Metabolomics and Environmental Toxicology

➢ Metabolomics and Exposomics

• Mass spectrometry-based metabolomics for disease diagnosis
• GC-MS and LC-MS bioassay method development for animal and plant metabolomics and exposomics studies
• Roles of secondary metabolites in plant disease progression
• Characterizing human exposure to environmental contaminants using targeted and untargeted exposomics

➢ Environmental Toxicology and (Bio)remediation

• Chemical fate and transport in the environment
• Bioaccumulation and toxicity of organochlorine pesticides and polychlorinated biphenyls in whales and dolphins
• Metabolism of exogenous chemicals such as food additives, hydrocarbons, halogenated organics, PFAS and microplastics
• Novel cost-effective and ecofriendly bioremediation methods for organic and inorganic pollutants

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Recognitions

• USCIS EB-1A Extraordinary Ability PR for Extraordinary Professors
• 2020 Hot Article Award by the Royal Society of Chemistry
• Carlos Walter Campos Memorial Award for Best International Paper
• Merrill W. Haas Memorial Grant
• Bernold M. Hanson Memorial Environmental Grant

Selected Publications

• †McCartney, †Eze, et al. (2023). A metabolomics assay to diagnose citrus Huanglongbing (HLB) disease and to aid assessment of treatments to prevent or cure infection. Phytopathology (in press). doi.org/10.1094/PHYTO-04-23-0134-R