IDENTIFICATION CASE OF SEVEN FIRE-VICTIMS USING DNA TYPING

Yang-Han Lee, Dong-Ho Choi, Pil-Won, Kang and Myun-Soo, Han
DNA Analysis Section, National Institute of Scientific Investigation, Seoul, Korea

The application of DNA typing methods after amplification by the polymerase chain reaction (PCR) of DNA derived from bloods from charred fire-victims was investigated. In this case, short tandem repeats (STRs), Y-microsatellites and mitochondrial polymorphic markers were used. Extraction of the blood sample was achieved using the phenol/chloroform/isoamylalcohol method and quantification of the DNA was achieved using the QuantiBlot® kit (Perkin Elmer). Five loci (LPL, vWA, F13B, FESFPS and F13A01) and three loci (D18S849, D3S1744 and D12S1090) of STRs were analyzed by multiplex-PCR and denaturing 5% polyacrylamide gel followed by silver staining. The Profiler loci (Amelogenin and nine STRs), three Y-loci (DYS391, DYS392 and DYS393) and four Y-loci (DYS19, DYS390, DYS398-I and DYS398-II) of microsatellites were analyzed by multiplex-PCR. Amplified fragments were separated on a 6% denaturing polyacrylamide sequencing gel, detected fluorescently on a ABI™ 377 Prism® DNA sequencer and sized by an internal lane standard with the GeneScan® 672 software using the local southern method for band size estimation and standard allele marker. Two hypervariable regions (HV1 and HV2) of mitochondrial DNA were analyzed by PCR-direct sequencing, and polyacrylamide gel electrophoresis using Perkin Elmer Prism® 377 DNA sequencer. All seven victims were successfully identified by DNA profiling data of references. This case can be used as the minimum standards of practice for parentage testing laboratories in Korea.