CASE REPORT

Abstract: A putrefied cadaver of a middle-aged woman was found drifting in the “Kii” water course. Autopsy findings indicated that the postmortem duration was about one week, and the cause of death was assumed to be drowning. In this case, a nail was collected as a sample for personal identification. After five months of police investigation, persons thought to be her family, husband and child, were found. A combination of D1S80 and the short tandem repeat (STR) typing system using an AmpFISTR Profiler™ PCR Amplification kit was performed for identification. Nine STRs (D3S1358, vWA, FGA, TH01, TPOX, CSF1PO, D5S818, D13S317 and D7S820) and Amelogenin were analyzed by this kit. Those DNA typings successfully confirmed the family relation for personal identification of the cadaver. This analysis system may be useful for identification of a decomposed cadaver.

Keywords: forensic casework, personal identification, putrefied cadaver, DNA analysis, short tandem repeat
ABO blood type examination

Blood type

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

DNA typing

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

1) D1S80 type

2) Short tandem repeat (STR) and Amelogenin types
Application of Profiler PCR kit for identification of a putrefied cadaver

Y. Fujita et al.

The application of the Profiler PCR kit for identification of a putrefied cadaver involves several steps. First, the cadaver is collected and transported to the laboratory for examination. The cadaver is then subject to a series of procedures to extract DNA, which is crucial for the identification process.

The extraction process typically involves initial processing to stabilize the DNA, followed by a lysis step to solubilize the DNA from the cellular matrix. This step is critical as it ensures the integrity of the DNA, allowing for accurate analysis.

Following lysis, a purification step is carried out to remove any contaminating substances and to concentrate the DNA sample. This step is essential to ensure the quality and quantity of the DNA are sufficient for further analysis.

Once the DNA is purified, it can be subjected to PCR amplification. PCR is a process of DNA synthesis that exponentially increases the concentration of a target DNA sequence. This increases the amount of DNA available for analysis, making it easier to detect and identify.

The amplified DNA can then be analyzed using various methods, such as gel electrophoresis or capillary electrophoresis. These methods allow for the visualization and quantification of the DNA fragments, providing valuable information for the identification process.

Finally, the DNA analysis is compared to reference databases or profiles to determine the identity of the cadaver. This process relies on the uniqueness of each individual's DNA profile, which is established by genetic variations specific to each person.

In conclusion, the application of the Profiler PCR kit for identification of a putrefied cadaver is a critical step in forensic investigation. It allows for the accurate and reliable identification of unknown individuals, providing crucial information for the justice system and families of the deceased.

References