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POL. LT. SORADA PITILERTPANYA : PCR-BASED DNA PRINTING OF D1S80 MINISATELLITE LOCUS FOR FORENSIC APPLICATION AND ITS ALLELE FREQUENCIES IN THAI POPULATION. THESIS ADVISORS : WATCHAREE ATTATIPPAHOLKUN, Ph.D., MONTREE ATTATIPPAHOLKUN, Ph.D, VILAIWAN KEERATIVUTISEST, M.Sc. 113 p. ISBN 974-664-252-9

D1S80 locus is a highly polymorphic marker composed of repetitive sequence elements of 16 base pairs in length and display Mendelian inheritance characteristics. It is amenable to analysis by polymerase chain reaction (PCR). The amplification of D1S80 minisatellite locus is the chosen method to analyze in forensic case work, because of its simplicity, rapidity, popularity, specificity, ability to use in a routine forensic laboratory, and also its low cost in laboratory performance. The aim of this study was to establish a practical PCR-based DNA printing technique for the amplification of D1S80 locus and to analyze the frequency distribution of D1S80 alleles in Thai population for forensic investigation service in Thailand. Allele and genotype frequencies for the highly polymorphic D1S80 locus were determined in Thai population samples using polymerase chain reaction followed by high-resolution polyacrylamide gel electrophoresis and silver staining. In 150 Thai individuals 19 alleles and 50 genotypes were observed. The D1S80 locus demonstrated a heterozygosity of 0.87, and the power of discrimination was 0.96 in this sample. No significant deviation from the Hardy-Weinberg equilibrium ($p > .05$) between observed and expected genotype frequencies has been found in the system. Hence, D1S80 amplification is a powerful DNA typing and can be used as a screening method in forensic investigation.