
CURRICULUM VITAE

Yun-Ya Yang

Ph.D. Environmental Soil Chemistry
Gulf Coast Research and Education Center
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Education

Ph.D., Soil and Crop Sciences, Colorado State University, Fort Collins, CO, USA. 09/2007-12/2010. Dissertation: Degradation and Transport Pathways of Steroid Hormones from Human and Animal Waste. Advisor: Dr. Thomas Borch.

M.S., Soil and Environmental Sciences, National Chung Hsing University, Taichung, Taiwan. 09/2003-06/2005. Thesis: Effect of Citrate on Boric Acid Adsorption by Iron Oxides and Red Soils. Advisor: Dr. Chia-Ming Chang.

B.S., Soil and Environmental Sciences, National Chung Hsing University, Taichung, Taiwan. 09/1999-06/2003.

Research Interests

For more than eight years my primary research interest has been the fate and transport of contaminants in natural and laboratory based systems. My Ph.D. research was conducted both in the laboratory and field in order to assess the potential for surface runoff of, and to elucidate biodegradation pathways of, steroid hormones from human and animal waste. Once we understand the transformation and transport mechanisms of hormones and pharmaceuticals, including endocrine disruptors, we can optimize best management practices for manure and biosolids treatment and land application to minimize their environmental impact.

Professional Experience

Postdoctoral Research Assistant: University of Florida, Gulf Coast Research and Education Center, Wimauma, FL, USA.

06/2014 – present. In Environmental Soil Chemistry and Water Quality Laboratory, under the direction of Dr. Gurpal Toor. Project: *Urban Water Pollution Control Study*.

03/2012 – present. In Environmental Soil Chemistry and Water Quality Laboratory, under the direction of Dr. Gurpal Toor and Dr. Patrick Christopher Wilson. Project: *Developing Tools to Attenuate Emerging Contaminants in Onsite Wastewater Treatment Systems*.

Research Scientist. Thin Air Nitrogen Solutions LLC, Fort Collins, CO, USA.

04/2011 – 02/2012. Project: *Viability of Cyanobacterial Bio-fertilizer to Improve Soil Fertility and Crop Yields in Africa*.

Postdoctoral Researcher. Colorado State University, Fort Collins, CO, USA.

01/2011 – 02/2012. In Environmental Soil Chemistry Laboratory, under the direction of Dr. Thomas Borch and Dr. Shawn Archibeque. Project: *Evaluate Excretion of Steroids and Agonists from Cattle as a Function of Feeding Regime and Hormone Implantation*

Graduate Researcher. Colorado State University, Fort Collins, CO, USA.

09/2007 – 12/2010. In Environmental Soil Chemistry Laboratory, under the direction of Dr. Thomas Borch. Project: *Occurrence, Fate and Transport of Steroid Sex Hormones*.

Teaching Assistant. Colorado State University, Fort Collins, CO, USA.

01/2010 – 06/2010. Mentor for Madison Martinez, undergraduate student from Department of Chemistry at Colorado State University.

01/2010 – 05/2010. In Environmental Soil Chemistry Class.

01/2009 – 05/2009. In Environmental Soil Chemistry Class.

Undergraduate Assistant. National Chung Hsing University, Taichung, Taiwan.

09/2002 – 09/2003. In Environmental Molecular and Electromagnetic Physics Laboratory, under the direction of Dr. Chia-Ming Chang. Project: *Predicting the Metal Removal Efficiency of Microalgal Biomass Using Chemical Characteristics and Quantum-Mechanical Models*.

08/2001 – 08/2002. In Molecular Systematics Laboratory, under the direction of Dr. Ju-Ying Hsiao. Project: *Population Genetic Variation of *Abies Kawakamii**.

05/2000 – 07/2001. In Soil Biology and Biochemistry Laboratory, under the direction of Dr. Chiu-Chung Young. Project: *Using Protein Electrophoresis to Investigate Gene-Enzyme Relationships among Isolates of Phosphorus-Solubilizing Bacteria from Taiwan*.

