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Dr. Shaily Mahendra is an Associate Professor in the Department of Civil and Environmental Engineering, and Samueli Fellow at the University of California, Los Angeles. She is a member of the California NanoSystems Institute, Institute of the Environment and Sustainability, and the Molecular Toxicology Program. Shaily received Ph.D. from University of California, Berkeley, where she was advised by Dr. Lisa Alvarez-Cohen. For two years, she was a research scientist in Dr. Pedro Alvarez's group at Rice University in Houston, Texas.

The overarching goals of her research are to understand and control microbiological processes in natural and engineered systems. Shaily also develops novel environmental applications of nanomaterials and technologies for biotransformation of water contaminants. These technologies can greatly decrease the time and cost required to monitor and clean contaminated water, and enable the application of effective risk management strategies. She uses massively parallel DNA and RNA sequencing, real-time PCR, microarrays, high-throughput screening assays, and isotope ratio mass spectrometry in environmental microbiology. Applications of this research are in sustainable treatment of drinking water, groundwater, industrial and municipal wastewater, and recycled and reclaimed water.

Dr. Mahendra has obtained support from the US National Science Foundation, Strategic Environmental Research and Development Program, Air Force Civil Engineer Center, Naval Facilities Engineering Command, and various industry sponsors for research on emerging contaminants, such as 1,4-dioxane, per- and polyfluoroalkyl substances, nanoparticles, pesticides, antibiotics, and bisphenol analogs. She has produced 48 peer-reviewed papers, 7 book chapters, 4 intellectual property disclosures, 73 invited talks, and 135 conference presentations.

Shaily received the National Science Foundation CAREER Award, DuPont Young Professor Award, Water Environment & Reuse Foundation Paul L. Busch Award, Walter Huber Civil Engineering Research Prize, Northrop Grumman Excellence in Teaching Award, Hellman Fellowship, Poptech Science and Public Leadership Fellowship, and Environmental Science & Technology Excellence in Review Award, and was cited as one of the 10 Trendsetters of 2010 by Public Works Magazine. She won the 2008 CH2M-Hill/AEESP Outstanding Doctoral Dissertation Award and advised the recipient of 2016 MWH/AEESP Master's Thesis Award.

She has supervised three postdoctoral scholars, who are currently faculty members in the US and China. Nearly all of her 11 PhD and 8 MS advisees have won competitive scholarships and awards. More than 40 undergraduate students and 10 high school students have participated in her research laboratory. She is committed to broadening the participation of women and underrepresented groups in Environmental Engineering.

Shaily serves as the Secretary of the Board of Directors of the Association of Environmental Engineering and Science Professors and on the Editorial Advisory Boards of Environmental Science and Technology, Applied Biochemistry and Biotechnology, and Environmental Pollution. She serves as ad-hoc reviewer for 33 journals, and as a reviewer or panelist for 10 federal and state agencies. Shaily has chaired technical sessions and served on steering committees at 15 conferences. She has been a Principal Investigator with the University Consortium since 2016.

Selected Papers and Theses

Selected Publications

Wang, M., S. K. Mohanty, and S. Mahendra (2019). Nanomaterial-supported Enzymes for Water Purification and Monitoring in Point-of-use Water Supply Systems. Accounts of Chemical Research 52 (4): 876–885. Invited paper

Wang, M., Y. Chen, D. Abad, V. A. Kickhoefer, P. Allard, L. H. Rome, and S. Mahendra (2019). Enhanced Removal and Detoxification of Bisphenol A and Its Substitutes by Enzymes Immobilized in Vault Nanoparticles. ACS Sustainable Chemistry and Engineering 7(6): 5808-5817.

Miao, Y., N. W. Johnson, P. B. Gedalanga, D. T. Adamson, C. J. Newell, and S. Mahendra (2019). Response and Recovery of Microbial Communities Subjected to Oxidative and Biological Treatments of 1,4-Dioxane and Co-contaminants. Water Research 149: 74-85.

Polasko A., A. Zulli, P. B. Gedalanga, P. Pornwongthong, and S. Mahendra (2019). A Mixed Microbial Community for the Biodegradation of Chlorinated Ethenes and 1,4-Dioxane. Environmental Science and Technology Letters 6 (1): 49-54. ACS Editor's Choice

Chen, R., C. Liu, N. W. Johnson, L. Zhang, S. Mahendra, Y. Liu, and Y. Dong (2019). Removal of 1,4-Dioxane by Titanium Silicalite-1: Adsorption Mechanisms and Bioregeneration of Sorption Sites. Chemical Engineering Journal 371: 193-202.

