INFLUENCE OF ANTICOAGULANT ON THE SPECTROSCOPIC ANALYSIS OF DRYING BLOOD POOLS. **Erin Giroux**[1], Iraklii I. Ebralidze[2,3], Theresa Stotesbury[1,3], [1]Applied Bioscience Graduate Program, [2]Materials Characterization Facility, [3]Faculty of Science, Ontario Tech University, 2000 Simcoe St N, Oshawa, ON L1G 0C5, Canada. (erin.giroux@ontariotechu.net)

In minutes, untreated whole blood undergoes a clotting cascade making forensic research that investigates "fresh" bloodletting events difficult. In bloodstain pattern analysis research, whole blood treated with anticoagulant is often used to prolong the blood's "shelf-life" and experimental useability for realistic forensic simulation. Here, we investigate the spectral implications of anticoagulant addition for time since deposition (TSD) estimation methods of larger volume blood pools. Differences in spectral profiles of blood pools with and without a citrate-based anticoagulant were characterized using visible absorbance spectroscopy, Attenuated Total Reflection-Fourier Transform Infrared (ATR-FTIR) spectroscopy, and X-ray Photoelectron Spectroscopy (XPS). Across all methods, notable spectral differences were observed between treated and untreated blood pools. Principal Component Analysis was used to further assess these differences in the visible absorbance and ATR-FTIR spectra over time. The blood pools differed most significantly ($p<0.0001$) in the first week following deposition due to the slowed drying of blood pools treated with ACD-A, whereas at timepoints exceeding one week following deposition, the spectral profiles of the pools regained similarity. These findings are consistent with physical drying TSD methods. Thus, the inclusion of anticoagulant is an important consideration during experimental design and analysis for both physical and spectral TSD estimation methods.