

Contents

Part I Introduction

- 1 A Brief Introduction to the History of Pollution:
From Local to Global 3**
Geneviève Massard-Guilbaud and Charles-François Mathis
- 2 From Microbial Ecology to Microbial Ecotoxicology 17**
Esmaeil Shahsavari, Arturo Aburto-Medina, Leadin Salah Khudur,
Mohamed Taha and Andrew S. Ball

Part II Concepts and Case Studies

- 3 Microbiology and Chemistry in the Environment:
Two Symbiotic Species in the Same Biotope 41**
Philippe Garrigues
- 4 Microbial Responses to Pollution—Ecotoxicology:
Introducing the Different Biological Levels 45**
Cristiana Cravo-Laureau, Béatrice Lauga, Christine Cagnon
and Robert Duran
- 5 Engineered Nanoparticles in the Environments:
Interactions with Microbial Systems and Microbial Activity 63**
Samuel Eduok and Frédéric Coulon
- 6 Marine Microbial Community Adaptation and Resiliency to
Anthropogenic Stresses Through Horizontal Gene Transfer 109**
Suja Rajan and Patricia A. Sobecky
- 7 Genetic Adaptations of Bacteria for Metabolism
of Polycyclic Aromatic Hydrocarbons 133**
Vidya de Gannes and William J. Hickey

8	Microbial Community Responses to Contaminants and the Use of Molecular Techniques	165
	Simone C. Birrer, Katherine A. Dafforn and Emma L. Johnston	
9	Bacterial Community Response to Hydrocarbon Contamination in Soils and Marine Sediments: A Critical Review of Case Studies	185
	Elpiniki Vandera and Anna I. Koukkou	
10	Microbial Communities as Ecological Indicators of Ecosystem Recovery Following Chemical Pollution	227
	Stéphane Pesce, Jean-François Ghiglione and Fabrice Martin-Laurent	
11	Microbial Biomarkers	251
	Helena Guasch, Berta Bonet, Chloé Bonnineau and Laura Barral	
12	Bacterial Bioreporter Applications in Ecotoxicology: Concepts and Practical Approach	283
	Sullivan Jouanneau, Marie-José Durand, Ali Assaf, Marine Bittel and G��rald Thouand	
13	Microbial Biosensors for Metal(loid)s	313
	Juan Carlos Guti��rrez, Francisco Amaro and Ana Mart��n-Gonz��lez	
Part III Perspectives		
14	Microbial Ecotoxicology: Looking to the Future	339
	Sergi Sabater	
	Index	353

Microbial Ecotoxicology

Cravo-Laureau, C.; Cagnon, C.; Duran, R.; Lauga, B.
(Eds.)

2017, XIV, 362 p. 57 illus., Hardcover

ISBN: 978-3-319-61794-7