
Contents

Preface.....	vii
Acknowledgments.....	ix
Editors.....	xi
Contributors	xiii
Introduction.....	xvii
Chapter 1 Algal Photosynthesis and Physiology.....	1
<i>John A. Raven and John Beardall</i>	
Chapter 2 Algal Growth Kinetics and Productivity	21
<i>Joseph Weissman and Robert Nielsen</i>	
Chapter 3 Microalgae Strain Isolation, Screening, and Identification for Biofuels and High-Value Products	63
<i>Peter Neofotis, Andy Huang, William Chang, Floral Joseph, and Juergen E.W. Polle</i>	
Chapter 4 Screening and Improvement of Marine Microalgae for Oil Production	91
<i>Stephen P. Slocombe, QianYi Zhang, Michael Ross, Michele S. Stanley, and John G. Day</i>	
Chapter 5 Estimating the Maximum Achievable Productivity in Outdoor Ponds: Microalgae Biomass Growth Modeling and Climate-Simulated Culturing.....	113
<i>Michael Huesemann, Mark Wigmosta, Braden Crowe, Peter Waller, Aaron Chavis, Samuel Hobbs, Scott Edmundson, Boris Chubukov, Vincent J. Tocco, and André Coleman</i>	
Chapter 6 Genetic Engineering of Microalgae: Current Status and Future Prospects.....	139
<i>Andrew Spicer and Saul Purton</i>	
Chapter 7 Crop Protection in Open Ponds.....	165
<i>Robert C. McBride, Val H. Smith, Laura T. Carney, and Todd W. Lane</i>	

Chapter 8	Molecular Diagnostic Solutions in Algal Cultivation Systems	183
	<i>Laura T. Carney, Robert C. McBride, Val H. Smith, and Todd W. Lane</i>	
Chapter 9	Terrestrial Agriculture and Aquaculture Waste Treatment.....	205
	<i>Gregory Schwartz and David E. Brune</i>	
Chapter 10	Supply of CO ₂ to Closed and Open Photobioreactors.....	225
	<i>F. Gabriel Acién, Jose Maria Fernández-Sevilla, and Emilio Molina Grima</i>	
Chapter 11	Harvesting and Dewatering of High-Productivity Bulk Microalgae Systems	253
	<i>Navid R. Moheimani, Mark P. McHenry, Koenraad Muylaert, and Patrick V. Brady</i>	
Chapter 12	Cultivation of <i>Haematococcus pluvialis</i> for Astaxanthin Production	267
	<i>Jianguo Liu, John P. van der Meer, Litao Zhang, and Yong Zhang</i>	
Chapter 13	ALGAFARM: A Case Study of Industrial <i>Chlorella</i> Production ...	295
	<i>Diana B. da Fonseca, Luís T. Guerra, Edgar T. Santos, Sofia H. Mendonça, Joana G. Silva, Luís A. Costa, and João C. Navalho</i>	
Chapter 14	Heterotrophic Culturing of Microalgae	311
	<i>Roberto E. Armenta and Zhiyong Sun</i>	
Index		327