

COMPARISON OF STR DNA PROFILES OBTAINED USING NEXT GENERATION SEQUENCING FOLLOWING ONE OF FIVE DNA EXTRACTION OR DIRECT AMPLIFICATION METHODS

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Body fluids including blood and buccal reference samples are routinely collected for human DNA typing for identification of human remains recovered in war and to aid in solving cases in the criminal justice system. FTA cards are convenient devices used to collect and store body fluids for human DNA typing. FTA cards contain preservatives and body fluids stored on the cards have been widely demonstrated to yield full STR profiles using traditional capillary electrophoresis DNA typing methods.

In this study, samples were obtained from the FTA cards using 1.2 mm and 3.0 mm punches. DNA was extracted from blood and buccal samples prepared on FTA cards using one of four methods and quantified. Three replicates of each sample were tested. The DNA samples extracted from the cards and punches processed using a direct PCR method were typed using next generation sequencing (NGS). Each of the DNA extraction and direct PCR methods led to full STR profiles using NGS for blood. The 1.2 mm punch size performed better than the 3.0 mm punch size for blood. Samples obtained from FTA cards can be used for human identification using STR DNA typing with NGS.