

IMPORTANCE OF DNA EVIDENCE IN CRIMINAL PROCEEDINGS

Sameeksha Das

Research and Applicability

Amity University Chhattisgarh

DNA analysis is crucial for criminal investigations as well. This study looks into DNA recognition technology and how it's used in criminal cases.

Our country is getting better in criminal cases because of the application of forensic techniques, which keeps up with contemporary judicial trends. Indian justice uses forensic evidence in its pursuit of the truth, including DNA analysis, postpartum reports from medical specialists, poisoning, deontology, ballistics, and fingerprint tracing. To address significant issues in forensic science, this article looks at specific cases and relevant legal requirements. These include court-ordered DNA testing, the use of DNA evidence to identify victims and offenders in criminal prosecutions, and the limitations of DNA profiling.

INTRODUCTION

DNA is usually used in one of two ways to solve crimes. Evidence gathered from the crime scene and a sample of the suspect's DNA can be compared to identify a suspect. The results of this comparison may be utilised to ascertain whether the suspect was the real perpetrator of the crime. More often than not, DNA evidence is utilised in criminal courts across the country to exonerate those who have been wrongly charged or convicted as well as to condemn the guilty. Because of this increased obligation, victim support providers are expected to have a greater understanding of the potential usefulness of DNA evidence in the cases of their clients. Section 112 of the Indian Evidence Act, 1872 relates to the legitimacy of a child born during wedlock. The law presumes that if a child is “born during the continuance of a valid marriage between his mother and any man, or within two hundred and eighty (280) days after its dissolution, the mother remaining unmarried, it is conclusive proof of its legitimacy unless it can be proven that the parties to the marriage did not have any access to one another. The legislative spirit behind this section seeks to establish that any child born during a valid marriage must be legitimate. The law does not presume dishonourable or immoral actions unless conclusive proof can be produced for the same.

Every forensic technique used for individualization, including DNA profiling, blood grouping, dental impressions, striations on bullets, hair and fibre comparisons, voice spectrograms, neutron-activation analysis, fingerprints, and serum-protein and enzyme typing, requires the capacity to reasonably match samples in terms of traits that can aid in distinguishing one source from another. Scientifically accepted methods must enable the accurate measurement and comparison of physical traits if such evidence is to be admissible in court. Similarly, there has to be evidence from science to support the conclusion that carefully conducted comparisons can identify potential sources. The section is predicated on the idea of moral conduct. It is not possible to totally rule out the possibility of such behaviour, in which case the person contesting the paternity is being unfairly blamed. The goal of the law is to administer justice in a just and effective way. This fundamental goal is defeated when moral precepts serve as the foundation.

IMPORTANCE OF DNA EVIDENCE

Apart from identical twins, no two persons have the same DNA, which makes DNA a very useful tool for research. DNA evidence, thus, can be used to identify a suspect or disqualify one based on evidence gathered from a crime scene. For instance, biological evidence left on the victim's body or in other areas of the crime scene during a sexual assault may include hair, skin cells, semen, or blood. To effectively use DNA as evidence, it may also be necessary to gather and examine elimination samples in order to pinpoint the DNA's precise source. Anyone who was able to legally enter the crime site and may have left biological evidence may provide an elimination sample. To account for all of the DNA recovered on the victim or at the crime scene, it could be necessary, for example, to acquire an elimination sample from each person who had consensual sexual relations with the victim within 72 hours of the alleged assault.

Crucial considerations pertaining to the identification, gathering, transportation, and storage of DNA evidence should be understood by victim assistance providers, crime scene technicians, nurse examiners, and other medical professionals. DNA evidence may not be gathered, may become tainted, or may deteriorate if it is not initially detected at the crime scene or on the victim. Sexual assault victims should not shower, change clothes, or wash any portion of their body following the assault in order to aid with collecting. Semen, saliva, and skin cells are examples of evidence that can be discovered on clothes or bedding, beneath nails, or in the mouth, anal, or vaginal areas.

A doctor or sexual assault nurse examiner should gather any evidence found on or within the body of the victim. As soon as possible after the assault, a medical checkup should be performed to treat any injuries, check for STDs, and gather forensic evidence such hair and fingernail scrapings. Exams are typically

performed on the mouth, anus, vagina, and other body areas that may have come into touch with the attacker. The accused is still a potential source of the specimen if the DNA sample from their specimen matches the evidence sample. There's a possibility that someone else has the same DNA profile because only a portion of STR markers are analysed. The likelihood that the suspect is actually the source of the evidence increases if the genes in the DNA sample are unusual and can be linked to just a small number of individuals in a certain community. Therefore, it is necessary to evaluate the significance of matching profiles based on accepted statistical principles. In addition, any DNA results provided to courts have to include possibility percentages and/or match probabilities in order to properly evaluate the importance of the evidence discovered. Rebuilding the facts and advancing criminal investigations are greatly aided by the addition or removal of suspects. DNA evidence, therefore, is accurate and unchangeable, while witness statements may be partial or subject to a variety of psychological influence.

DNA evidence must always be properly and effectively collected, stored, and recorded in order for the jury to find the evidence to be trustworthy and grant admission in court. In India, there is no clear legislation that can provide courts and investigating agencies with detailed instructions on how to proceed in cases where evidence is being used. Moreover, neither the Indian Evidence Act of 1872 nor the Code of Criminal Procedure of 1973 have any specific provisions addressing issues related to forensic science, technology, or science. The absence of such a legislation makes it extremely difficult for an investigating officer to obtain evidence that uses the existing processes to support the accused person.

