

USING DNA EVIDENCE IN A COURT OF LAW

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DNA profiling or fingerprinting is a popular method in forensic practice today. This technique refers to the characterization of one or more relatively rare features of an individual's genome. The DNA of an individual could be made available, extracted from hair bulbs, blood, semen, bone marrow or any other tissue. However, in all such instances the structure of the DNA remains identical, thus, providing the basis for DNA profiling for forensic purposes. Applications of DNA profiling in forensic practice include when ; paternity or maternity of a child is in dispute , identification of a victim is in question especially when facial features are distorted , identification of a wrongdoer ,involved in a crime such as homicide, rape, assault, wildlife poaching, is an issue to be solved in court. This poster therefore, attempts to highlight the advantages of DNA evidence in medico legal adversities, using a case study.

This case study describes the establishment of paternity of a child using DNA fingerprinting. Venous blood was drawn from the child in question, the mother and from the putative father, after obtaining informed consent. The DNA was then isolated using the Phenol: Chloroform technique. Three polymorphic loci in all three genomes were amplified using CTT multiplex probe by polymerase Chain Reaction (PCR). The amplified short tandem repeats (STR) were then subjected to electrophoresis to visualize the banding pattern. The extracted DNA was subjected to purification quality check and quantification before PCR. The extraction was diluted five times using TE buffer, added to the Nanocep tube and centrifuged for 10 minutes at 5000 rpm. In addition, the purified concentrated DNA was collected into a fresh eppendorf tube. Subsequent to purification, quality of DNA was checked by running the DNA in an agarose gel at 80 V and 230 mA. The quality of the three samples in question in this case was satisfactory. Quantification was done by using a UV spectrophotometer and visualised at 260 nm. The quantity was sufficient for PCR.

The results revealed that in one loci all three participants were homozygous , in the second loci all three participants were heterozygous and in the other analyzed loci the mother and the child were homozygous while the father was heterozygous.

It is evident that the analysis of STR loci provides a positive opinion regarding the paternity .However, in providing an opinion to courts regarding the paternity of a child, it is relevant to provide with measures of chance of paternity that include statistical frequency; paternity index (PI), and the probability of paternity (PP), for which an established DNA data bank is required.