Comparison of AmpFISTR Profiler™ and a Modified Second Generation Multiplex for use in a National DNA Database

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In order to establish a Swedish National DNA Database a comparison of two STR multiplex systems was performed. A modified SGM from FSS (amelogenin excluded) was compared to the AmpFISTR Profiler™ from Perkin Elmer. The DNA concentration in forensic samples vary considerably which could affect result interpretation. Therefore, in each multiplex system success rate, percent stutter and locus ratio were studied in a DNA range from 0.05 ng to 250 ng. The AmpFISTR Profiler™ gave full profiles in a template range from 1 ng to 50 ng DNA. The locus ratio (the highest peak relative to lowest peak) was 2.1 ⊥ 0.4. The percent stutter (the -4bp stutter peak relative to the main peak) is under normal conditions (up to 15 ng DNA) below 10%. The modified SGM gave full profiles in a template range from 2.5ng to 50 ng DNA. The locus ratio was 7.1 ± 4.7. The percent stutter is under normal conditions (up to 15 ng DNA) below 12%. A population study of 310 unrelated Swedes is presented with the multiplex system AmpFISTR Profiler™. Hardy Weinberg equilibrium and stutter distribution are shown. Our results indicates that AmpFISTR Profiler™ is a suitable multiplex for forensic investigations and for use in a national DNA database.