"Comparative Analysis of Two Methods for Obtaining Genetic Profiles of Fingerprints Revealed with Magnetic Powder and Red Powder"

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INTRODUCTION

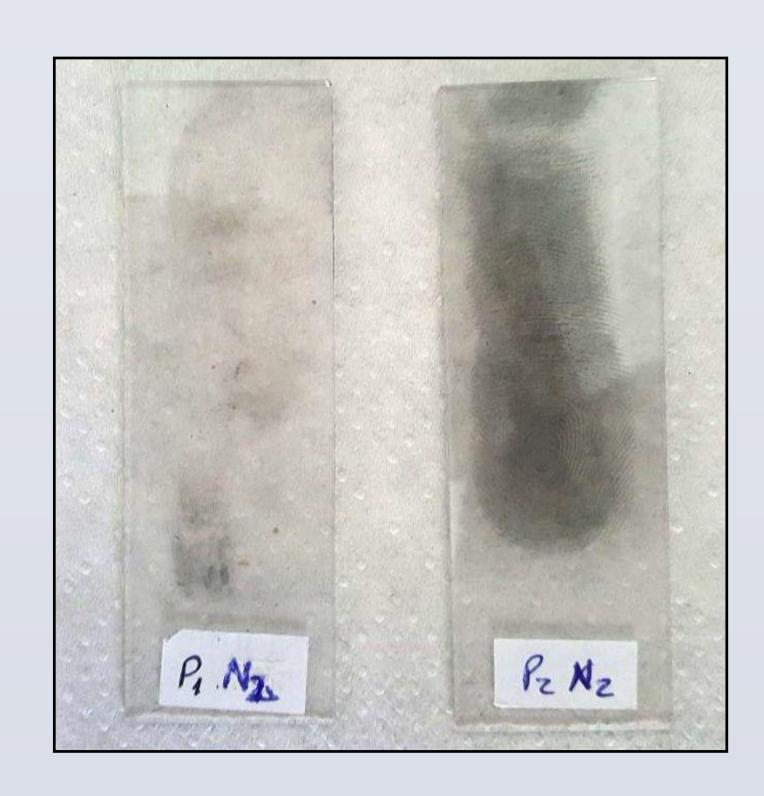
In complex investigations where the evidence is insufficient to find the author of a crime, a fingerprint is usually the only available evidence. If the fingerprint is only a partial latent and is not suitable for comparison, it becomes critical to try and obtain a genetic profile to try and identify the perpetrator.

OBJECTIVE

Compare DNA extraction methodologies on Touch evidence after the revealing the latent ridge impressions with fingerprints powders.

