版公司出版
北京朝阳门内大街137号
红旗印刷厂印刷

新华书店北京发行所发行 各地新华书店经售

*

1988年6月第 一 版 开本: 787×1092 1/16
1988年9月第二次印刷 印张: 19

ISBN7-5062-0202-6/TS·1

定价1 2.50 元

Synopsis of Content

This catalogue of cultures is the second edition compiled by the Department of Culture Collection, Institute of Microbiology, Academia Sinica (AS). In the first edition (Chinese edition) of the catalogue, 206 genera, 932 species and 2900 strains had listed in it, and had been published by Scientific Publishing House in 1982. The present catalogue is the one of revised and enlarged edition and publishing in English. There are 241 genera, 1088 species and 4014 strains including bacteria, actinomycetes, yeasts, micro-filamentous fungi and basidiomycetes listed in the second edition. All of these cultures are preserved in AS. This catalogue will benefit to microbiological research, education and relative factory for selection and utilization of microbial resources. This catalogue will also acts as a bridge for international exchange.

内 容 简 介

该菌种目录是中国科学院微生物研究所菌种保藏研究室编纂的第二版微生物菌种目录。在第一版(中文版)目录中曾编录了 206属, 932种, 2900株菌种于1982年由科学出版社出版。本目录则是增订的并以英文出版的第二版目录。其中编录了包括细菌, 放线菌, 酵母菌, 小型丝状真菌和担子菌共 241属, 1088种, 4014株菌种。这些菌种都保藏在中国科学院微生物研究所。本目录对微生物学科研工作者, 教学和有关工厂在选择利用微生物资源时有直接助益, 对国际间交流将起桥梁作用。

CATALOGUE OF CULTURES

Second Edition 1988

Table of Contents

Introduction	1
Organization	1
Source of Cultures	1
Preservation of Cultures	2
Compilation of Catalogue	2
Deposit of Cultures	3
Ordering and Exchange of Cultures	3
Reviving of Lyophilized Strains	3
Abbreviation	6
Catalogue of Strains	13
Bacteria Cultures	13
Actinomycetes Cultures	53
Yeasts Cultures	87
Micro-filamentous Fungi Cultures	109
Basidiomycetes Cultures	183
Appendix 1. Selected Cultures for Education	198
Appendix 2. List of Strains with Special Application	201
Appendix 3. List of Media	211
Appendix 4. Numerical Index	219

菌 种 目 录
第 二 版 (英 文 版) 1987

目 次

绪言	8
机构	8
菌种的来源	8
菌种的保藏	8
菌种目录的编辑	8
菌种的存放	9
菌种的订购和交换	9
冷冻干燥菌种的恢复培养	9
目录中所使用的缩写	11
菌株名录	13
细菌	13
放线菌	53
酵母菌	87
小型丝状真菌	109
担子菌	183
附录 1. 教学用菌种名录	198
附录 2. 具特殊用途的菌株名录	201
附录 3. 培养基	211
附录 4. 菌株序号索引	219

INTRODUCTION

Organization

The AS Culture Collection is a national collection as well as being a Department of Culture Collection of the Institute of Microbiology, the Chinese Academy of Sciences. This Institute was founded in 1951 and has engaged in collection, preservation, distribution of cultures of microorganisms with significance to industry, agriculture, pharmaceuticals, scientific research and education.

Under the leadership of China Committee for Culture Collection of Microorganisms (CCCCM), the AS Culture Collection has acted as the Centre for General Microbiological Culture Collection (CGMCC) of the CCCC since 1979. The strains listed in this catalogue represent the cultures of both the Centre and the Institute. For short, AS (i.e., abbreviation of Academia Sinica) is being still prefixed to the strain number.

In April 1985, CGMCC was entrusted by The China Patent Office to form the repository with responsibility for accepting deposits of strains of microbes for patent applications. Prior to apply for China Patent connected with microbes, two ampoules of material must be deposited in CGMCC, and the maintenance fee is charged. The time limit of maintenance is 30 years.

Now, the task of the AS Collection is to collect, to preserve, to distribute and to exchange cultures of microorganisms of importance to life science and biotechnology; besides, to study cryobiology, using ultra-low temperature freezing for preservation of cultures, and to exploit microbial resources are the main activities as well. Additionally, a data bank on cultures of microorganisms is establishing at the AS Collection.

