Dissolution of Organic Remains in Nitric Acid

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ABSTRACT:

There are several documented cases in which people dissolve bodies in acid to avoid personal identification of the body. These cases run from historic to modern and span the globe. However, there has been little published research in this area. Published research has only been done on constituents of a body. The research that has been published ranges from examination of teeth dissolved in household chemicals to examination of microscopic residues using Scanning Electron Microscopy. All of these experiments can be classified as studies of forensic taphonomy.

While taphonomy is the study of decay over time, forensic taphonomy focuses on the effects of the environment on the decay. This research aimed to put a process that scientists have conflicting theories about into a harsh environment, nitric acid, to observe the effects. This was accomplished by dissolving full squirrels, chipmunks, and rabbits in nitric acid over specific time intervals. At predetermined times, the remains were removed from the acid and weighed. In addition, individual constituents of remains were also dissolved in acid over specific time intervals. The change in weight over time for each animal and material were analyzed statistically. This study was a proof of concept study that determined that the type of material and weight group of organic remains affected the rate of dissolution of nitric acid. This study also determined that the type of animal does not affect the rate of dissolution of organic remains in nitric acid. The future implication of this research includes the proof of concept that nitric acid can dissolve organic remains, and the ability to quantify the process of dissolution in nitric acid using time and percent change in weight.

ACKNOWLEDGEMENTS:

I would like to acknowledge Dr. R. Christopher O'Brien for his mentorship throughout this project. I would also like to acknowledge Maria Panepinto as the initiator of this research, and Chelsea Van Den Burg for staying after hours with me so that I could run my project without gaps in my data.

BIOGRAPHY:

Brianna Hill is a senior Forensic Science major at the University. She is thrilled to be able to have completed SURF over the summer as it helped prepare her for her Honors Thesis research. Brianna is also extremely involved on campus as a Resident Assistant, member of the Charger Marching Band, sister of Delta Phi Epsilon, and Charger Ambassador.