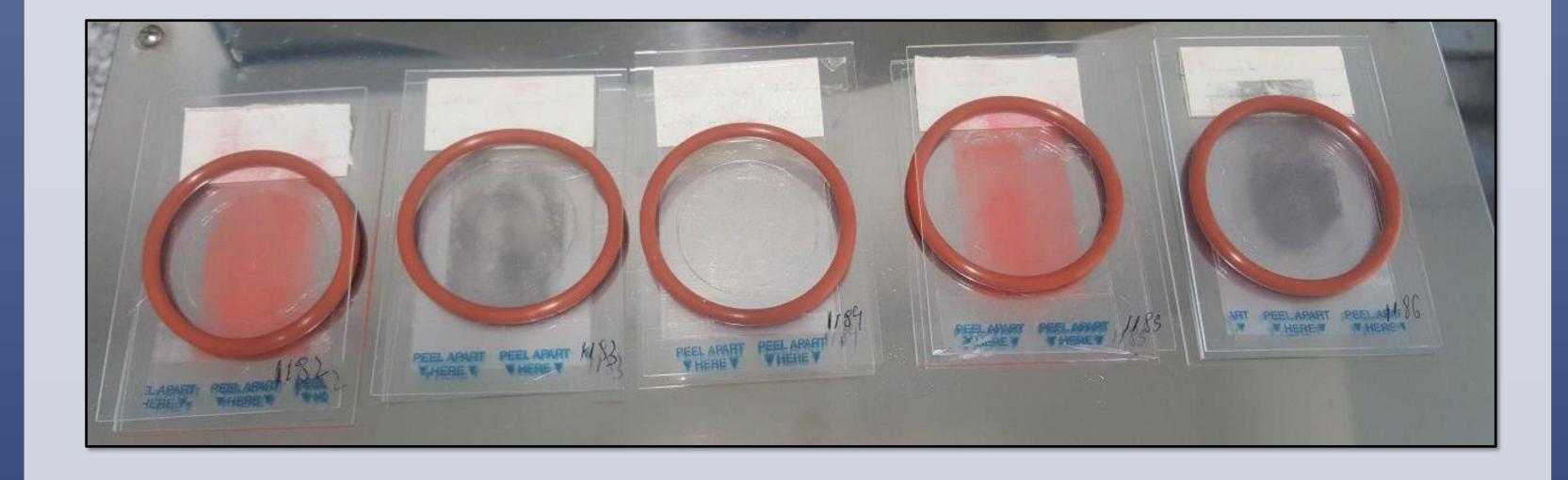
METHOD

Fingerprints of two individuals (indv.) were deposited on glass microscope slides and subsequently revealed with black magnetic fingerprint powder and Red Volcano Latent Print Powder (Sirchie ®). Two extraction methods were compared:



