Contents

Part I  Bioprocessing

Synthesis of Poly(L(+)) Lactic Acid by Polycondensation Method in Solution ......................................................... 3
Jian Zhang, Parakalan Krishnamachari, Jianzhong Lou, and Abolghasem Shahbazi

The Feasibility of Using Cattails from Constructed Wetlands to Produce Bioethanol .............................................. 9
Katherine Suda, Abolghasem Shahbazi, and Yebo Li

Significance of Bile Salt Tolerant Lactobacillus reuteri ............. 17
Siham A. Ahmed, Salam A. Ibrahim, Chyer Kim, and Abolghasem Shahbazi

The Effect of Insulin from Jerusalem Artichoke (Helianthus tuberosus) Extract on Growth and Viability of Lactobacillus salivarius in Fermented Milk ................................................................. 25
Souod R. Alani, Angela M. Fraser, Mustafa A. Alsharafani, Farouk F. Al-Nouri, and Salam A. Ibrahim

Lactic Acid Production from Apple Skin Waste by Immobilized Cells of Lactobacillus reuteri ................................................. 31
Moussa M.E. Salem, Salam A. Ibrahim, Chyer Kim, Chung W. Seo, Abolghasem Shahbazi, and Amer AbuGhazaleh

Part II  Bioremediation

Cu and Zn Uptake Inhibition by PAHs as Primary Toxicity in Plants .... 41
Zarhelia Carlo-Rojas and Wen-Yee Lee

Metagenomic Environmental Assessment of Aquatic Ecosystems ....... 47
Parke A. Rublee, Vincent C. Henrich, and Michael M. Marshall
Part III  Environmental Justice and Ethics

Water Quality in an Environmental Justice Community
in Durham, NC .................................................... 55
Blakely Adair, John J. Bang, Yolanda B. Anderson, Saundra F. DeLauder,
Marcia Bradshaw, Marion Lamberth, Faustina Meheux, Rakesh Malhotra,
Roy Fortmann, Peter Egeghy, Ronald Williams, and Donald Whitaker

The Impact of Social Capital on Environmental Risk Reduction
in Moncure ........................................................ 61
John J. Bang, Yolanda B. Anderson, Saundra F. DeLauder, Marcia Bradshaw,
Faustina Meheux, Rakesh Malhotra, Roy Fortmann, Peter Egeghy,
Ronald Williams, and Donald Whitaker

Air Quality Issues for an Aging Population ......................... 67
Richard V. Crume, Kathleen E. Sykes, and Yoko S. Crume

Environmental Pollution, Race and Place: Research and Policy
Implications ....................................................... 77
Ibipo Johnston-Anumonwo

Financial Reporting of Environmental Risks and Liabilities .......... 85
Gwendolyn McFadden-Wade, Jean T. Wells, and Diana R. Robinson

Oak Biodiesel: State Building and Fire Codes Affecting Biodiesel
Manufacturing ..................................................... 91
Myra M. Shird and Regina M. Williams

The Ecological Effects of Salt Water Intrusion on the Agriculture
Industry After Hurricane Katrina .................................... 97
Vereda Johnson Williams

Municipal Wastewater Concentrations of Pharmaceutical
and Xeno-Estrogens: Wildlife and Human Health Implications ....... 103
Maxine Wright-Walters and Conrad Volz

Challenges in the Devolution of Environmental Health Service Delivery
in South Africa .................................................... 115
Renay Van Wyk

A Review of Health and Hygiene Promotion as Part of Sanitation
Delivery Programmes to Informal Settlements in the City
of Cape Town (South Africa) ........................................ 121
Renay Van Wyk
Pollution, Environmental Justice, and the North Carolina Pork Industry ...................................................... 127
Osei Yeboah, Terrence Thomas, Timothy Foster, and Edward Fosu

Reducing Community Exposure to Toxics: A Critical Component in Building Healthy and Sustainable Communities ..................... 139
Robert C. Wingfield

Environmental Ethics of Health Mission To Enugu Nigeria .............. 149
Godfrey A. Uzochukwu, Mary E. Uzochukwu, and Ethelbert Odo

Part IV Fate and Transport of Contaminants

Use of Kalman Filter and Particle Filter in a One Dimensional Leachate Transport Model ........................................... 157
Shoou-Yuh Chang and Sikdar M.I. Latif

Organic Pollutant Transport in Groundwater Using Particle Filter .... 165
Shoou-Yuh Chang and Xiaopeng Li

Modeling the Sorption Behavior of Aromatic Amine Onto Sediment Under Acidic Conditions ........................................... 173
Shihua Chen and Marianne C. Nyman

Radioactive Contaminant Transport in Subsurface Porous Environment ................................................................. 181
An Jin and Shoou-Yuh Chang

