

—MODERN MICROBIOLOGICAL METHODS—

Methods in Aquatic Bacteriology

Edited by
B. Austin



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B. Austin

*Department of Brewing and Biological Sciences,
Heriot-Watt University, Chambers Street,
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Series Preface

The science of microbiology owes its existence as well as its underlying principles to the talent and practical prowess of pioneers such as Leeuwenhoek, Pasteur, Koch and Beijerinck. Interest in microbiology has recently increased quite significantly given the exciting developments in genetics and molecular biology and the growth of microbial technology. There was a time when most microbiologists were acquainted with many of the techniques used in microbiology. It is, however, now becoming increasingly difficult for research workers to keep abreast of the bewildering range of techniques currently used in microbiological laboratories. This problem is compounded by the fact that scientists in any one field increasingly need to apply techniques developed in other scientific disciplines.

The series 'Modern Microbiological Methods' aims to identify specialist areas in microbiology and provide up-to-date methodological handbooks to aid microbiologists at the laboratory bench. The books will be directed primarily towards active research workers but will be structured so as to serve as an introduction to the methods within a speciality for graduate students and scientists entering microbiology from related disciplines. Protocols will not only be described but difficulties and limitations of techniques and questions of interpretation fully discussed.

In summary, this series of books is designed to help stimulate further developments in microbiology by promoting the use of new and updated methods. Both authors and the editor-in-chief will be grateful to hear from satisfied or dissatisfied users so that future books in the series can benefit from the informed comment of practitioners in the field.

MICHAEL GOODFELLOW

Preface

Significant advances have been made in our understanding of the indigenous bacterial flora of aquatic ecosystems since the pioneering work of Dr C. E. Zobell. However, apart from a book written by Rodina and published in 1972, and several subsequent specialized manuals, there is a noticeable lack of any modern comprehensive text dealing with the methods currently available for the study of aquatic bacteriology. From initial discussions with Dr M. Goodfellow of the University of Newcastle upon Tyne and Dr M. Dixon of John Wiley and Sons Ltd, a proposal was formulated for an edited text. The primary aim of the resulting book is to provide detailed information of the relevant methods. The book is primarily targeted at newcomers to the field, notably undergraduate and postgraduate students and young research workers. Thus, the volume deals with the practical as opposed to the theoretical aspect of the subject, but does not attempt to consider pollution, a subject in its own right. Methods, have, however, been presented on the isolation, enumeration, identification, and ecology of the bacterial flora of aquatic ecosystems.

The book has been divided into four sections, which deal with basic techniques, specialized environments and taxonomic groups, and the activity of aquatic bacteria. Within these sections, detailed chapters consider sampling methods, determination of biomass, isolation methods, identification, the bacterial microflora of fish, invertebrates, plants and the deep sea, specialized groups, namely phototrophs, cyanobacteria, sulphate reducers and methanogens, the assessment of bacterial activity, nitrate metabolism and attachment.

I am grateful for the co-operation of the contributors, who responded willingly to requests to prepare chapters within a tightly arranged time schedule. In addition, I am grateful to my wife, who ably assisted with the overall preparation of the book and to Mrs M. A. Dunn for providing efficient secretarial assistance.

B. AUSTIN
Edinburgh

Dedicated to **Dr James M. Shewan** for his many
contributions to aquatic bacteriology

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