Research Experience

Instrumental Techniques: High Performance Liquid Chromatography, Gas Chromatography, Tandem Mass Spectrometry, Solid Phase Extraction, Pressurized Solvent Extraction, Attenuated Total Reflection Fourier Transform Infrared Spectroscopy, Analytical AutoAnalyzer, UV-Visible Spectroscopy, Microplate Readers, Data Loggers

Conducted runoff and leaching studies of hormones using a rainfall simulator at an agricultural field

Groundwater, soil water, septic tank effluent, river water sampling

Microbiological Techniques: culture bacteria, isolation including plate streaking, and experience in DNA extraction, polymerase chain reaction, and agarose gel electrophoresis

Chemical Analysis: general wet chemistry methods, isotope techniques

Awards and Honors

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| 2003, 2005 | Member, Phi Tau Phi Scholastic Honor Society |
| 2003 | Golden Key Medal from National Chung Hsing University |
| 2001 | Ching O Medal from National Chung Hsing University |
| 2000-2003 | Outstanding Academic Performance from National Chung Hsing University
(five times) |

Publications

Yang, Y-Y., Toor, G.S., Wilson, P.C., Fate of Pharmaceuticals and Hormones in Mounded Septic Drain Fields. In preparation.

Yang, Y-Y., Toor, G.S., Nutrients, Trace Metals, Bacteria, and Pesticides in Nursery Recycled Water. *Journal of Water Resource and Protection*. **2015**.

Yang, Y-Y., Toor, G.S., Williams, C.F., Pharmaceuticals and Organochloride Pesticides in Sediments of an Urban River in Florida, United States. *Journal of Soils and Sediments*. **2015**. DOI:1007/s11368-015-1077-7

Zhan, F., He, Y., Li, T., **Yang, Y-Y.,** Toor, G.S., Zhao, Z., Tolerance and Antioxidant Response of a Dark Septate Endophyte (DSE), *Exophiala pisciphila*, to Cadmium Stress. *Bulletin of Environmental Contamination Toxicology*. **2015**, 94 (1) 96-102.

Wang, H., Dong, Y., **Yang, Y-Y.,** Toor, G.S., Zhang, X., Changes in Heavy Metal Contents in Animal Feeds and Manures in an Intensive Animal Production Region of China. *Journal of Environmental Sciences*. **2013**, 25 (12) 2435-2442.

Yang, Y-Y., Gray, J.L., Furlong, E.T., Davis, J.G., ReVello, R.C., Borch, T., Steroid Hormone Runoff from an Agricultural Field Applied with Municipal Biosolids. *Environmental Science & Technology*. **2012**, 46. 2746-2754.

Yang, Y-Y., Pereyre, L.P., Young, R.B., Reardon, K.F., Borch, T., Testosterone-Mineralizing Culture Enriched from Swine Manure: Characterization of Degradation Pathways and Microbial Community Composition. *Environmental Science Technology*. **2011**, 45. 6879-6886.

Yang, Y-Y., Borch, T., Young, R.B., Goodridge, L.D., Davis, J.G., Degradation Kinetics of Testosterone by Manure-Borne Bacteria: Influence of Temperature, pH, Glucose Amendments, and Dissolved Oxygen. *Journal of Environmental Quality*. **2010**, 39. 1153-1160.

Borch, T., Young, R.B., Gray, J.L., Foreman, W.T., **Yang, Y-Y.**, Presence and Fate of Steroid Hormones in a Colorado River. Division of Environmental Chemistry-Abstract of Papers of the American Chemical Society (*preprint*). **2008**, 8 (2), 689-694.

Extension Publications

Yang, Y-Y., Toor, G.S., Contaminations in the Urban Environment: Pharmaceuticals and Personal Care Products (PPCPs)-Part 1. University of Florida–IFAS, Gainesville, FL. **2015**.

Yang, Y-Y., Toor, G.S., Contaminations in the Urban Environment: Pharmaceuticals and Personal Care Products (PPCPs)-Part 2. University of Florida–IFAS, Gainesville, FL. **2015**.

Selected Reports

Borch, T., Davis, J.G., **Yang, Y-Y.**, Young, R.B., Occurrence of Steroid Sex Hormones in the Cache la Poudre River, and Pathways for Their Removal in the Environment. Colorado Water Institute – Completion Report. November 4, **2009**, 1-16.

Newspaper Articles

Our Chemical Romance – Chemicals are Causing Heartbreak and Hormone Havoc by Joshua Zaffos. *Rocky Mountain Chronicle*, vol. 2, issue 28, April 10-16, **2008**.

Newsletter

Young, R.B., Borch, T., Davis, J.G., **Yang, Y-Y.**, Occurrence and Fate of Steroid Hormones in Sewage Treatment Plant Effluence, Animal Feeding Operation Wastewater and the Cache la Poudre River of Colorado. *Colorado Water*. **2008**, 25, 10-14.

