

IMPORTANCE OF ACTIVE DRYING USING FORENSIX SWABS TAKEN FROM SALIVA STAINS

Shakhawn Mawlood, University of Strathclyde

Swabs have been used for many years for DNA evidence retrieval by forensic scientists, enabling collection of wide range of exhibit type. This study compares the DNA retrieval capability of forensiX collection tubes (Prionics, Switzerland) with normal collection swabs (Spain) as used in crime scene.

In this study saliva stains were made on non-porous substrate to simulate typical case scenarios. The study consisted of two phases: Phase one tested the collection of a different volumes (0.5-10µl) of saliva, while Phase two tested the extraction at different period time (directly to 40 days reservation). The saliva have been taken from the same volunteer and at the same time to control the quality and homogeneity of the sample. Saliva were dried onto glass slides and collected by forensiX swabs (buccal swab tube and nylon flocked versions) and with a normal cotton swab.

DNA extracted and quantified with the Investigator and Quantiplex real-time PCR kit (QIAGEN) respectively, to compare total DNA yield obtained upon DNA collection with tested swab types.

In all cases, a significant improvement in DNA recovery with forensiX swabs observed. This improvement was most pronounced for the smallest stain size and largest period as well and provided the best enhancement in DNA yield on samples with a low copy number- up to two times higher than standard swabs.

Furthermore, these swabs are actively drying the sample and therefore it is independent from the environment, protects the sample from contamination and therefore conserved.

This finding shows the importance of drying performance for preservation of DNA and swab selection.