**A Large Volume Injection Liquid Chromatography-Tandem Mass Spectrometry Method for the Measurement of Wastewater Tracers in Aqueous Systems.** T.A. Bocobo, J.P. Miller-Schulze, CSU Sacramento, Sacramento, CA.

The quality of aquatic environments can be negatively impacted from the input of treated and untreated wastewater into receiving waters. Chemicals, including pharmaceuticals and household cleaning agents, may be present in wastewater even after treatment and can be identified and quantified to determine the potential presence and amount of wastewater in each location or water source. A liquid chromatography-tandem mass spectrometry method will be developed and used to identify and quantify the wastewater tracers of interest in municipal wastewater and river water samples. Optimization of this method includes addressing linearity, detection limits, quantification limits, accuracy, and precision. The method utilizes multimodal separations for the analysis of moderately to highly polar analytes, large volume injections to allow faster analyses as compared with off-line concentration approaches, and multiple reaction monitoring to improve selectivity of the analytes of interest based on their individual quantifier and qualifier ion transitions. Currently, this method can detect acetaminophen and caffeine concentrations as low as 0.01 ng/mL and sucralose concentrations as low as 0.1 ng/mL. Analyses of river water samples from the Sacramento River collected both upstream and downstream of the Regional San municipal wastewater treatment plant will be presented in this poster, demonstrating the usefulness of this method in determining wastewater contamination which could then be applied to studies with high spatial and temporal resolution.

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