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Cyanobacteria in Ocean

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Abstract

An important turning point in the Earth's surface's geochemical history may be seen with the appearance of cyanobacteria, which were widespread towards the end of the Pre-Cambrian. Marine cyanobacteria are not only an important source of atmospheric oxygen, but they are also prolific manufacturers of secondary metabolites, frequently in spite of having incredibly small genomes. These organisms create a wide variety of complex secondary metabolites, including pigments, fluorescent dyes, and physiologically active substances of particular interest to the pharmaceutical sector. A diverse phylum of nitrogen-fixing, photo-oxygenic bacteria with the ability to colonize a variety of settings is known as cyanobacteria. Aside from their primary function as diazotrophs, they also produce a large number of bioactive compounds, frequently as secondary metabolites, with a variety of biological and ecological activities that should be further studied. Of all the species that have been found, cyanobacteria are able to coexist in marine habitats in symbiotic partnerships with creatures like sponges, invertebrates. It has been shown that these symbioses significantly alter the physiology of cyanobacteria and cause the synthesis of bioactive chemicals that are typically not produced. In fact, an exchange of infochemicals causes metabolic alterations in cyanobacteria involved in symbiotic relationships and activates pathways that have been shut. Studies on drug discovery have shown that these compounds have intriguing biotechnological possibilities. This chapter reviews the importance of cyanobacteria in ocean and their economic importance, and future prospects.

Keywords

Cyanobacteria **Marine ecosystem** **Phytoplankton** **Symbiosis**

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Contents

Part I General Considerations

- 1 Impact of Physical and Chemical Processes on Marine Environment** 3
Navneet Kishore, Manjul Gondwal, Ravindra Soni, Girijesh Kumar
Verma, Roshan Lal, and Bhanu Pratap Singh Gautam
- 2 Microbes in the Recycling of Carbon in the Arctic Regions:
A Short Review** 27
R. Ushasri, G. Charumathi, and Sraya Saseendran
- 3 Microbial Symbiosis in Marine Ecosystem.** 33
Pragati Srivastava, Manvika Sahgal, and Hemant Dasila

Part II Communities of Special Interest

- 4 Cyanobacteria in Ocean** 47
Sonam Dwivedi and Iffat Zareen Ahmad
- 5 Marine Algae and Their Importance** 67
Sarah Constance Motshekga, Lesego Tabea Temane, Jonathan Tersur
Orasugh, and Suprakas Sinha Ray
- 6 Antarctica Microbial Communities: Ecological and Industrial
Importance.** 125
Rajdeep Shaw, Urmi Halder, Punarbasu Chaudhuri, and Rajib
Bandopadhyay
- 7 Crustaceans: Microbes and Defense Mechanisms** 151
Asha Pillai

Part III Marine Microorganisms and Environmental Bioremediation

- 8 Pollution in Marine Ecosystem: Impact and Prevention.** 169
Madhumita Ghosh Datta
- 9 Source and Effect of Oil Spills on Associated Microorganisms
in Marine Aquatic Environment** 193
Mrinalini Chandra Mohan and Varada S. Damare

10 Heavy Metal Pollution in Water: Cause and Remediation Strategies	221
Lázaro Adrián González-Fernández, Nahum Andrés Medellín-Castillo, Amado Enrique Navarro-Frómata, Candy Carranza-Álvarez, Ventura Castillo-Ramos, Manuel Sánchez-Polo, Javier E. Vilasó-Cadre, Paola Elizabeth Díaz-Flores, Lourdes Morales-Oyervides, Nancy Verónica Pérez-Aguilar, René Loredó-Portales, and Bridinette Thiodjio Sendja	
11 Responses of Marine Fungi to Heavy Metal Contamination	263
Ghada Abd-Elmonsef Mahmoud, Nitika Thakur, and Mohamed Hefzy	
12 Microplastic Pollution in Marine Ecosystem and Its Remediation . . .	279
Harshal S. Jadhav, Abhay B. Fulke, Marissa R. Jablonski, and Manisha D. Giripunje	
13 Microplastic Pollution in Aquatic Environment: Ecotoxicological Effects and Bioremediation Prospects.	297
Susmita Mukherjee, Soibam Ngasotter, Soibam Khogen Singh, and Maibam Malemngamba Meitei	
14 Biodegradation of Endocrine-Disrupting Chemicals Using Marine Microorganisms.	325
Djaber Tazdaït and Rym Salah-Tazdaït	
15 Bioreactors for Bioremediation of Polluted Water	345
L. Narciso-Ortiz, E. N. Tec-Caamal, G. J. Aguirre-García, and M. A. Lizardi-Jiménez	
Part IV Others Applications and Perspectives	
16 Industrial Importance of Marine Algae	367
Manali Singh, Jitendra Nath Shrivastava, Shivani Bhutani, Shruti Bhasin, Anshi Mehra, and Deep Chandra Suyal	
17 Sargassum-Derived Agents for Potential Cosmetic Applications	381
Stuti Parab, Anuj N. Nahata, and Maushmi S. Kumar	
18 Utilization of Seaweed as Partial Replacement to the Fish Meal in Aquaculture Diets	403
Anna Joicy, S. Jeyanthi, P. Santhanam, A. Shenbaga Devi, and V. Shyamala	
19 Nanobiotechnology of Marine Organisms: Mechanisms and Applications.	413
Sougata Ghosh, Pranav Pandya, and Sirikanjana Thongmee	

-
- 20 Bioactive Compounds from Marine Water Ecosystem 433**
L. Ocampo-García, W. Torres-Arreola, E. García-Márquez,
N. V. Valenzuela-Grijalva, M. O. Ramírez-Sucre, and
E. Gastélum-Martínez
- 21 Marine Fish Microbiome: Current Status and Future Perspectives . . . 461**
Rajesh Pamanji and Joseph Selvin