

Contents

<i>Preface</i>	<i>v</i>
<i>Contributors</i>	<i>ix</i>
Large Scale Cultivation of Microalgae: Open and Closed Systems	1
<i>Jacqueline Jerney and Kristian Spilling</i>	
Design and Analysis of Offshore Macroalgae Biorefineries	9
<i>Alexander Golberg, Alexander Liberzon, Edward Vitkin, and Zohar Yakhini</i>	
Basic Methods for Isolating and Culturing Microalgae	35
<i>Kristian Spilling</i>	
Measurement of Fluorescence for Monitoring Algal Growth and Health	41
<i>Kristian Spilling and Jukka Seppälä</i>	
Microalgae Lipid Staining with Fluorescent BODIPY Dye	47
<i>Judita Koreivienė</i>	
Monitoring Microalgal Neutral Lipid Accumulation with Nile Red	55
<i>Katariina Natunen</i>	
Determining Inorganic and Organic Carbon	63
<i>Jaana Koistinen, Mervi Sjöblom, and Kristian Spilling</i>	
Determining Inorganic and Organic Nitrogen	71
<i>Jaana Koistinen, Mervi Sjöblom, and Kristian Spilling</i>	
Total Nitrogen Determination by a Spectrophotometric Method	81
<i>Jaana Koistinen, Mervi Sjöblom, and Kristian Spilling</i>	
Determining Inorganic and Organic Phosphorus	87
<i>Jaana Koistinen, Mervi Sjöblom, and Kristian Spilling</i>	
Determining Dissolved and Biogenic Silica	95
<i>Jaana Koistinen, Mervi Sjöblom, and Kristian Spilling</i>	
Life Cycle Assessment of Seaweed Cultivation Systems	103
<i>Michele Seghetta and Pietro Goglio</i>	
Life-Cycle Assessment (LCA) Analysis of Algal Fuels	121
<i>Homa Hosseinzadeh-Bandbafha, Meisam Tabatabaei, Mortaza Aghbashlo, Alawi Sulaiman, and Abbas Ghassemi</i>	
Metabolic Engineering of Microalgae for Biofuel Production	153
<i>Mohammad Pooya Naghsbandi, Meisam Tabatabaei, Mortaza Aghbashlo, Muhammad Nauman Aftab, and Irfana Iqbal</i>	
Analytical Grade Purification of Phycocyanin from Cyanobacteria	173
<i>Mahammed Ilyas Khazi, Zeliha Demirel, Fakhra Liaqat, and Meltem Conk Dalay</i>	
Complete Acid-Based Hydrolysis Assay for Carbohydrate Quantification in Seaweed: A Species-Specific Optimized Approach	181
<i>Emily T. Kostas, Stuart J. Wilkinson, Daniel A. White, and David J. Cook</i>	

Total Carbohydrate Content Determination of Microalgal Biomass by Acid Hydrolysis Followed by Spectrophotometry or Liquid Chromatography	191
<i>S. Van Wychen and L. M. L. Laurens</i>	
Total Fatty Acid Content Determination of Whole Microalgal Biomass Using In Situ Transesterification	203
<i>S. Van Wychen and L. M. L. Laurens</i>	
Liquid Chromatography-Mass Spectrometry (LC-MS)-Based Analysis of Molecular Lipids in Algae Samples	215
<i>Heli Nygren, Tuulikki Seppänen-Laakso, and Heiko Rischer</i>	
UPLC-ELSD Analysis of Algal Lipid Classes and Derivatization of Bound and Free Fatty Acids and Sterols for GC-MS Methods	223
<i>Tuulikki Seppänen-Laakso, Heli Nygren, and Heiko Rischer</i>	
Total Protein Content Determination of Microalgal Biomass by Elemental Nitrogen Analysis and a Dedicated Nitrogen-to-Protein Conversion Factor	233
<i>L. M. L. Laurens, J. L. Olstad, and D. W. Templeton</i>	
Correction to: Determining Inorganic and Organic Nitrogen.	243
<i>Jaana Koistinen, Mervi Sjöblom, and Kristian Spilling</i>	
Correction to: Determining Inorganic and Organic Phosphorus	245
<i>Jaana Koistinen, Mervi Sjöblom, and Kristian Spilling</i>	
<i>Index</i>	247