

Zachary Polston, B.S.

Department of Forensic Science

Heather Coyle, Ph.D.

Determining the Potential Application of Graflex DNA Extraction Buffer for Use in Salivary Extraction in Forensic Science

In forensic science, one of the most important methods to identify the source of unknown body fluids is polymerase chain reaction (PCR) in order to provide more DNA to compare with evidence. Although PCR can multiply nucleic acids to allow for higher quantities of yield, the process requires an adequate template, so the products used in the DNA extraction have to be as sensitive as possible. In this experiment, quantitative PCR amplification was used after three different DNA extractions; Chelex, Qiagen, and Graflex DNA. The Chelex method of extraction consistently produced lower results than the other methods, but was the most consistent out of all the methods. The Qiagen method produced the highest results and was fairly consistent throughout. The Graflex method, which is the method being tested against the other products, produced fairly high yields, almost matching Qiagen's results; however, Graflex also had the highest variability per sample. The data in this experiment was obtained using the first product of Graflex DNA Extraction Buffer and future versions of Graflex formulations and products will be used to continue the comparison of DNA extraction methods.