

AG. HALL 314 | APRIL 3, 2-3PM



SCHOOL OF
**BIOSYSTEMS AND
AGRICULTURAL ENGINEERING**
College of Engineering, Architecture and Technology

BAE SEMINAR SERIES

Diversity, ecology, and evolution of fungi in the herbivorous alimentary tract

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Fungi engage in a wide range of trophic relationships with plant, animal, and microbial partners. Anaerobic gut fungi (AGF) of the phylum Neocallimastigomycota are nutritional symbionts that inhabit the gastrointestinal tract (GIT) of mammals, where they specialize in plant cell wall degradation. This group of fungi play a key role in the digestion of plant biomass ingested by their hosts and are extremely promising agents for utilization in biofuel production from plant biomass. However, due to their fastidious nature, multiple aspects of their diversity, ecology, and evolution remains poorly understood. In this seminar, I will present efforts conducted in the last decade in my laboratory aiming towards characterizing the global patterns and determinants of fungal diversity in the herbivorous gut, the wide range of hosts that can harbor anaerobic gut fungi, and the evolution of symbiosis between fungi and their animal hosts. I will also provide an overview of the services and capabilities of the newly established Microbiomics and Culturomics Core facility (MCCF) at OSU.



BIO

Dr. Elshahed is a Regents Professor in the Department of Microbiology and Molecular Genetics at OSU. He received his Ph.D. from the University of Oklahoma in 2001 and conducted post-doctoral research studies, also at the University of Oklahoma, between 2001-2006. He joined OSU as a tenure track assistant professor in 2007. Dr. Elshahed is a microbial ecologist, researching anaerobic environments and microorganisms that thrive in the absence of oxygen. Specifically, Dr. Elshahed studies the diversity, ecology, evolution, and genomics of the anaerobic gut fungi (*Neocallimastigomycota*), a fungal lineage that lives in the digestive tracts of herbivores. Dr. Elshahed also seeks to characterize microbial community structure and function in a wide range of anaerobic environments such as sulfur springs, oil and natural gas formations, and lake sediments. He is mostly interested on examining the yet-uncultured fraction of microorganisms in these environments, often referred to as the microbial dark matter. Dr. Elshahed has published 112 research papers in peer-reviewed scientific journals, serves as an Editor or Editorial board member of multiple scientific journals. His research has been continuously funded since joining OSU in 2007 by grants from the National Science Foundation (NSF), Department of Energy (DOE), National Institute of Health (NIH), as well as multiple regional, local, and private entities. He currently serves as the director of the recently established Microbiomics and Culturomics Core facility (MCCF), an NIH-funded COBRE (centers of biomedical research excellence) facility.