Microbial Ecology

Principles, Methods, and Applications

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McGraw-Hill, Inc.
New York St. Louis San Francisco Auckland Bogotá
Caracas Lisbon London Madrid Mexico Milan
Montreal New Delhi Paris San Juan São Paulo
Singapore Sydney Tokyo Toronto

Library of Congress Cataloging-in-Publication Data

Microbial ecology : principles, methods, and applications / [edited by] Morris A. Levin, Ramon J. Seidler, Marvin Rogul.
p. cm.—(The McGraw-Hill environmental biotechnology series)
Includes index.
ISBN 0-07-037506-2
1. Microbial ecology. I. Levin, Morris A. II. Seidler, Ramon J. III. Rogul, Marvin. IV. Series: Environmental biotechnology.
QR100.M516 1992
576'.15—dc20 91-25208

1 2 3 4 5 6 7 8 9 0 DOC/DOC 9 7 6 5 4 3 2 1

ISBN 0-07-037506-2

The editing supervisor for this book was Stephen M. Smith and the production supervisor was Suzanne W. Babeuf. It was set in Century Schoolbook by McGraw-Hill's Professional Book Group composition unit.

Printed and bound by R. R. Donnelley & Sons Company.

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Preface

Elevated expenditures for biotechnology research dealing with environmentally oriented products (e.g., pesticides and waste-treatment products) have resulted in large numbers of petitions for permits and licenses at federal and state regulatory agencies to conduct field tests involving the release of genetically engineered microorganisms. As data bases and other more traditional sources of information are reviewed, it is becoming increasingly apparent to researchers and regulators that ecological measurements and information are the most essential elements in assessing the risks of such releases.

Frustration and difficulties in finding this material have served to sensitize investigators and government officials to the need for a repository of factual information and current methodology in microbial ecology. This book represents a response by microbiologists and allied scientists to bring this knowledge together in a guide to researchers and regulators alike.

The text compiles, describes, and references procedures and concepts being used by environmental scientists in microbial ecology. The need for specific, reliable, and effective methods is essential to the development of protocols for evaluating releases of microbial pest control agents and other environmental applications of either naturally occurring or genetically altered microorganisms.

An advisory group consisting of representatives from the biotechnology scientific community, federal agencies involved in regulating biotechnology products, and public interest groups helped formulate the boundaries of this book, establish its organization, and select the experts who would be responsible for overseeing each of its six parts. The editors wish to acknowledge the many valuable contributions of the advisory group, which consisted of Dr. Mary Ann Danello (Food and Drug Administration), Dr. Robert Frederick and Dr. Elizabeth Milewski (EPA), Dr. Mary Gant (Executive Office of the President; OSTP), Dr. Doug McCormick (*Bio/Technology*), Dr. Margaret Mellon (Environmental Law Institute), and Dr. Richard Parry, Jr. (USDA). The editors, in addition, wish to gratefully acknowledge the financial support of the EPA's Office of Research and Development. However, this book does not represent the official position or opinion

of the U.S. Environmental Protection Agency or any agency with which a contributing author may be affiliated.

The selection of part coordinators was especially difficult since there are many persons who have made major contributions to the field of microbial and molecular ecology. The efforts of these coordinators in selecting chapter authors and reviewing the chapters were instrumental in the successful completion of this project.

Finally, the editors thank Dr. Edwin L. Schmidt, Dr. M. J. Sadonsky, and Dr. B. K. Kinkle, who reviewed the entire manuscript and provided many constructive comments to individual authors and part coordinators. Their efforts significantly improved the quality of individual chapters and the overall content of the end product.

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