Sources of Cultures

The AS cultures were derived partly from the former Golden Sea Research Institute of Chemical Industry and the former Scientific Research Institute of Dalian, and the major part of cultures were isolated and identified by the research personnel of the Institute. In addition, a small number of strains were exchanged from internal and or external collections, institutions and individuals. The number of cultures preserved in this Centre exceeded 1300 species and 9600 strains at the end of 1987.

Preservation of Cultures

The AS cultures are maintained on agar slant, in the lyophilized ampoule, deep frozen by liquid nitrogen or sealed under mineral oil. The sand-soil and wheat bran are used as auxiliary methods for preservation of actinomycetes and micro-filamentous fungi, respectively. All of these cultures are stored in cold room of 5 C and 10 C except the liquid nitrogen frozen ampoules.

The lyophile cultures prepared in this centre are suspended in skim milk, processed by using a TG-5 freeze drier and sealed under 0.001 torr of vacuum in single ampoule. The liquid nitrogen frozen cultures are protected by using 10% glycerol or dimethylsulphoxide (DMSO) as the cryoprotective additive, and stored at -196 C.

Compilation of Catalogue

Some of the AS cultures have been maintaining for a long time and transferred many generations. In the course of editing of the catalogue, the name of strains was re-identified, and the physiological characteristic of some strains was examined. The first edition of the catalogue compiling 932 species and 2900 strains was published in 1982. The present catalogue is the one of revised and enlarged edition, and published in English. There are 241 genera, 1088 species and 4014 strains listed in this revision.

The catalogue comprises introduction; deposit of cultures; ordering and exchange cultures; reviving of lyophilized strains; abbreviation; the culture list including bacteria, actinomycetes, yeasts, microfilamentous fungi, basidiomycetes and four appendixes: appendix 1. selected species for education, appendix 2. list of strains with special application, appendix 3. list of media and appendix 4. numerical index.

The scientific name of species in this catalogue are arranged alphabetical order. Each scientific name has its Chinese translated name followed by its authority (for instance, *Acetobacter oxydans* (Henneberg) Bergey et al. 氧化醋杆菌, *Saccharomyces cerevisiae* Hansen 酿酒酵母 etc.). The strains under the same species are given in the order of their AS numbers. The source or habitat, history, special characteristics, recommended temperature and medium for cultivation of a strain are arranged after the AS number. The composition of the medium is shown in appendix 3. Some scientific terms are translated into Chinese in parenthesis, e.g. glucosidase (葡萄糖苷酶), pyruvate dehydrogenase (丙酮酸脱氢酶), *Dendrolimus punctatus* (松毛虫), *Hevea brasiliensis* (橡胶树) etc.

DEPOSIT OF CULTURES

The AS Collection accepts cultures of either new species or new strains of known species possessing special properties which are not listed in this catalogue. Anybody, who demands to deposit cultures in this collection, should write to the Centre, with details about the cultures. Then the curator will send an AS accession form to the depositor to complete. It is expected that, if possible, two lyophile cultures or two slant cultures and the completed form as well as information relating to the cultures sent to AS. The contributor can receive subcultures of the strains he deposited without charge from the AS Culture Collection. The accession form is shown at page 4 and 5.

ORDERING AND EXCHANGE OF CULTURES

The AS Collection distributes the cultures to research institutions, universities, factories and other organizations. Orders, institutions or individuals, may ask cultures relying on official letters. It is necessary to specify the scientific names of the cultures or the AS number, or to indicate the purpose. Correspondence with these formalities, the AS Collection will satisfy their request. The cultures are distributed as lyophile ampoules or on agar slant. Clients should address to the Institute of Microbiology, Academia Sinica, Beijing, China (P. O. Box 2714, Beijing).

The AS cultures are welcome to exchange, free of charge from others, domestic or abroad, culture collections.

REVIVING OF LYOPHILIZED STRAINS

The method for reviving AS lyophilized strains is recommended as following:

1. Wipe the whole ampoule with defat cotton wool soaked with 70% alcohol.
2. Heat the tip of the ampoule in a flame.
3. Drop a few drops of sterile water on the hot tip to crack glass.
4. Strike with forceps to remove the tip.
5. Use a sterile pasteur pipet to add 0.3-0.5 ml of a suitable liquid medium into the ampoule to rehydrate the lyophilized strain.
6. Mix well and transfer the mixture to liquid medium or on agar slant. Then incubate it at recommended temperature.