Zhao, L., X. Lu, A. Polasko, N. W. Johnson, Y. Miao, Z. Yang, S. Mahendra, and B. Gu (2018). Co-contaminant Effects on 1,4-Dioxane Biodegradation in Packed Soil Column Flow-through Systems. Environmental Pollution 243 (A): 573-581.

Myers, M., N. W. Johnson, E. Zerecero-Marin, P. Pornwongthong, Y. Liu, P. B. Gedalanga, and S. Mahendra (2018). Abiotic and Bioaugmented Granular Activated Carbon for the Treatment of 1,4-Dioxane-Contaminated Water. Environmental Pollution 240: 916-924.

Miao, Y., N. W. Johnson, K. Heck, S. Guo, C. D. Powell, T. Phan, P. B. Gedalanga, D. T. Adamson, C. J. Newell, M. S. Wong, and S. Mahendra (2018). Microbial Responses to Combined Oxidation and Catalysis of 1,4-Dioxane and Co-Contaminants in Groundwater and Soil. Frontiers of Environmental Science and Engineering 12 (5): 2 (journal cover).

Merino, N., M. Wang, R. Ambrocio, K. Mak, E. O'Connor, A. Gao, E. Hawley, R. A. Deeb, L. Y. Tseng, and S. Mahendra (2018). Fungal Biotransformation of 6:2 Fluorotelomer Alcohol. Remediation Journal 28(2): 59-70.

Safdari, M. S., H. R. Kariminia, M. Rahmati, F. Fazlollahi, A. Polasko, S. Mahendra, W. V. Wilding, and T. H. Fletcher (2018). Development of Bioreactors for Comparative Studies of Natural Attenuation, Biostimulation, and Bioaugmentation of Petroleum Hydrocarbon-Contaminated Soil. Journal of Hazardous Materials 342: 270-278.

Reyes, V. C., P. B. Gedalanga, N. Merino, J. D. Van Nostrand, S. P. Keely, S. K. De Long, J. Zhou, and S. Mahendra (2018). Differential Sensitivity of Wetland Derived Nitrogen Cycling Microorganisms to Copper Nanoparticles. ACS Sustainable Chemistry and Engineering 6 (9): 11642-11652.

Zhang, S., P. B. Gedalanga, and S. Mahendra (2017). Advances in Bioremediation of 1,4-Dioxane-Contaminated Waters. Journal of Environmental Management 204 (2): 765-774.

Jasmann, J., P. B. Gedalanga, T. Borch, S. Mahendra, and J. Blotevogel (2017). Synergistic Treatment of Mixed 1,4-Dioxane and Chlorinated Solvent Contaminations by Coupling Electrochemical Oxidation with Aerobic Biodegradation. Environmental Science & Technology 51: 12619–12629.

Gedalanga, P. B., A. Madison, Y. Miao, T. Richards, J. Hatton, W. H. Diguiseppi, J. Wilson, and S. Mahendra (2016). A Multiple Lines of Evidence Framework to Evaluate Intrinsic Biodegradation of 1,4-Dioxane. Remediation Journal 27 (1): 93-114.

Zhang, S., P. B. Gedalanga, and S. Mahendra (2016). Biodegradation Kinetics of 1,4-Dioxane in Chlorinated Solvent Mixtures. Environ. Science & Technology 50: 9599-9607.

Merino, N., Y. Qu, R. A. Deeb, E. L. Hawley, M. R. Hoffmann, and S. Mahendra (2016). Degradation and Removal Methods for Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs) in Water. Environmental Engineering Science 33 (9): 615-649.

Wang, M., D. Abad, V. Kickhofer, L. Rome, and S. Mahendra (2015). Vault Nanoparticles Packaged with Enzymes as a New Pollutant Biodegradation Technology. ACS Nano 9 (11): 10931–10940.

Adamson, D. T., R. H. Anderson, S. Mahendra, and C. J. Newell (2015). Evidence of 1,4-Dioxane Attenuation at Groundwater Sites Contaminated with Chlorinated Solvents and 1,4-Dioxane. Environmental Science & Technology 49 (11): 6510–6518.

