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DNA IQ™ SYSTEM INITIAL INCUBATION TEMPERATURE MODIFICATION STUDY

Gretchen DeGroot, M.S., Susie J. Odogba, M.S., M.S.Ed

Wisconsin State Crime Lab-Milwaukee, 1578 S. 11th St, Milwaukee, Wisconsin 53204, USA

A comparative analysis of the initial incubation temperature (at 95° C) for the DNA IQ™ System was performed in the Wisconsin State Crime Laboratory-Milwaukee. The purpose of conducting this study was due to a temperature modification (from 95° C to 70° C) by the manufacturer, Promega Corporation. The type of samples utilized for this study consisted of diluted blood and semen stains. The whole blood was diluted one eighth (1/8), and the neat semen was diluted one sixteenth (1/16); one micro liter of the aforementioned blood and semen dilutions were spotted onto Whatman's paper. A side-by-side temperature analysis was conducted on each of the samples. All of the samples were quantified using the 7000 sequencer; some of the samples (for the 95° C and 70° C temperature) were amplified and typed employing the Promega's PowerPlex® 16 System. Approximately one nanogram (ng) of DNA from each of the DNA IQ extracted samples was amplified. The results obtained from the quantifier showed that there were no significant differences between the temperatures for DNA recovery for the diluted blood samples. However, for the semen-diluted samples the 95° C temperature showed a consistently higher DNA recovery than the 70° C temperature. Based on the typing results obtained and the t-test analysis, there were no significant differences in the peak height ratios due to the 95° C temperature, or the 70° C temperature. A complete DNA profile was developed from all samples that were consistent with the DNA profile of the individual from which the samples were collected. In summary, both temperatures proved suitable for DNA recovery and did not show signs of having a deleterious effect on the DNA, such that the sample(s) tested failed to yield a suitable DNA profile due to degradation. However, recovery of as much DNA possible from semen samples for forensic applications is essential for employing automation within our laboratory system.