

# Contents

## Part I Bioprocessing

<b>Synthesis of Poly(L(+)) Lactic Acid) by Polycondensation Method in Solution</b> . . . . .	3
Jian Zhang, Parakalan Krishnamachari, Jianzhong Lou, and Abolghasem Shahbazi	
<b>The Feasibility of Using Cattails from Constructed Wetlands to Produce Bioethanol</b> . . . . .	9
Katherine Suda, Abolghasem Shahbazi, and Yebo Li	
<b>Significance of Bile Salt Tolerant <i>Lactobacillus reuteri</i></b> . . . . .	17
Siham A. Ahmed, Salam A. Ibrahim, Chyer Kim, and Abolghasem Shahbazi	
<b>The Effect of Insulin from Jerusalem Artichoke (<i>Helianthus tuberosus</i>) Extract on Growth and Viability of <i>Lactobacillus salivarius</i> in Fermented Milk</b> . . . . .	25
Souod R. Alani, Angela M. Fraser, Mustafa A. Alsharafani, Farouk F. Al-Nouri, and Salam A. Ibrahim	
<b>Lactic Acid Production from Apple Skin Waste by Immobilized Cells of <i>Lactobacillus reuteri</i></b> . . . . .	31
Moussa M.E. Salem, Salam A. Ibrahim, Chyer Kim, Chung W. Seo, Abolghasem Shahbazi, and Amer AbuGhazaleh	

## Part II Bioremediation

<b>Cu and Zn Uptake Inhibition by PAHs as Primary Toxicity in Plants</b> . . . . .	41
Zarhelia Carlo-Rojas and Wen-Yee Lee	
<b>Metagenomic Environmental Assessment of Aquatic Ecosystems</b> . . . . .	47
Parke A. Rublee, Vincent C. Henrich, and Michael M. Marshall	

## **Part III Environmental Justice and Ethics**

<b>Water Quality in an Environmental Justice Community in Durham, NC</b> .....	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	
<b>The Impact of Social Capital on Environmental Risk Reduction in Moncure</b> .....	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	
<b>Air Quality Issues for an Aging Population</b> .....	67
Richard V. Crume, Kathleen E. Sykes, and Yoko S. Crume	
<b>Environmental Pollution, Race and Place: Research and Policy Implications</b> .....	77
Ibipo Johnston-Anumonwo	
<b>Financial Reporting of Environmental Risks and Liabilities</b> .....	85
Gwendolyn McFadden-Wade, Jean T. Wells, and Diana R. Robinson	
<b>Oak Biodiesel: State Building and Fire Codes Affecting Biodiesel Manufacturing</b> .....	91
Myra M. Shird and Regina M. Williams	
<b>The Ecological Effects of Salt Water Intrusion on the Agriculture Industry After Hurricane Katrina</b> .....	97
Vereda Johnson Williams	
<b>Municipal Wastewater Concentrations of Pharmaceutical and Xeno-Estrogens: Wildlife and Human Health Implications</b> .....	103
Maxine Wright-Walters and Conrad Volz	
<b>Challenges in the Devolution of Environmental Health Service Delivery in South Africa</b> .....	115
Renay Van Wyk	
<b>A Review of Health and Hygiene Promotion as Part of Sanitation Delivery Programmes to Informal Settlements in the City of Cape Town (South Africa)</b> .....	121
Renay Van Wyk	

<b>Pollution, Environmental Justice, and the North Carolina Pork Industry</b> . . . . .	127
Osei Yeboah, Terrence Thomas, Timothy Foster, and Edward Fosu	

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

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

#### **Part IV Fate and Transport of Contaminants**

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

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

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

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

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

#### **Part V Global Climate Change**

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

<b>Proposal for Focus Shift in Addressing Climate Change and Environmental Assessment</b> . . . . .	205
Gennadyi Gurman	

