

## **ISOLATION OF NUCLEIC ACID FROM SOLID SUPPORTS: A COMPARISON OF BUCCAL DNA SAMPLE COLLECTORS**

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The forensic community faces an increasing need for efficient and effective reference sample collection of nucleic acid to be used for the purpose of human identification; buccal samples may be collected using a simple cotton swab or a diverse range of commercially available devices that utilize solid support matrices to capture the sample DNA. These devices provide a suitable environment for the preservation of the sample until it is processed. Devices, such as Easicollect and FTA™, that contain chemically modified matrices, include the additional advantages of being able to capture, lyse and preserve samples simultaneously for long term storage and future testing. However, in modern forensic laboratories a multitude of methods and techniques are used in order to process the samples efficiently and make use of the DNA stored on them. The different methods used may lead to variations in the quantity and quality of DNA obtained, depending on the performance of the collection device. A study was commissioned to compare the quantity and quality of DNA obtained from a range of commercially available DNA collection devices, using organic extraction, 'punch in' and 'direct' methods. Quantity of DNA from each device was evaluated using real time PCR. Quality was determined by STR profiling and specifications were set using US and UK DNA database loading criteria for human identification. In addition, to determine the suitability of each device for collection and preservation of DNA for forensic testing and convicted offender databasing the study provides a comparison of essential characteristics of each collection device, detailing: relative ease-of-use, process time, cost and reproducibility.

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