

Contents

Part I Insect–Microbe Symbioses

- 1 Microbial Symbioses in the Digestive Tract of Lower Termites 3
Andreas Brune
- 2 Insect “Symbiology” Is Coming of Age, Bridging Between
Bench and Field 27
Edouard Jurkevitch
- 3 Chironomids and *Vibrio cholerae* 43
Malka Halpern
- 4 Role of Bacteria in Mating Preference in *Drosophila*
melanogaster 57
Gil Sharon, Daniel Segal, and Eugene Rosenberg

Part II Plant–Microbe Symbioses

- 5 Legume–Microbe Symbioses 73
Masayuki Sugawara and Michael J. Sadowsky
- 6 Plant Growth Promotion by Rhizosphere Bacteria
Through Direct Effects 89
Yael Helman, Saul Burdman, and Yaacov Okon
- 7 Rhizosphere Microorganisms 105
Dror Minz and Maya Ofek

8 Microbial Protection Against Plant Disease	123
Eddie Cytryn and Max Kolton	

Part III Coral–Microbe Symbioses

9 Bacterial Symbionts of Corals and Symbiodinium	139
Kim B. Ritchie	
10 Coral-Associated Heterotrophic Protists	151
L. Arotsky, E. Kramarsky-Winter, and A. Kushmaro	
11 Effect of Ocean Acidification on the Coral Microbial Community	163
Dalit Meron, Lena Hazanov, Maoz Fine, and Ehud Banin	

Part IV Microbes in Mammalian Health and Disease

12 Toward the Educated Design of Bacterial Communities	177
Shiri Freilich and Eytan Ruppin	
13 Oral Microbes in Health and Disease	189
Gilad Bachrach, Marina Faerman, Ofir Ginesin, Amir Eini, Asaf Sol, and Shunit Copenhagen-Glazer	
14 The Role of the Rumen Microbiota in Determining the Feed Efficiency of Dairy Cows	203
Itzhak Mizrahi	
15 The Intestinal Microbiota and Intestinal Disease: Irritable Bowel Syndrome	211
Nirit Keren and Uri Gophna	
16 Intestinal Microbiota and Intestinal Disease: Inflammatory Bowel Diseases	223
Amir Kovacs and Uri Gophna	
17 A Role for Bacteria in the Development of Autoimmunity for Type 1 Diabetes	231
Adriana Giongo and Eric W. Triplett	
18 Impact of Intestinal Microbial Communities upon Health	243
Harry J. Flint, Sylvia H. Duncan, and Petra Louis	

19 Commensalism Versus Virulence	253
Dvora Biran, Anat Paret, and Elora Z. Ron	
20 Prebiotics: Modulators of the Human Gut Microflora	265
Uri Lesmes	
21 Host Genetics and Gut Microbiota	281
Keren Buhnik-Rosenblau, Yael Danin-Poleg, and Yechezkel Kashi	
 Part V Evolution by Symbiosis	
22 Microbial Symbiont Transmission: Basic Principles and Dark Sides	299
Silvia Bulgheresi	
23 Hydra Go Bacterial	313
Thomas C.G. Bosch, Friederike Anton-Erxleben, René Augustin, Sören Franzenburg, and Sebastian Fraune	
24 The Hologenome Concept	323
Eugene Rosenberg and Ilana Zilber-Rosenberg	
Index	341