COPAN DIVISIBLE 4N6FLOQSwabs™ ALLOWS REPEAT TESTING OR RECORD RETENTION OF THE ORIGINAL TRACE COLLECTED FROM A CRIME SCENE INVESTIGATION

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Background: Some forensic laboratories provided feedback on the inability to cut a portion of a 4N6FLOQSwabs™ for immediate testing and store the other portion for repeat testing or for record retention. Copan developed the Divisible (D) 4N6FLOQSwabs™ for evidence collection during crime scene investigations that has an innovative shaft that separates the swab in 2 equal halves. The objectives of this study were to validate the D4N6FLOQSwabs™ for: 1) Easiness of use during crime scene collection. 2) Ability to separate the swab into two equal halves prior testing. 2) Quantitate the amount of DNA collected by both halves of the swab.

Methods: For this study, preliminary test was done to evaluate the overall use of the D4N6FLOQSwab™ from crime scene trace collection to DNA detection. 1) verify the tightness of the swab shaft during the collection; 2)Optimal volume of water for pre-wetting the swab before collection; 3)proper procedure for homogeneous collection by both halves of the swab; 4) easiness of swab separation after collection; 5) Ability to collect various samples from different substrates. Traces were prepared by spotting different amounts of saliva and blood on glass and tissue and left dry. D4N6FLOQSwabs™ and regular 4N6FLOQSwabs™ were used to collect the traces. The D4N6FLOQSwabs™ was divided into 2 halves after collection: at time zero and after 2 months at RT one half and a 4N6FLOQSwabs™ were used to extract nucleic acids with the PrepFiler Express onto AutoMate Express, amplified with the Human Quantifiler Trio kit onto 7500 Real Time PCR and profiled with the Identifiler Plus onto 3130 Genetic Analyzer (Thermo Fisher).

Results: The optimal volume for pre-wetting the swab was 15 µl for glass, no pre-wetting was better for tissue substrates. Using the tip first and then rolling every side of the swab into the trace was the optimal collection procedure. D4N6FLOQSwabs™ was easy to separate both when used wet and dry, with both blood and saliva traces on glass and tissue. At T0 about 50% of DNA was recovered from half of the D4N6FLOQSwabs™ comparing to a 4N6FLOQSwabs™. Similar amounts of DNA was obtained from the other half of the D4N6FLOQSwabs™ after 2 months at RT comparing to T0, suggesting that the trace was collected by both halves of the swab and the DNA was stable on the swab.

Conclusions: The Copan D4N6FLOQSwabs™ is an innovative device for crime scene trace collections, allowing repeat testing or record retention of the original trace collected from a crime scene investigation.