<b>Sensor Webs in Digital Earth: Monitoring Climate Change Impacts . . . . .</b>	<b>211</b>
Matt Heavner, Rob Fatland, Eran Hood, Cathy Connor, Tracy Lee Hansen, Mary Sue Schultz, Tom LeFebvre, and Albert Esterline	
<b>Thermal Characterization of Biodegradable Poly (Lactic Acid)/Clay Nanocomposites . . . . .</b>	<b>219</b>
Parakalan Krishnamachari, Jian Zhang, Jizhong Yan, Abolghasem Shahbazi, Leonard Uitenham, and Jianzhong Lou	
<b>Tools for Carbon Management: Potential Carbon Footprint Reduction Through Fuel Switching . . . . .</b>	<b>227</b>
Parikhith Sinha and David M. Cass	
<b>Coral Disease and Global Climate Change . . . . .</b>	<b>233</b>
Garriet W. Smith and Marie-Ange Smith	
<b>Climate Change, Drought, and Wetland Vegetation . . . . .</b>	<b>239</b>
Brant W. Touchette and Sara E. Steudler	
<b>Dynamics of Soil Organic Nitrogen and its Functions in Soil Carbon Stabilization Processes . . . . .</b>	<b>245</b>
Xianzhi Song	
<b>Greenhouse Gas Mitigation Potential of Corn Ethanol: Accounting for Corn Acreage Expansion . . . . .</b>	<b>251</b>
Lyubov A. Kurkalova, Silvia Secchi, and Phillip W. Gassman	
<b>Comparative Effects of Sea Level Rise Versus Hurricane Event on Coastal Erosion . . . . .</b>	<b>259</b>
John B. Williams	
<b>Global Warming in Asheville, North Carolina . . . . .</b>	<b>265</b>
George Ford, William McDaniel, and Aaron Ball	
 <b>Part VI Innovative Environmental Technology and Sensors</b>	
<b>Tuckaseegee Watershed Observatory: A Collaborative Environmental Research Tool . . . . .</b>	<b>271</b>
Brian P. Howell, Roger Clapp, Jeff Marston, Chris Donaldson, and Brent McCoy	
<b>Encapsulation of Potassium Permanganate Oxidant in Polymers . . . . .</b>	<b>279</b>
Stephanie Luster-Teasley, David Price, and Dereje Worku	

<b><i>C. Elegans</i> Chemotaxis and Reproduction Following Environmental Exposure</b> .....	285
Mulumebet Worku and Carresse Gerald	
<b>Storing Weather Data and Dissemination Via the Web</b> .....	293
Kawana O. Fuller and Austin Frazier	
<b>Rapid and Simple Method for the Encapsulation of <i>Lactobacillus reuteri</i> in the Production of Lactic Acid</b> .....	301
Salam A. Ibrahim, Somphavanh Phetsomphou, Chyer Kim, Abolghasem Shahbazi, Chung W. Seo, Amer AbuGhazaleh, and Moussa M.E. Salem	
<b>Part VII Pollution Prevention/Solvents and Processes</b>	
<b>Analysis of Partition Coefficients and Ternary Liquid-Liquid Equilibrium Data for Highly Non-Ideal Systems</b> .....	311
Wahid Islam and Vinayak Kabadi	
<b>Application of Chitosan in Remediation of Dyes</b> .....	319
Gbekeloluwa B. Oguntimein, Olatunde Animashaun, and Ivie Okpere	
<b>An Apparatus for Density and VLE Measurements for Gas-Liquid Systems</b> .....	325
Rashawn K. Washington and Vinayak N. Kabadi	
<b>MSE Walls in Solid Waste Applications</b> .....	331
Thomas M. Yanoschak	
<b>Study of the Molecular Weight Dependence of Glass Transition Temperature for Amorphous Poly(L-Lactide) by Molecular Dynamics Simulation</b> .....	339
Jian Zhang, Jizhong Yan, Leonard Uitenham, and Jianzhong Lou	
<b>Channel Catfish Estrogenicity and Sewer Overflows; Implications for Xenoestrogen Exposure</b> .....	345
Conrad Daniel Volz, Frank Houghton, Nancy Sussman, Diana Lenzner, Devra Davis, Maryann Donovan, Talal El Hefnawy, and Patricia Eagon	
<b>Sorption and Desorption of Nitrogen and Phosphorus by Zeolite and Shale</b> .....	353
Johnsely S. Cyrus and G.B. Reddy	
<b>Index</b> .....	365

Proceedings of the 2007 National Conference on  
Environmental Science and Technology

Uzochukwu, G.; Schimmel, K.; Chang, S.-Y.; Kabadi, V.;

Luster-Teasley, S.; Reddy, G.; Nzewi, E. (Eds.)

2009, XVIII, 381 p., Hardcover

ISBN: 978-0-387-88482-0