YINGJIE ZHANG

Curriculum Vitae

ADDRESS AND CONTACT DETAILS

Department of Plant, Soil and Microbial Sciences
A584G Plant and Soil Science Building
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ACADEMIC BACKGROUND

Ph.D. December 2013	Environmental Chemistry and Environmental Toxicology, Michigan State University
M.S. June 2008	Environmental Chemistry, Nanjing University, China
B.S. June 2005	Environmental Sciences, Nanjing University, China

RESEARCH INTERESTS

Environmental fate and transport of emerging contaminants
Interaction of pharmaceuticals and organic contaminants with soils and soil components
Bioavailability of organic compounds to microbial community
Antibiotic resistance in the environment

PROFESSIONAL CAREER

2014 – Present
Research Associate The Soil and Water Research Lab, Michigan State University

- Working on environmental fate research projects to determine the bioavailability of pharmaceuticals to microbial community and corresponding expression of antibiotic resistance genes
- Designed experiment to determine sorption capacities of clay minerals, soil organic matter, and black caron/biochar for pharmaceuticals and hormones

July 2008 – December 2013
Research Assistant The Environmental Chemistry Lab, Michigan State University

- Refined the techniques to prepare biological samples using SPE and established analytical methods for LC-MS/MS and GS/MS to quantify trace level pharmaceuticals and metabolites
- Innovated the study of bacterial antibiotic resistance employed with whole-cell bioreporter
- Performed spectrophotometric analysis of the bioreporter gene translation, which provided guidelines to determine the extensive expression of antibiotic resistance gene
- Developed quantitative models to determine antibiotic resistance using the data obtained from flow cytometry and chemical analysis

- Set up computational models on MINEQL+, MINTEQ and Phreeqc to investigate pharmaceutical speciation chemistry in aqueous phase

January 2013 – May 2013
Teaching Assistant Michigan State University
Course: CSS 330 Soil Chemistry Lab
- Coordinated with technicians to hold laboratory sections at the discretion of the professor
- Developed and resented laboratory discussion in the class

September 2005 – June 2008
Research Assistant The State Key Laboratory of Pollution Control and Resource Reuse, Nanjing University, China
- Developed analytical methods for LC-UV/FLD and GC to quantify organic pollutants
- Systematically studied the effects of solute structure and exchangeable cation on sorption of aromatic compounds to clay minerals and model humic substance-clay complex
- Studied the effects of aqueous pH and ionic strength on the sorption via NMR spectroscopy

January 2004– June 2005
Research Assistant Nanjing University, China
- Performed photocatalytic treatment on waste water and monitored bacterial population to examine sterilization capability of a newly designed TiO_2 fixed- film photocatalytic reactor

HONORS AND AWARDS

Student Poster Award (1st place) in Soil and Environmental Quality, Soil Science Society of America 2011
Kirk and Marjorie Lawton Graduate Student Support Award, Michigan State University 2013
Robert G. and Mary Lou Gast Graduate Fellowship in Soil Science, Michigan State University 2011

PUBLICATIONS

Yingjie Zhang, Stephen A. Boyd, Brian J. Teppen, James M. Tiedje, and Hui Li. Role of Tetracycline Speciation in the Bioavailability to *Escherichia coli* for Uptake and Expression of Antibiotic Resistance. *Environmental Science and Technology*. 2014 *48* (9), 4893-4900

Yingjie Zhang, Brian J. Teppen, Stephen A, Boyd, James M. Tiedje and Hui Li. Organic acids enhance bioavailability of tetracycline in water to*Escherichia coli* for uptake and expression of antibiotic resistance. *Water Research* 2014 65, 98-106

Xiaolei Qu, **Yingjie Zhang**, Hui Li, Shourong Zheng, and Dongqiang Zhu, 2011, Probing the Specific Sorption Sites on Montmorillonite using Nitroaromatic Compounds and Hexafluorobenzene. *Environmental Science and Technology.* 2011, *45(6),* 2209–2216

Yingjie Zhang, Dongqiang Zhu, Hongxia Yu. Sorption of Aromatic Compounds to Clay Mineral and Model Humic Substance-Clay Complex: Effects of Solute Structure and Exchangeable Cation. *Journal of Environmental Quality*. 2008*, 37,* 817-823.

Shi Zaifeng, Ren Xuechang, **Zhang Yingjie**, Kong Lingren. Application of TiO_2 Membrane Photocatalytic Reactor in Deep Purification of Tap Water. *Technology of Water Treatment.* 2006*, Vol. 32.12.*

Yingjie Zhang, Brian J. Teppen, Stephen A, Boyd, James M. Tiedje and Hui Li. The Extent of Antibiotic Resistance Expression and Tetracycline Sorption/Desorption in Soils, and Attachment/Modality of Bacteria on Geosorbent Surfaces. (in preparation)

REPROTS AND CONFERENCE PRESENTATIONS

Ya-Hui Chuang, **Yingjie Zhang**, Stephen A. Boyd and Hui Li. 2014. Evaluation of Quechers method for simultaneous determination of multi-pharmaceutical residues in plants. The ASA, CSSA, and SSSA Annual Meetings, Long Beach, CA

Yingjie Zhang, Brian J. Teppen, Stephen A.Boyd, James M. Tiedje and Hui Li. 2013. Bioavailability of clay-sorbed tetracycline to bacteria for activation of antibiotic resistance. The ASA, CSSA, and SSSA Annual Meetings, Tampa, FL

Yingjie Zhang, Brian J. Teppen, Stephen A.Boyd, James M. Tiedje and Hui Li. 2012. Bioavailability of soil-sorbed tetracycline to bacteria for expression of antibiotic resistance. The ASA, CSSA, and SSSA Annual Meetings, Cincinnati, OH

Hui Li, **Yingjie Zhang**, Brian Teppen, Stephen Boyd, James Tiedje. 2012. Tetracycline speciation controls expression of bacterial antibiotic resistance. The ACS meeting. San Diego, CA

Yingjie Zhang, 2012. The Annual CIT Research Evening Symposium, Kellogg Center, East Lansing, MI

Yingjie Zhang, Brian J. Teppen, Stephen A. Boyd, James M. Tiedje, and Hui Li. 2011. Geochemical controls on the expression of bacterial antibiotic resistance in water. The ASA, CSSA, and SSSA Annual Meetings, San Antonio, TX