Platform Presentations

Toor, G.S., **Yang, Y-Y.**, Rordiguez-Jorquera, I. Urban and Rural Wastewater Management: Overview of Fate, Transport, and Toxicity of Contaminants. ASA-CSSA-SSSA International Annual Meetings. November 2-5, **2014**. Long Beach, CA.

Yang, Y-Y. 2014 Florida Ag Expo Special Topics Tour Talk: Passive Removal of Nitrogen for On-Site Wastewater (Septic) Systems. Gulf Coast Research and Education Center. November 5, **2014**. Wimauma, FL.

Toor, G.S., **Yang, Y-Y.**, Wilson, P.C. Mass Balance of Pharmaceuticals and Hormones Below Vadose Zone of Onsite Wastewater Treatment Systems. Society of Environmental Toxicology and Chemistry (SETAC) North America 34th Annual Meeting, November 9-13, **2014**, Vancouver, BC.

Toor, G.S., Occhipinti, M., Lusk, M., Haver, D., Jablonski, M., Kalev, S., **Yang, Y-Y.** Water Quality in Urban Systems: Sources, Drivers, and Unknowns. ASA-CSSA-SSSA International Annual Meetings. Symposium-Effects of Nutrient Cycling in Urban Grassland Soils on Soil and Water Quality. November 2-5, **2014**. Long Beach, CA.

Yang, Y-Y., Toor, G.S., Wilson, P.C. Fate of Trace Organic Compounds in Drip-Dispersal Septic System Drainfield. 16th Annual Soil and Water Science Research Forum, September 17, **2014**. Gainesville, FL.

Toor, G.S., De, M., Mechtensimer, S., **Yang, Y-Y.** Miracle in Vadose Zone of Onsite Wastewater Treatment Systems: Understanding Soil Processes Complexity in Remediating Wastewater-Borne Contaminants. Proceedings of the Complex Soil Systems Conference “A Path to Improved Understanding of Complex Soil Systems” September 3-5, 2014. Berkeley, CA.

Yang, Y-Y., Toor, G.S., Wilson, C.P. Fate of Pharmaceuticals and Hormones in Mounded Septic Drainfields. SSSA Onsite Wastewater Conference, Innovation in Soil-Based Onsite Wastewater Treatment. April 8, **2014**. Albuquerque, NM.

Yang, Y-Y., Toor, G.S., Lu J., Wilson, P.C. Trace Organic Compounds in the Drainfield of Onsite Wastewater Treatment Systems. ASA-CSSA-SSSA International Annual Meetings. November 3-6, **2013**. Tampa, FL.

Mechtensimer, S., **Yang, Y-Y.**, Toor, G.S. Transport of Phosphorus from Drainfields of Onsite Wastewater Treatment Systems to Groundwater. ASA-CSSA-SSSA International Annual Meetings. November 3-6, **2013**. Tampa, FL.

Mechtensimer, S., **Yang, Y-Y.**, Toor, G.S. Mass Balance of Phosphorus in the Drainfield of Onsite Wastewater Treatment System. ASA-CSSA-SSSA International Annual Meetings. November 3-6, **2013**. Tampa, FL.

Toor, G.S., **Yang, Y-Y.**, De, M. Onsite Wastewater Disposal in Sandy Soils: Field Research and Approaches. 7th International Conference of the Urban Soils Working Group, SUITMA, of the International Union of Soil Science. September 16-20, **2013**. Toruń, Poland.

Toor, G.S., **Yang, Y-Y.**, Wilson, P.C. Developing Tools to Attenuate Emerging Contaminants in Onsite Wastewater Treatment Systems: project Update. USDA-NIFA Land Grant and Sea Grant National Water Conference. July 21-24, **2013**. Reno, NV.

Toor, G.S., **Yang, Y-Y.**, Lu J., Wilson, P.C. Fate and Transport of Trace Organic Compounds in Onsite Wastewater Treatment Systems. SETC North America 33rd Annual Meeting. November 11-15, **2012**. Long Beach, CA.

Barminski, R., Davis, J., Storteboom, H., **Yang, Y-Y.**, Dominick, S., Athey, K., Wang, H., Stromberger, M. Development of An Organically Certified Growth-Medium for Cyanobacteria. ASA-CSSA-SSSA International Annual Meetings. October 21-24, **2012**. Cincinnati, OH.