Transport and Degradation of a Trichloroethylene Plume Within a Stream Hyporheic Zone .............................................. 189
John B. Williams, Gary Mills, Daniel Barnhurst, Sherry Southern, and Noelle Garvin

Part V Global Climate Change

Using a Spoken Diary and Heart Rate Monitor in Modeling Human Exposure to Airborne Pollutants for EPA’S Consolidated Human Activity Database ......................................................... 197
Curry I. Guinn and Daniel J. Rayburn Reeves

Proposal for Focus Shift in Addressing Climate Change and Environmental Assessment .................................................... 205
Gennadyi Gurman
Sensor Webs in Digital Earth: Monitoring Climate Change Impacts . . . . . 211
Matt Heavner, Rob Fatland, Eran Hood, Cathy Connor, Tracy Lee Hansen,
Mary Sue Schultz, Tom LeFebvre, and Albert Esterline

Thermal Characterization of Biodegradable Poly (Lactic Acid)/Clay
Nanocomposites .................................................... 219
Parakalan Krishnamachari, Jian Zhang, Jizhong Yan, Abolghasem Shahbazi,
Leonard Uitenham, and Jianzhong Lou

Tools for Carbon Management: Potential Carbon Footprint Reduction
Through Fuel Switching ............................................. 227
Parikhit Sinha and David M. Cass

Coral Disease and Global Climate Change ............................ 233
Garriett W. Smith and Marie-Ange Smith

Climate Change, Drought, and Wetland Vegetation .................... 239
Brant W. Touchette and Sara E. Steudler

Dynamics of Soil Organic Nitrogen and its Functions in Soil Carbon
Stabilization Processes ............................................... 245
Xianzhi Song

Greenhouse Gas Mitigation Potential of Corn Ethanol: Accounting
for Corn Acreage Expansion ........................................... 251
Lyubov A. Kurkalova, Silvia Secchi, and Phillip W. Gassman

Comparative Effects of Sea Level Rise Versus Hurricane Event
on Coastal Erosion ..................................................... 259
John B. Williams

Global Warming in Asheville, North Carolina ......................... 265
George Ford, William McDaniel, and Aaron Ball

Part VI   Innovative Environmental Technology and Sensors

Tuckaseegee Watershed Observatory: A Collaborative Environmental
Research Tool .......................................................... 271
Brian P. Howell, Roger Clapp, Jeff Marston, Chris Donaldson,
and Brent McCoy

Encapsulation of Potassium Permanganate Oxidant in Polymers .......... 279
Stephanie Luster-Teasley, David Price, and Dereje Worku
Contents

C. Elegans Chemotaxis and Reproduction Following Environmental Exposure ......................................................... 285
Mulumebet Worku and Carresse Gerald

Storing Weather Data and Dissemination Via the Web .................... 293
Kawana O. Fuller and Austin Frazier

Rapid and Simple Method for the Encapsulation of Lactobacillus reuteri in the Production of Lactic Acid ........................................... 301
Salam A. Ibrahim, Somphavanh Phetsomphou, Chyer Kim, Abolghasem Shahbazi, Chung W. Seo, Amer AbuGhazaleh, and Moussa M.E. Salem

Part VII Pollution Prevention/Solvents and Processes

Analysis of Partition Coefficients and Ternary Liquid-Liquid Equilibrium Data for Highly Non-Ideal Systems .......................... 311
Wahid Islam and Vinayak Kabadi

Application of Chitosan in Remediation of Dyes ............................ 319
Gbekeloluwa B. Oguntimein, Olatunde Animashaun, and Ivie Okpere

An Apparatus for Density and VLE Measurements for Gas-Liquid Systems .............................................................. 325
Rashawn K. Washignton and Vinayak N. Kabadi

MSE Walls in Solid Waste Applications ........................................ 331
Thomas M. Yanoschak

Study of the Molecular Weight Dependence of Glass Transition Temperature for Amorphous Poly(L-Lactide) by Molecular Dynamics Simulation ......................................................... 339
Jian Zhang, Jizhong Yan, Leonard Uitenham, and Jianzhong Lou

Channel Catfish Estrogenicity and Sewer Overflows; Implications for Xenoestrogen Exposure ................................. 345
Conrad Daniel Volz, Frank Houghton, Nancy Sussman, Diana Lenzner, Devra Davis, Maryann Donovan, Talal El Hefnawy, and Patricia Eagon

Sorption and Desorption of Nitrogen and Phosphorus by Zeolite and Shale ................................................................. 353
Johnsely S. Cyrus and G.B. Reddy

Index ................................................................. 365
Proceedings of the 2007 National Conference on Environmental Science and Technology
2009, XVIII, 381 p., Hardcover
ISBN: 978-0-387-88482-0