The 2019 DNA Technology Regulation Bill, which includes a Schedule of offences for which DNA evidence may be used, aims to control the use of DNA evidence. The offences listed in this Schedule are mostly those covered under the Indian Penal Code, 1860, as well as certain civil matters, such as a paternity suit. The Bill also explores the process that must be followed in order to gather DNA evidence, create and oversee DNA Data Banks at the national and local levels, and designate who has the ability to oversee the operation of DNA labs and Data Banks. In addition, the Bill defines as offences the taking of DNA without consent and the unauthorised sharing of DNA data.

USING DNA FOR SOLVING CASES

One of two methods is typically utilised to solve crimes using DNA. When a suspect is identified, evidence from the crime scene can be compared to a sample of that suspect's DNA. This comparison's findings might provide light on whether the suspect actually committed the crime. Biological evidence from the crime scene can be examined and matched to offender profiles in DNA databases to help identify the culprit in situations

where a suspect has not yet been identified. DNA databases can be used to connect evidence from one crime scene to another. Assume, for instance, if a man was found guilty of sexual assault. He was asked to submit a sample of his DNA at the time of his conviction, and the resulting DNA profile was added to a database. A few years later, there was yet another incident of sexual assault. Working with the victim, a Sexual Assault Nurse Examiner was able to gather biological evidence from the rape. After this evidence was examined, the profile that was produced was compared to a DNA database, and the man's DNA profile was found to match. He was found, put on trial, and given a punishment for his second offence. In this hypothetical instance, he was also kept from committing any further crimes while he was a prisoner. DNA databases are typically used to correlate DNA evidence to profiles of DNA offenders. The federal government started laying the foundation for a network of federal, state, and local DNA databases in the late 1980s so that DNA profiles could be shared and stored. The Combined DNA Index System (CODIS) is a system that keeps DNA profiles collected through federal, state, and municipal systems in a collection of databases that are accessible to law enforcement organisations nationwide for law enforcement-related purposes. Evidence from crime scenes can be compared by CODIS to a database of DNA profiles belonging to convicted criminals. Additionally, CODIS helps identify serial killers by connecting DNA evidence gathered from several crime locations. Law enforcement officials have occasionally been able to resolve decades-old crimes using samples of DNA-rich material (such as fingernail clippings) that were gathered before DNA testing was feasible thanks to advancements in DNA profiling.

In other instances, it's possible that a DNA profile was made at the scene of the crime, but the first criminal inquiry turned up no matches. Thanks to recent database technology, which makes it possible to save and quickly search DNA profiles, this issue is now easier to solve. On the other hand, advancements in DNA profiling have also allowed law enforcement to clear individuals who were falsely convicted of crimes they did not commit.

It has taken forensic scientists decades of labour and fine tuning to establish the very accurate testing and analysis technologies that are currently accessible; the road to modern DNA profiling has been a long one. This article explores the history of DNA profiling techniques and describes the procedure's current function in the modern criminal justice system, along with its advantages and disadvantages.

Although DNA plays a significant role in criminal solving, it is not the only one. When it comes to apprehending criminals, other facets of criminal investigation, such as forensic psychology, continue to be crucial. We'll also talk about the function of forensic psychologists, how they affect criminal justice, and the future prospects for their field.

DNA PROFILING AND USES IN THE CRIMINAL JUSTICE SYSTEM

These illustrations show a few of the main applications of DNA profiling in the current legal system. The procedure can be used to pinpoint possible suspects, connect them to a crime, and establish their whereabouts. DNA profiling also improves the accuracy of the criminal justice system. Eyewitness statements are not always trustworthy, especially when crimes are being committed under duress. It is evident that the strength of DNA technology, along with advancements in DNA collection and processing, has fundamentally changed the criminal justice system. It's crucial to remember that DNA profiling is just one step in the entire criminal justice process, even while it can be quite accurate and helpful in apprehending perpetrators.

DNA alone cannot prove someone guilty of a crime. For example, forensic psychology continues to be a crucial component of the procedure. The utilisation of psychology in the legal domain is essential for enhancing law enforcement's comprehension of unlawful conduct. To find out who committed a crime and why, for example, forensic psychologists can be of assistance. It can also assist in determining the motivation behind a criminal's choice of weaponry or other specific method of crime-committing. In addition to treating victims of crime, forensic psychologists may engage in victim advocacy.

CONCLUSION

When DNA recognition technology connects a suspected individual with an offence, it can lead to the conviction and punishment of the offender. This is the clearest benefit of employing DNA recognition in criminal situations. This might also save money by avoiding expensive alternatives such using antiquated, ineffective investigative techniques, which occasionally could cause investigators to focus on the wrong person. The availability of DNA evidence may also have a positive effect on the behaviour of offenders by encouraging confessions or undermining attempts to evade DNA testing or provide a plausible explanation for a profile match. The increased likelihood of identification—especially with the creation of DNA profiles—may even deter some criminals from committing new crimes.

The investigative potential of DNA evidence may lead to demands to cooperate with police inquiries, so weakening the protection against self-incrimination. The use of DNA evidence necessitates physical integrity breaches and the analysis of genetic information about an individual, some of which may be required by law. The utilisation of forensic evidence by detectives may lead to a major change in the field of criminal investigation, even though the privacy violations resulting from DNA sample processing and non-coding DNA analysis are very small.