

ENVIRONMENTAL SCIENCE, ENGINEERING AND TECHNOLOGY

**MICROBIAL ECOLOGY
OF TROPICAL SOILS**

**ADEMIR SÉRGIO FERREIRA DE ARAÚJO
AND
MÁRCIA DO VALE BARRETO FIGUEIREDO
EDITORS**



Nova Science Publishers, Inc.

New York

CONTENTS

Foreword	Reality and Challenges in Microbial Ecology of Tropical Soils <i>Yoav Bashan</i>	vii
Foreword	<i>Fátima Maria de Souza Moreira</i>	ix
Preface		xi
Chapter 1	Nitrogen Fixing Symbioses Adapted to Contaminated Soils <i>Isabel Videira e Castro and Eugénio Ferreira</i>	1
Chapter 2	Use of Nitrogen-Fixing Legume Trees to Revegetate Degraded Lands <i>Alexander Silva de Resende, Guilherme Montandon Chaer, Eduardo Francia Carneiro Campello and Sérgio Miana de Faria</i>	19
Chapter 3	Legume Nodule Oxidative Stress and N ₂ Fixation Efficiency <i>Joaquim Albenisio Gomes Silveira, Márcia do Vale Barreto Figueiredo, Fábio Rossi Cavalcanti and Sérgio Luiz Ferreira-Silva</i>	31
Chapter 4	Analysis of Microbial Diversity to Monitor the Impacts of Soil Use on Brazilian Soils <i>Alexandre Rosado and Raquel Peixoto</i>	61
Chapter 5	Molecular Microbial Ecology and Conservation: A Molecular Approach <i>Acácio Aparecido Navarrete, Fabiana de Souza Cannavan, Lucas William Mendes, Marli de Fátima Fiore and Siu Mui Tsai</i>	71
Chapter 6	The Modulation of Cultivable Bacterial Diversity Due to Introduction of Bacteria and DNA in Tropical Soil Microcosms <i>Maria Carolina Quecine, João Lúcio Azevedo and Paulo Teixeira Lacava</i>	95

Chapter 7	Biodiversity and the Potential of PGPR: Plant-Microorganism Interactions <i>Márcia do Vale Barreto Figueiredo,</i> <i>Ademir Sérgio Ferreira de Araújo, Hélio Almeida Burity and</i> <i>Mario de Andrade Lira Junior</i>	109
Chapter 8	Antimicrobial Substances Produced by <i>Paenibacillus polymyxa</i> , <i>P. brasilensis</i> and <i>P. peoriae</i> Against Phytopathogenic Microorganisms <i>Lucy Seldin and Celuta Sales Alviano</i>	139
Chapter 9	Biofertilizers From Phosphate and Potash Rocks with <i>Acidithiobacillus</i> and Organic Matter Enriched by Free Living Diazotrophic Bacteria <i>Newton P. Stamford, Carolina E. R. S. Santos,</i> <i>Fabiana F. Felix and Fernando Luiz Nunes de Oliveira</i>	149
Chapter 10	Free Living Soil Fungi: Interaction with Heavy Metals and Plant Growth Promoting Activities <i>Mohd Imran, Fohad Mabood Husain and Iqbal Ahmad</i>	159
Chapter 11	Glomalin as an Indicator of Mycorrhizae in Tropical Agroecosystems <i>Marcia Toro and Kristine Nichols</i>	207
Chapter 12	Arbuscular Mycorrhizal Fungi in Degraded Areas <i>Adália Cavalcanti do Espírito Santo Mergulhão,</i> <i>Maria do Carmo Catanho Pereira de Lira,</i> <i>Maria Luiza Ribeiro Bastos da Silva and José de Paula Oliveira</i>	249
Chapter 13	Ecology of Soil Yeasts <i>José Roberto de Assis Ribeiro, Vincent Robert and</i> <i>Allen Norton Hagler</i>	265
Chapter 14	Effects of Heavy Metal and Metalloid Contamination on the Soil Microbial Response: An Overview <i>Amit Kumar Gupta, Rajeev Pratap Singh, Anita Singh and</i> <i>Mahamad Hakimi Ibrahim</i>	303
Index		319