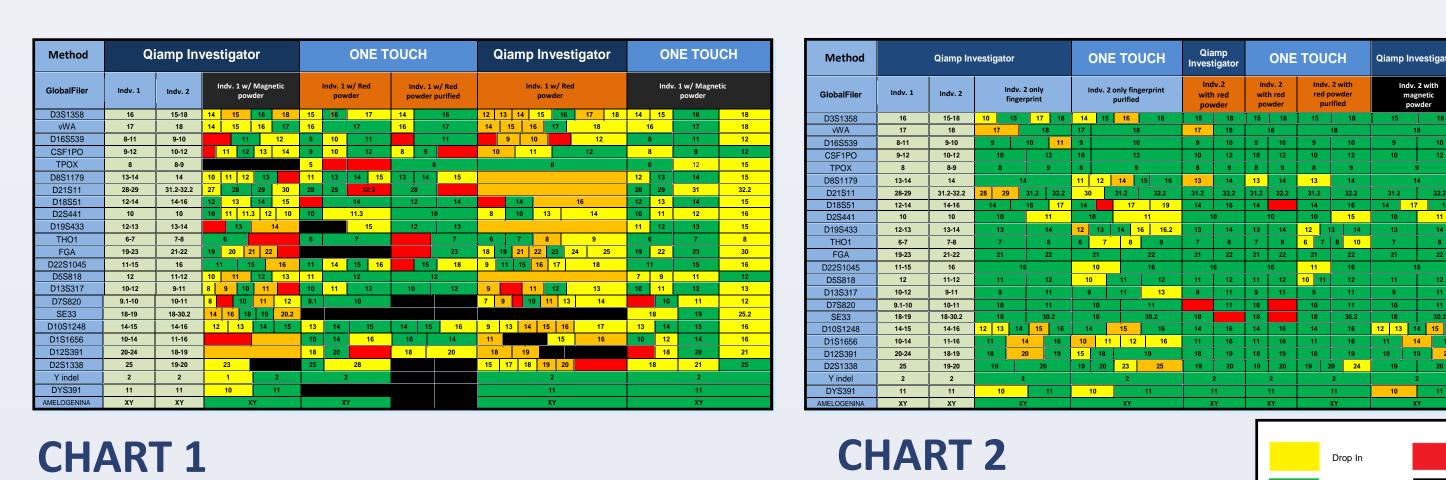


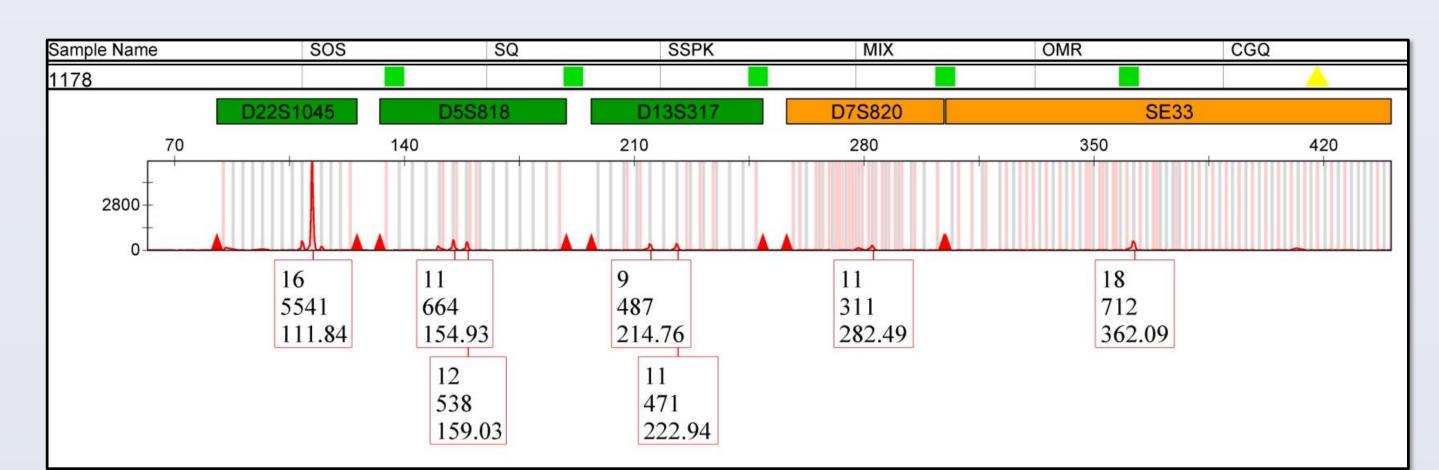
- Extraction: QIAamp® DNA Investigator, Qiagen
- Extraction: One Touch "+" Amplicon Rx Independent Forensics
- Quantification: "Quantiplex" Amplification: "Global Filer";
- Sequencer: ABI 3500;
- Analysis: GeneMapper IDX 2.1).



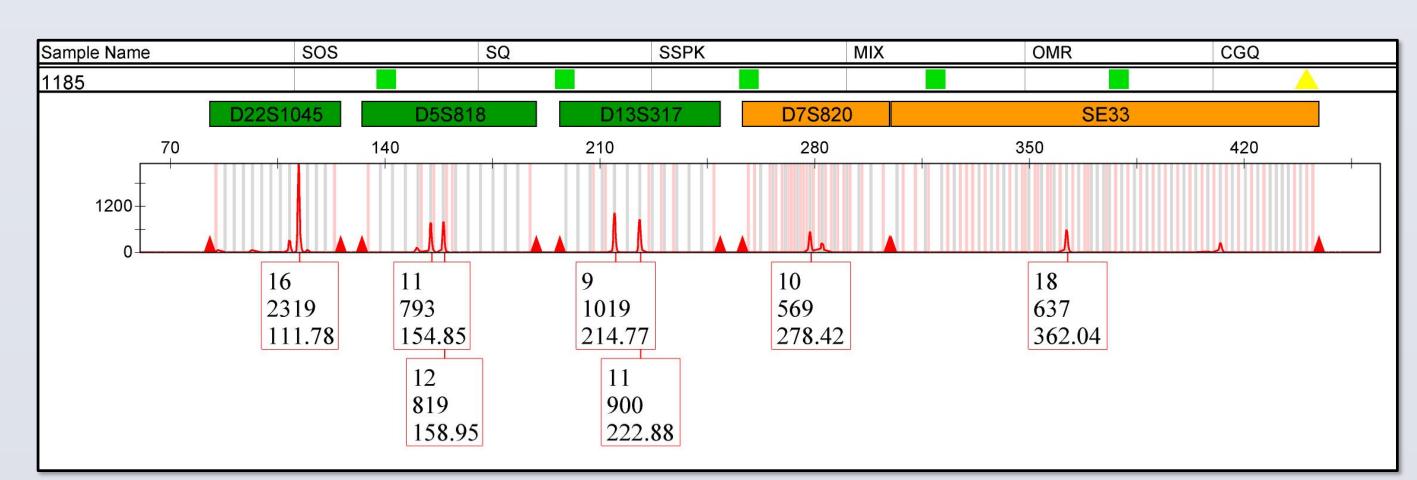
RESULTS

All samples quantified below 0.03 ng / μ L. In 14% of the samples extracted with "QIAamp® DNA Investigator" and in 40% of those extracted with "One Touch" + "Amplicon Rx", DNA profiles suitable for comparison were obtained. An increase in stochastic effects was observed.

