IDENTIFICATION OF DECOMPOSED HUMAN REMAINS, CASEWORK EXPERIENCE WITH THE PCR – BASED STR SYSTEMS

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As a part of continuing development of DNA typing procedures applicable in forensic science, some studies have been conducted on the stability of DNA obtained from postmortem tissues and organs other than blood. Those techniques may be used as a means of identification in cases of unidentifiable human remains, especially if parents, children and other relatives are available for testing. The ability to analyze by PCR-based methods trace amounts of human DNA from old bone and decomposed remains offers the opportunity to identify unknown skeletal remains as well as to carry out paternity testing in cases involving deceased parents.

The purpose of this study is to evaluate and optimize the techniques applied for the extraction and typing of DNA from decomposed human remains using the highly discriminating multiplex STR systems.

The study was carried out on decomposed human skeletal remains from different cases submitted to the DNA unit at Abu Dhabi Police Forensic Lab. Each specimen was procecced in duplicate. DNA was extracted using a modified organic method. After quantitation of the purified extracted DNA, amplification was carried with the AmpFℓSTR Identifiler PCR Amplification kit using about 1-2 ng of genomic DNA, one amplifications - for 16 loci (15 + amelogenin). The amplified product was tested on the ABI 310 genetic analyzer and the obtained profiles were interpreted and analyzed using Gene Scan analysis software and the genotypes were determined by using the Genotyper DNA fragment analysis software (Applied Biosystems).

The genotype results from the duplicate samples were compared to each other. Data presented clearly demonstrates the versatility of the method applied in extracting DNA from skeletal samples.

Key Words : Skeletal remains, Forensic DNA, PCR, STR.