

FACULTY RESEARCH HIGHLIGHTS

ASSOCIATE PROFESSOR

DR. ALIYAR FOULADKHAH

Improving Food Safety and Security in a Changing Climate

While much attention has recently been devoted to public health and preventing the spread of respiratory viruses, illnesses derived from food and water-borne pathogens continue to be an ongoing threat to food production, consumption, and living environments. This makes microbiology research an important field of study, especially with relation to the differential impacts of climate change.

Dr. Aliyar Fouladkhah is an Associate Professor in the Department of Agricultural and Environmental Sciences and Faculty Director of the Public Health Microbiology Laboratory. The main foci of Dr. Fouladkhah's laboratory endeavors are for better understanding ecology, epidemiology, pathogenesis, and control measures against environmental and enteric pathogens and spoilage organisms, especially those that are non-vaccine preventable in nature.

In research published in 2021, the research team studied the presence of biofilm formation of three bacteria in surface water, concluding that without additional treatments, contamination in water supplies can lead to prolonged survival of these pathogens. Dr. Fouladkhah and his team also investigated foodborne pathogens Shiga

toxin-producing *Escherichia coli* (*E. coli*) and *Listeria monocytogenes* and determined effective pressure-based pasteurization and decontamination methods. The research group's recent publication suggests interventions that could be used during and after infant formula manufacturing could minimize the risk of contamination with *C. sakazakii*, a bacterium that thrives in dry environments, such as powdered infant formula.

Dr. Fouladkhah is currently leading a project funded by Pressure BioScience Inc. investigating "Pressure-based inactivation of bacterial spores and pathogenic organisms" and a project funded by the USDA National Institute of Food and Agriculture entitled "Assisting Producers and Processors Meeting Water and Food Safety Requirements of Current Regulatory Climate." Since joining the Tennessee State University faculty in 2015, Dr. Fouladkhah has secured over \$3.5 million in extramural funding.

Dr. Fouladkhah is an alumnus of Colorado State and Yale University, a Certified Food Scientist of the Institute of Food



Dr. Aliyar Fouladkhah is an Associate Professor in the Department of Agricultural and Environmental Sciences and Faculty Director of the Public Health Microbiology Laboratory at Tennessee State University.



Students Sabrina H. Wadood (center left) and Sadiye Aras (center right) won first and second place in the oral and poster events at the 2021 Tennessee Academy of Science competitions.

Technologists, an Inducted Member of the American College of Epidemiology, and is certified in Public Health by the National Board of Public Health Examiners.