

# **Environmental Chemistry for a Sustainable World**

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# Environmental Biotechnology Vol. 1

 Springer

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*‘Dedicated to all real sufferers for the lack of  
a clean environment’*

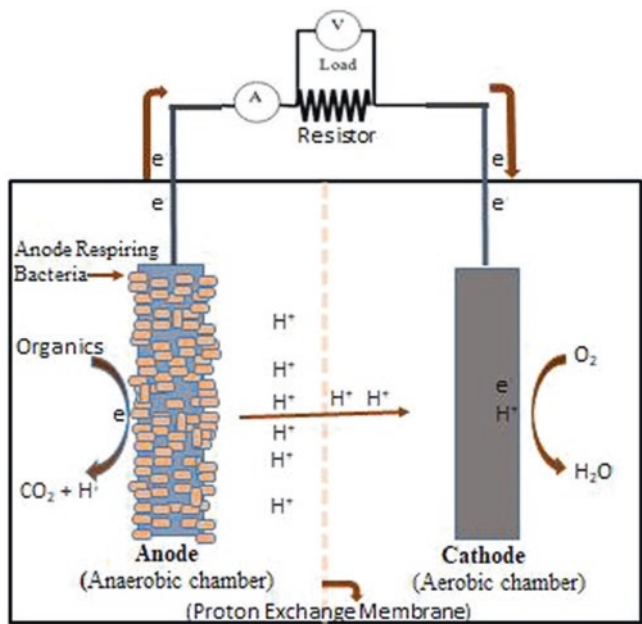
Gothandam, Shivendu, Nandita and Eric

# Preface

Biotechnology is constantly explored to develop methods for wastewater treatment for clean environment. In other words, new types of pollutants are also added to the waterbodies like engineered nanoparticles, microplastics, etc. Current wastewater treatment technologies are not sufficient to meet the ever-growing demands due to rapid industrialization and population growth, and they are also energy consuming and cost intensive. This book reviews the various ecological concerns and technologies in wastewater treatment.

In Chap. 1, Zaveri et al. review the engineered nanoparticles released into wastewater from various products, their effects at different treatment stages, and their probable transformation and recovery. In Chap. 2, Kaisar Ali and Husain Mir discuss the involvement of microbial ecosystem in improving the environment. In Chap. 3, Maria Santos and Magalhães Pires present the advantages of using microalgal cultures for nutrient recovery from wastewaters, while in Chap. 4, Amita Shakya and Faraz Ahmad emphasize the importance of biochar for heavy metal-contaminated wastewater treatment. In Chap. 5, Arti Srivastava and Ashutosh Srivastava discuss the microplastics and nanoplastics and their emerging threat to the aquatic organisms. Srivastava, in Chap. 6, reviews the impact of sustainable energy resources on healthy environment. In Chap. 7, Kavitha and Inbakanadan discuss eco-friendly methods to produce biopolymer and nanomaterials. Moreover, in Chap. 8, Pabbathi et al. explain the metabolomics in marine toxicology assessment. In Chap. 9, Sahu et al. highlight the causes of epiphytic infestations and its economic implications. Finally, in Chap. 10, Geetanjali et al. discuss the potential applications and practical limitations of microbial fuel cell in wastewater treatment and energy generation (Fig. 1).

Thanks for reading.



**Fig. 1** Basic design of a microbial fuel cell

Vellore, Tamil Nadu, India  
Johannesburg, South Africa  
Lucknow, Uttar Pradesh, India  
Aix-en-Provence, France

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Shivendu Ranjan  
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Eric Lichtfouse

# Contents

<b>1</b>	<b>Trickling of Itinerant Nanoparticles in Wastewater Effluents . . . . .</b>	<b>1</b>
	Purvi Zaveri, Rushika Patel, and Nasreen S. Munshi	
<b>2</b>	<b>Microbial Ecosystem and Its Impact on Solving the Environmental Problems: A Molecular Approach . . . . .</b>	<b>23</b>
	Md Kaisar Ali and Sajjad Husain Mir	
<b>3</b>	<b>Microalgae Cultivation in Wastewater to Recycle Nutrients as Biofertilizer . . . . .</b>	<b>71</b>
	Francisca Maria Santos and José Carlos Magalhães Pires	
<b>4</b>	<b>Biochar: A Growing Sanguinity as a Combinatorial Tool for Remediation of Heavy Metals from Wastewaters and Solid Waste Management . . . . .</b>	<b>87</b>
	Amita Shakya and Faraz Ahmad	
<b>5</b>	<b>Microplastics: An Emerging Threat to the Aquatic Ecosystem . . . . .</b>	<b>113</b>
	Arti Srivastava and Ashutosh Srivastava	
<b>6</b>	<b>Impacts of Sustainable Energy Resource Use on the Health of the Environment . . . . .</b>	<b>145</b>
	Rajesh K. Srivastava	
<b>7</b>	<b>Ecofriendly Synthesis of Biopolymer Nanocomposites and Its Application as a Potent Marine Antifouling Agent . . . . .</b>	<b>181</b>
	G. Kavitha and D. Inbakanadan	
<b>8</b>	<b>Environmental Metabolomics: With the Perspective of Marine Toxicology Assessment . . . . .</b>	<b>197</b>
	Ninian Prem Prashanth Pabbathi, Neelam M. Nathani, Indra Ramjibhai Gadhvi, and Mootapally Chandrashekar	



<b>9</b>	<b>Epiphytism in Seaweed Farming: Causes, Status, and Implications</b> .....	<b>227</b>
	Sunil Kumar Sahu, Kapilkumar N. Ingle, and Vaibhav A. Mantri	
<b>10</b>	<b>Microbial Fuel Cell-Based Process for Wastewater Treatment and Power Generation</b> .....	<b>243</b>
	Geetanjali, Roma Agrahari, Sanjay Kumar, and Radha Rani	
	<b>Index</b> .....	<b>261</b>

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