AS CULTURE COLLECTION
INSTITUTE OF MICROBIOLOGY
ACADEMIA SINICA
BEIJING, CHINA

AS use _____

AS number _____

Date received _____

ACCESSION FORM

Please fill in the following blanks

1. Scientific name of microorganisms _____

Chinese name _____

2. Original strain number _____

3. Is this strain a type culture (yes or no) _____

4. The strain isolated by _____

Isolated from _____

Isolated date _____

Identified by _____

5. Indicate the relating reference or information :

6. If you did not isolated this strain, please indicate

from whom you received it _____

7. Is this strain pathogenic? Zoopathogenic? _____

or phytopathogenic? _____

8. Reason for deposition :

new taxon (name) _____

production of _____

assay of _____

others _____

9. Morphological and physiological characteristics
of the strain :

10. Recommended growth condition :

Medium (formula) _____

Temperature _____ C

11. Recommended method(s) for long-term preservation :

12. Depositor name (please, typewrite) :

Signature of depositor _____

13. Deposit date : _____

14. Depositor address _____

ABBREVIATION

ABF	Administration Bureau of Food Industry, Ministry of Light Industry, Beijing, China
ABP	Administration Bureau of Papermaking, Ministry of Light Industry, Beijing, China
ABSW	Administration Bureau of Sugar and Wine, Ministry of Light Industry, Beijing, China
AKU	Faculty of Agriculture, Kyoto University, Kyoto, Japan
AS	Institute of Microbiology, Academia Sinica, Beijing, China
AS-IV	Wuhan Institute of Virology, Academia Sinica, Wuhan, China
ATCC	American Type Culture Collection, Rockville, Maryland, USA
CHS	Cold Spring Harbor Laboratory, USA
CMI	Commonwealth Mycological Institute = C A B (International Mycological Institute, Kew, Surrey, England
DBC	Department of Bacteriology, University of California, Davis, USA
DBF	Department of Biology, University of Fudan, Shanghai, China
DBHC	Department of Biology, The Chinese University of Hong Kong, Hong Kong
DBM	Department of Biology, University of Moscow, USSR
DBN	Department of Biology, University of Nanjing, Nanjing, China
DBW	Department of Biology, University of Wuhan, Wuhan, China
GIM	Guangdong Institute of Microbiology, Guangzhou, China
GSRICI	Golden Sea Research Institute of Chemical Industry, Wutung Chiao, Sichuan, China (defunct)
GSRIEE	Guangzhou Scientific Research Institute for Electrical Equipment, Guangzhou, China
IA	Institute of Antibiotics, Chinese Academy of Medical Sciences, Beijing, China
IAM	Institute of Applied Microbiology, The University of Tokyo Tokyo, Japan
IBAS	Institute of Botany, Academia Sinica, Beijing, China
IBPAS	Institute of Biophysics, Academia Sinica, Beijing, China
IFFI	Scientific Research Institute of Food and Fermentation Industry, Ministry of Light Industry, Beijing, China
IFO	Institute for Fermentation, Osaka, Japan
IFP	Institute of Forestry and Pedology, Academia Sinica, Shenyang, China
IHAASS	Institute of Horticulture, Academy of Agriculture Science of Shanghai, Shanghai, China
IMUAS	Institute of Microbiology, USSR Academy of Sciences, Moscow, USSR
IP	Institute of Pasteur, Paris, France
IUAE	Institute of Utilization of Atomic Energy, Chinese Academy of Agriculture Sciences, Beijing, China
IZAS	Institute of Zoology, Academia Sinica, Beijing, China
JAF	Jinan Alcoholic Factory, Jinan, China
JIBE	Japan Institute for Brewing Experiment
JILI	Jinan Institute for Light Industry, Jinan, China

