

Syed A. Hashsham

Professor at Michigan State University

East Lansing, MI, US

I am an environmental engineer engaged in addressing environmental and health issues using molecular biology, genomics, and microfluidics.

Biography

I am trained as an environmental engineer with training and interests in molecular biology and microbial ecology. Majority of my research projects focus on integration of molecular biology, microbial ecology, genomics, microfluidics, and consumer electronics to address environmental engineering and human health issues. They can be categorized under three closely related themes: A) understanding how complex microbial communities work, B) development of parallel detection tools, and C) development/evaluation of processes relevant to environmental biotechnology. My research grants have been sponsored by the NIEHS, EPA, Michigan Economic Development Corporation, various industries, and SERDP. Currently, I am serving as a Lead PI for Project 4 (Gut microbiome-host-toxicant interactions) ? one of the research projects under MSU?s Superfund Research Program. This project is heavily focused on the role of gut microbiome in alleviating the effects of toxicants (TCDD). As part of this project, my research team is using multiple ?omics? tools to decipher the interactions between the host and microbiome using germ-free and traditional mouse models. These include genomics of the host and microbiome, microRNA expression analysis focusing on the host, proteomics, and metabolomics.

Industry Expertise

Writing and Editing, Education/Learning, Research, Environmental Services

Areas of Expertise

Bioremediation, Antimicrobial Resistance, Microbial Ecology, Environmental Biotechnology, Molecular Biology, Low-Cost Diagnostics, Gut Microbiome

Education

University of Illinois at Urbana-Champaign

Ph.D. Environmental Engineering

Indian Institute of Technology, Bombay

M.S. Environmental Engineering and Science

Aligarh Muslim University, India

B.S. Civil Engineering

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