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Algal Culturing Techniques

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Algal Culturing Techniques presents a comprehensive reference and guidebook covering all aspects of the isolation and cultivation of marine and freshwater algae, including seaweeds. It presents a history of algal culturing, media preparation, isolation and purification techniques, mass culturing techniques, cell counting and growth measurement techniques, and applications of algal culture techniques for environmental investigations. Researchers and students in limnology, oceanography, phycology, or microbial ecology will enjoy the hands-on methodology; professionals in industry, such as aquaculture, pharmaceuticals, foodstuffs, and biotechnology will find an authoritative and comprehensive reference.

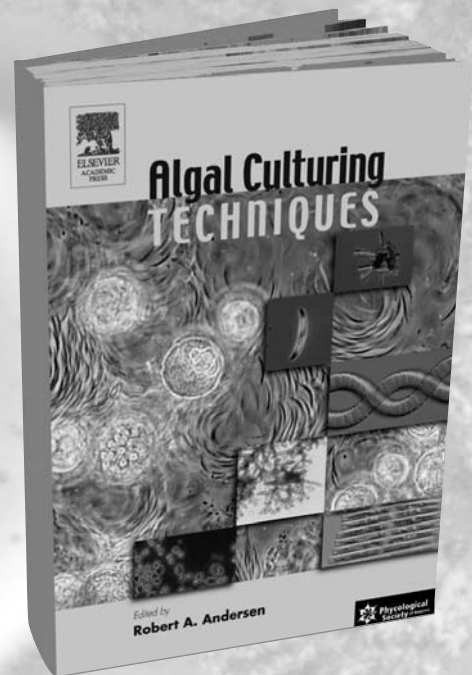
Highlights

- Describes culturing methods ranging from the test tube to outdoor ponds and coastal seaweed farms
- Details isolation techniques ranging from traditional micropipette to autoated flow cytometric methods
- Outlines purification, growth, maintenance, and cryopreservation techniques
- Highlights methods for estimating algal populations, growth rates, isolating and measuring algal pigments, and detecting and culturing algal viruses
- Includes contributions from 39 international experts
- Features a comprehensive appendix of nearly 50 algal culture medium recipes, a glossary, and extensive references

Contents

Historical Review of Algal Culturing Techniques • Freshwater Culture Media • Marine Culture Media • Trace Metal Ion Buffers and Their Use in Culture Studies • Sterilization Methods • Traditional Microalgae Isolation Techniques • Automated Isolation Techniques for Microalgae • Purification Methods for Microalgae • Isolation and Purification Techniques for Macroalgae • Perpetual Maintenance of Actively Metabolizing Microalgal Cultures • Long Term Macroalgal Culture Maintenance • Cryopreservation Methods for Maintaining Microalgal Cultures • Photobioreactors and Fermentors: The Light and Dark Sides of Growing Algae • Culturing Microalgae in Outdoor Ponds • Mariculture of Seaweeds •

Counting Cells in Culture Using the Light Microscope • Phytoplankton Cell Counting by Flow Cytometry • Measuring Growth Rates in Microalgal Cultures • Using Cultures to Investigate the Physiological Ecology of Microalgae • Analysis of Algal Pigments by High-Performance Liquid Chromatography • Endogenous Rhythms and Daylength Effects in Macroalgal Development • Viral Contamination of Algal Cultures • Control of Sexual Reproduction in Algae in Culture • Microalgal Life Cycle Dynamics: Encystment and Excystment • Cultures as a Means of Protecting Biological Resources: Ex-situ Conservation of Threatened Algal Species • Appendices • Glossary • Name Index • Subject Index



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