JSB Japan Association of N.Brewing
 KCC Kaken Chemical Co. Ltd., Tokyo, Japan
 LBH Laboratory of Biology, University of Harvard, USA
 NCPF North China Pharmaceutical Factory, Shijiazhuang, China
 NCTC National Collection of Type Cultures, London, UK
 NCYC National Collection of Yeast Cultures, Norwich, UK
 NECPF Northeast China Pharmaceutical Factory, Shenyang, China
 NICPBP National Institute for Control of Pharmaceutical and Biological Products, Ministry of Health, Beijing, China
 NIH National Institute of Health, Bethesda, Maryland, USA
 NIHA National Institute of Health of China (defunct)
 NIE National Institute for Industrial Experiments (defunct)
 NIP Nanjing Institute of Pedology, Academia Sinica, Nanjing, China
 NRRL Northern Utilization Research and Development Division, U.S. Department of Agriculture, Peoria, USA
 PPI Pulp and Papermaking Institute, Academy of Light Industry, Beijing, China
 SCIB South China Institute of Botany, Academia Sinica, Guangdong, China
 SIB Shanghai Institute of Biochemistry, Academia Sinica, Shanghai, China
 SIIE Shanghai Institute for Industrial Experiment, Shanghai, China
 SIIM Shanghai Institute of Industrial Microbiology, Shanghai, China
 SIM Sanming Institute of Mycology, Fujian, China
 SIMM Shanghai Institute of Materia Medica, Academia Sinica, Shanghai, China
 SIOC Shanghai Institute of Organic Chemistry, Academia Sinica, Shanghai, China
 SIPI Shanghai Institute for Pharmaceutical Industry, Shanghai, China
 SIPP Shanghai Institute of Plant Physiology, Academia Sinica, Shanghai, China
 SRIBS Scientific Research Institute for Brewing of Shanghai, Shanghai, China
 SRID Scientific Research Institute of Dalian, Dalian, China (defunct)
 SSRI Shanghai Scientific Research Institute, Ministry of Light Industry, Shanghai, China
 TIE Taiwan Institute for Industrial Experiment, Taiwan, China (defunct)
 TPF Tianjin Pharmaceutical Factory, Tianjin, China
 WB Department of Bacteriology, University of Wisconsin, Madison, Wisconsin, USA
 YIB Yunnan Institute of Botany, Academia Sinica, Kunming, China
 YIM Yunnan Institute of Microbiology, Kunming, China

绪 言

机 构

AS菌种保藏中心是国家的一个保藏机构,即目前中国科学院微生物研究所的菌种保藏研究室。该机构于1951年建立,并从事了对工业、农业、制药、科研和教学等有意义的微生物菌种的收集、保藏和供应。

在中国微生物菌种保藏管理委员会领导下,自1979年起 AS保藏中心充当了中国微生物菌种保藏管理委员会的普通微生物菌种保藏中心(CGMCC)。本目录所编录的菌种代表着中国科学院微生物研究所和普通微生物菌种保藏中心二者的菌种,为了方便,菌种株号前的冠缀仍然沿用AS,即 *Academia Sinica* 的缩写。

一九八五年四月一日起,CGMCC 受中国专利局的委托,肩负了保存处的职责,接受申请专利涉及的微生物菌种的保存。在申请与微生物有关的中国专利之前,必须寄存两管菌株材料于本中心,并交付保藏费。保藏期限为30年。目前已保存135株。

现在,AS菌种保藏的任务是收集、保藏、供应和交换对生命科学、生物工程有重要性的微生物菌种;此外,研究低温生物学即利用超低温冻结保存菌种和开发微生物资源,也是本中心的主要业务活动。再者,AS菌种保藏正着手建立微生物菌种数据库的工作。

菌种的来源

AS的菌种,部分来自原黄海化学工业研究社和原大连科学研究所;大部分是微生物研究所科研人员分离鉴定的,此外,少量菌株是与国内外其他菌种保藏中心,研究所或个人交换而得到的。截止1987年底为止,保藏的数量已超过1300种,9600株。

菌种的保藏

AS的菌种皆用琼脂斜面,冷冻干燥,液态氮超低温冻结或矿油封藏等保存。砂土和麦麸作为辅助的方法分别保藏放线菌和小型丝状真菌。除液态氮冻结的菌种外,全部菌种都存放在温度为5度和10度的冷库中。

AS冷冻干燥的菌种是悬浮在脱脂牛奶中,经1G-5型冷冻干燥机干燥,于0.001 torr 下密封而制备的。液态氮超低温冻结的菌种则是以10%甘油或二甲基亚砜(DMSO)作低温保护剂进行保护,并储存在-196度。

目录的编辑

AS的一部分菌种已保存很长时期,而且移植了很多代,在编辑目录过程中对菌种的名称进行了重新鉴定,对某些菌株的生理特性作了检测,在第一版目录中编录了932种,2900株于1982年出版。这本目录是订正的补充版,以英文出版,该修订版共编录了241属,1088种,4014株。

本目录包括绪论,菌种的存放,菌种的订购和交换,冷冻干燥菌种的恢复培养,目录中所使用的缩写,菌株目录(包含细菌、放线菌、酵母菌、小型丝状真菌和担子菌等)以及四个附录:附录1.教学用菌种;附录2.具有特殊用途的菌株目录;附录3.培养基;附录4.菌株顺序号索引。