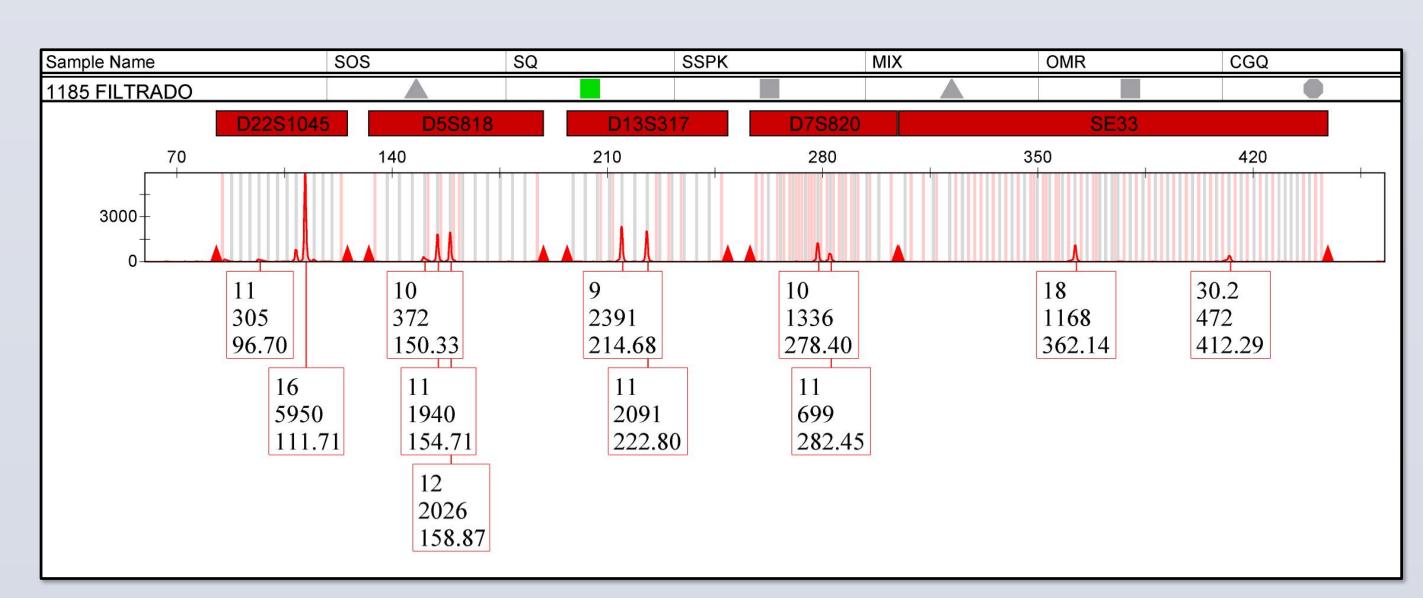




QIAMP DNA INVESTIGATOR – Individual # 2



ONE TOUCH No Purification - Individual #2



ONE TOUCH DNA Purification - Individual #2

DISCUSSION / CONCLUSION

- Better quality profiles were obtained from the samples extracted with "One Touch" + "Amplicon Rx" than with "QIAamp".
- There was no evidence of inhibition due to the use of the fingerprint powders (magnetic and red volcano powder).
- Transference and / or cross-contamination of DNA was observed among the participants who provided fingerprints. The use of disposable brushes and materials for latent development is highly recommended.
- Differences were detected in the quality and quantity of deposited fingerprint secretion between both participants. Further work will require a greater number of individuals.