Tseng, N., N. Wang, B. Szostek, and S. Mahendra (2014). Biotransformation of 6:2 Fluorotelomer alcohol (6:2 FTOH) by the wood-rotting fungus *Phanerochaete chrysosporium*. Environmental Science & Technology 48 (7): 4012-4020.

Pornwongthong, P., A. Mulchandani, P. B. Gedalanga, and S. Mahendra (2014). Transition Metals and Organic Ligands Influence Biodegradation of 1,4-Dioxane. Applied Biochemistry and Biotechnology 173 (1): 291-306.

Adamson, D. T., S. Mahendra, K. L. Walker, S. R. Rauch, S. Sengupta, and C. J. Newell (2014). A Multi-Site Survey to Identify the Scale of the 1,4-Dioxane Problem at Contaminated Groundwater Sites. Environmental Science & Technology Letters 1 (5): 254-258.

Gedalanga, P. B., P. Pornwongthong, R. Mora, S-Y. D. Chiang, B. Baldwin, D. Ogles, and S. Mahendra (2014). Identification of Biomarker Genes to Predict Biodegradation of 1,4-Dioxane. Applied and Environmental Microbiology 80 (10): 3209-3218.

Mahendra, S., A. Grostern, and L. Alvarez-Cohen (2013). The Impact of Chlorinated Solvent Co-contaminants on the Biodegradation Kinetics of 1,4-Dioxane. Chemosphere 91 (1): 88-92.

Chiang, S-Y. D., R. Mora, W. H. DiGuiseppi, G. Davis, K. Sublette, P. B. Gedalanga, and S. Mahendra (2012). Characterizing the Intrinsic Bioremediation Potential of 1,4-Dioxane and Trichloroethene Using Innovative Environmental Diagnostic Tools. Journal of Environmental Monitoring 14 (9): 2317-2326.

Sales, C. M.#, S. Mahendra#, A. Grostern, R. E. Parales, L. A. Goodwin, T. Woyke, M. Nolan, A. Lapidus, O. Chertkov, G. Ovchinnikova, A. Szcyrba, and L. Alvarez-Cohen (2011). Genome sequence of 1,4-dioxane degrading *Pseudonocardia dioxanivorans* CB1190. Journal of Bacteriology 193 (17): 4549-4550. #co-first authors.

Lee, J., S. Mahendra, and P. J. Alvarez (2010). Nanomaterials in the Construction Industry: A Review of Their Applications and Environmental Health and Safety Considerations. ACS Nano 4 (7): 3580-3590.

Li, M., S. Fiorenza, J. Chatham, S. Mahendra, P. J. Alvarez (2010). 1,4-Dioxane biodegradation at low temperatures in Arctic groundwater samples. Water Research 44 (9): 2894-2990.

Xiu, Z-M, Z-H Jin, T-L Li, S. Mahendra, G. V. Lowry, and P. J. Alvarez (2010). Effect of Nanoscale Zero Valent Iron Particles on a Mixed Culture Dechlorinating Trichloroethylene. Bioresource Technology 101: 1141-1146.

Mahendra, S., H. Zhu, V. L. Colvin, and P. J. Alvarez (2008). Quantum Dot Weathering Results in Microbial Toxicity. Environmental Science & Technology 42: 9424-9430.

Mahendra, S., C. J. Petzold, E. E. Baidoo, J. D. Keasling, and L. Alvarez-Cohen (2007). Identification of the Intermediates and End-products of 1,4-Dioxane Biodegradation by Monooxygenase-expressing Bacteria. Environ. Science & Technology 41 (21): 7330 -7336.

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Chu, K. H., S. Mahendra, D. L. Song, M. E. Conrad, and L. Alvarez-Cohen (2004). Stable Carbon Isotope Fractionation during Aerobic Biodegradation of Chlorinated Ethenes. Environmental Science & Technology 38 (11): 3126 -3130.

Recent Theses

Zhang, S. (2017). Biodegradation of 1,4-Dioxane in Chlorinated Solvent Mixtures.

Merino, N. (2016). Fungal Biotransformation of Polyfluoroalkyl Substances: Identification of Growth Substrates for Favorable Biodegradation Pathways.

Reyes, V. C. (2014). Differential Sensitivity of Environmentally Relevant Microorganisms to Metal-containing Nanoparticles.

Pornwongthong, P. (2014). Stable Isotopic and Molecular Biological Tools to Validate Biodegradation of 1,4-Dioxane.