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POS-51 Bacterial Mounting and Concentration Techniques to Translate Laser-Induced Breakdown Spectroscopy into a Clinical Setting

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Laser-induced breakdown spectroscopy (LIBS) is a rapid elemental analysis technique that has been used for the detection and identification of bacterial pathogens. There is a high demand for real-time identification of bacteria and the capabilities of LIBS for this are promising. Optimizing the bacterial mounting techniques prior to LIBS analysis in a clinical setting is currently underway. This includes the sample preparation steps of separating bacterial cells from the other unwanted cells that would most likely be present in a biological specimen. It also includes lowering the minimum number of bacterial cells required for detection and accurate identification by LIBS.

This poster will present our efforts to accomplish these goals. We have investigated the effectiveness of the detergent Tween 20 as a possible anti-clumping agent for bacterial cells deposited on a nitrocellulose filter paper by observing the LIBS signal from *E. coli* specimens deposited both with and without Tween. The ability to quickly separate a contaminant from a bacterial suspension through the use of centrifugation and filter media with different pore sizes will also be presented. In addition, the capability of a metal cone designed to concentrate bacterial depositions during centrifugation onto a smaller area of the filter paper will be demonstrated.

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