Massey, M., Storteboom, H., **Yang, Y-Y.**, Wang, H., Barminski, R., Sukor, A., Stonaker, F., Davis, J. Developing An On-Farm Bio-Fertilizer Production System Using Cyanobacteria. ASA-CSSA-SSSA International Annual Meetings. October 21-24, **2012**. Cincinnati, OH.

Yang, Y-Y., Wolde-meskei, E., Massey, M., Dominick, S., Storteboom, H., Barminski, R., Yigrem, S., Davis, J. On-Farm Cyanobacterial Nitrogen Fertilizer Production in Ethiopia. ASA-CSSA-SSSA International Annual Meetings. October 16-19, **2011**. San Antonio, TX.

Yang, Y-Y., Gray, J.L., Furlong, E.T., Yager, T.J.B., Davis, J.G., Foreman, W.T., Borch, T., Hormone and Anthropogenic Waste Indicator Runoff from Biosolids Amended Soils. ASA-CSSA-SSSA International Annual Meetings. October 31-November 3, **2010**. Long Beach, CA. Oral Presentation.

Yang, Y-Y., Borch, T., Young, R.B., Goodridge, L.D., Davis, J.G., Degradation Kinetics of Testosterone by Manure-Borne Bacteria: Influence of Temperature, pH, Glucose Amendments, and Dissolved Oxygen. Livestock and the Environment's 3rd Annual Stakeholder Meeting. November 19, **2009**. Fort Collins, CO. Poster Presentation.

Yang, Y-Y., Borch, T., Gray, J.L., Forman, W.T., Yager, T.J.B., Davis, J.G., Steroid Hormones Runoff from an Agricultural Field Applied with Biosolids. The 2009 Rocky Mountain Water Reuse Workshop. August 13, **2009**. Golden, CO. Poster Presentation.

Yang, Y-Y., Borch, T., Young, R.B., Goodridge, L.D., Davis, J.G., Biodegradation of Steroid Hormones by Manure-Borne Bacteria. International Conference on Occurrence, Fate, Effects, and Analysis of Emerging Contaminants in the Environment (EmCon 2009). August 4-7, **2009**. Fort Collins, CO. Oral Presentation.

Yang, Y-Y., Borch, T., Gray, J.L., Foreman, W.T., Yager, T.J.B., Davis, J.G., Steroid Hormones Runoff from an Agricultural Field Applied with Biosolids. International Conference on Occurrence, Fate, Effects, and Analysis of Emerging Contaminants in the Environment (EmCon 2009). August 4-7, **2009**. Fort Collins, CO. Poster Presentation.

Yang, Y-Y., Borch, T., Furlong, E.T., Yager, T., Davis, J.G., Gray, J.L., Steroid Hormones Runoff from an Agricultural Field Applied with Biosolids. U.S., Geological Survey Science Day 2009: New Challenges, New Approaches to Understand Colorado Water, June 2, **2009**. Denver Federal Center, CO. Poster Presentation.

Yang, Y-Y., Borch, T., Davis, J.G., Degradation of Steroid Hormones in Pig Manure. ASA-CSSA-SSSA International Annual Meetings. October 5-9, **2008**. Houston, TX. Poster Presentation.

Young, R.B., Borch, T., Gray, J.L., Foreman, W.T., Davis, J.G., **Yang, Y-Y.**, Presence and Fate of Steroid Hormones in a Colorado River. The GSA-ASA-CSSA-SSSA Joint Annual Meeting. October 5-9, **2008**. Houston, TX. Oral Presentation.

Borch, T., Young, R.B., Gray, J.L., Foreman, W.T., **Yang, Y-Y.**, Presence and Fate of Steroid Hormones in a Colorado River. Division of Environmental Chemistry-American Chemical Society Meeting. August 17-21, **2008**. Philadelphia, PA. Oral Presentation.

Young, R.B., Borch, T., **Yang, Y-Y.**, Occurrence and Fate of Steroid in the Environment. CSU Global Water Colloquium. March 26-28, **2008**. Fort Collins, CO. Oral Presentation.

Peer Reviewer for the Following Journals

Chemosphere

Environmental Pollution

Environmental Science and Pollution Research

Journal of Environmental Quality

Science of the Total Environment

The Soil Science Society of America's Innovation in Soil Based Onsite Wastewater Treatment Conference Proceedings

Membership in Scientific Societies

American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, 2010 – present