

Applicability of three commercially available kits for forensic identification of blood stains

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Abstract

Various commercially available one-step immunoassays for detection of human (primate) blood have been developed. This study evaluated two hemoglobin tests, ABACard® HemaTrace® and HemDirect Hemoglobin against glycophorin A test-RSID™-Blood for following parameters: sensitivity, specificity, effectiveness using various substrates, stain remover and aged blood stains. The highest blood detection limit was observed if HemaTrace® was used. When compared with HemaTrace®, ten times lower sensitivity was observed for HemDirect Hemoglobin test. No false positives were obtained for HemDirect Hemoglobin while ABACard® HemaTrace®, probably due to its extreme sensitivity, showed high percent of false positives with saliva. The lowest sensitivity and 40% of false positives with saliva was exhibited by RSID™-Blood. In addition, this test encountered the lowest efficacy if aged blood-stains or blood treated with stain remover were used. As expected, none of the tested substrates (wood, metal, brick, and soil), influenced on blood testing, although soil substrate affected STR amplification. Conducted studies established HemDirect Hemoglobin test as more reliable for evaluated parameters than ABACard® HemaTrace® and RSID™-Blood.

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