

The Application and Regulation of DNA Identification Technology in Criminal Justice

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Abstract: *In addition to being often utilized to identify criminal activity, forensic DNA analysis is also frequently employed in civil disputes to prove the paternity of disputed children. Affiliation orders, divorce processes, and instances of questioned legitimacy are where the bulk of cases involving challenged paternity occur. In recent years, there has been an increase in the use of DNA evidence in criminal investigations. Low enforcement has benefited from the use of DNA testing to identify perpetrators and solve complex crimes like rape and murder with rape. Computerized DNA databases for the identification of criminal criminals have been developed in several countries, making it feasible to identify people quickly in mass disasters using DNA typing. With the exception of identical twins, no two individuals have the same DNA, making DNA a formidable investigative tool. To put it another way, each person's DNA is distinct because the sequence or order of the DNA building blocks varies depending on the location within the cell. In criminal investigative instances, DNA is also quite significant. The science of DNA identification is examined in this essay, as well as its use in both civil and criminal cases. Analysis of the legislation pertaining to various countries is also included. The Indian Evidence Act of 1872 and the Code of Criminal Procedure of 1973 do not have any explicit rules to address forensic science concerns, despite the fact that DNA has a significant role to play in criminal investigation cases including murder, rape, contested paternity, man - made catastrophe, etc. In this essay, the science of DNA identification and its application to criminal investigations, trials, appeals, and post - conviction actions are studied. It discusses the key advantages and disadvantages of the growing use of DNA identification in the criminal justice system, with a focus on India.*

Keywords: Identification, Legitimacy, Privacy, constitutional validity, IPC, Cr. PC, Indian Evidence Act

1. Introduction

Francis H. Crick and James D. Watson, two scientists, originally identified DNA (Deoxyribonucleic Acid), often known as the genetic code or building block of life, in 1953. DNA's double - helix structure, which resembles a twisted ladder, was discovered by Crick and Watson, who also proved its significance as the substance that makes up an organism's genetic blueprint. The compositional pattern of the chemicals that make up the individual living form's DNA dictates how that life form will grow. The DNA in every cell is the same. Whether it be a skin cell, sperm cell, or blood cell, every cell in a person's body. The exception being a person's DNA is unique, even if they are identical twins. Using highly specialized scientific equipment, a DNA molecule from the suspect is first dismantled, and then certain segments are separated and analysed for use in DNA analysis for a criminal inquiry. Then, to determine whether the two are similar, the suspect's DNA profile is matched to one obtained from a sample of physical evidence. If there is a definitive non - match, the suspect might not be taken into account. If there is a match, to assess the likelihood that the sample of physical evidence comes from, statistical analysis is carried out. A different individual whose DNA profile matches that of the suspect. Judges make decisions based on this statistical finding whether a suspect is responsible or not.

Legal Consequences

Deoxyribonucleic acid, or DNA, the substance that makes up the genetic code of most creatures, is one of the several new techniques that science has produced for the study of forensic evidence. This analysis is both potent and contentious. DNA analysis, sometimes referred to as DNA typing or DNA profiling, is the process of examining DNA present in physical evidence such as blood, hair, and semen

to see if it can be compared to DNA extracted from particular people. DNA testing is now often used as evidence in criminal cases. Additionally, it is employed in civil disputes, notably when establishing paternity of identity.

DNA Profiling: Indian Justice System

DNA evidence must always be accurately and properly collected, preserved, and documented in order to convince the court that the evidence being presented is credible. Only then will DNA evidence be admissible in court. There is no explicit legislation in place in India that can give the investigative authorities and the court precise instructions on how to proceed when using DNA as evidence.

Additionally, the Indian Evidenced Act of 1872 and the Code of Criminal Procedure of 1973 do not have any explicit provisions for handling matters related to science, technology, and forensic science. Because there is no such provision, an investigating officer has a difficult time gathering evidence that uses contemporary techniques to establish the guilt of the accused. A police officer may seek the help of a medical professional in good faith for the purpose of the inquiry under Section 53 of the Code of Criminal Procedure (1973). However, it does not provide the complainant the ability to collect bodily fluids like blood or sperm in order to press charges against the accused. The Cr. P. C. (amendment) Act of 2005 amended the Cr. P. C. by adding two new provisions that allow the investigating officer to get a DNA sample from the victim's and the accused's bodies with the aid of a doctor. Both the medical examination of the rape victim and the examination of the person accused of rape are permitted under these laws.

However, because of the divergent opinions expressed by the Supreme Court and numerous High Courts in different

cases, the admissibility of these evidences has remained in question. Although judges accept the scientific veracity and verifiability of DNA testing, they can refuse to allow this evidence due to a legal or constitutional restriction or, in certain situations, public policy. The Indian Evidence Act of 1872 and the Code of Criminal Procedure of 1973 do not have any rules to address concerns related to science and technology, hence it is important to review these sections and clauses.

After DNA testing was used in the judicial system, several industrialized nations were obliged to amend their statutes. There are provisions in the Indian Evidence Act, 1872 that determine a child's parentage, such as section 112, which states that unless it can be proven otherwise, a child born in a legally binding union between a mother and a man within 280 days of the union's dissolution proves that the child belongs to the man. However, there is no specific provision that would apply to modern scientific methods. In situations of civil disputes, DNA analysis is crucial for establishing a child's paternity. The need for this evidence is particularly pressing in criminal, civil, and maintenance proceedings under Section 125 of the Criminal Procedure Code.

Certain legal and practical rights of an individual, such as "Right to privacy" and "Right against Self - incrimination," have been seriously challenged by the development of DNA technology. The court's reluctance to accept evidence based on DNA technology is due in large part to this, which is the main reason. According to Article 21 of the Indian Constitution, which also guarantees a person's right to life and personal liberty, there is also a right to privacy. Article 20 (3) of the same document guarantees a person's protection from self - incrimination in criminal proceedings by prohibiting them from providing evidence that could be used to prove their guilt.

The Right to Life and Personal Liberty, however, has not always been recognized by the Supreme Court as an unalienable Right. In the case of **Govind Singh v. state of Madhya Pradesh**, the Supreme Court ruled that a basic right must be subject to limitations based on a compelling public interest. The Supreme Court determined that the right to privacy is not a constitutionally guaranteed right in another case, **Khark Singh v. state of Uttar Pradesh**.

The right to life and personal freedom, which are protected by our Indian Constitutions, are not absolute rights and may be subject to some restrictions, as is evident from the many judgements that the Supreme Court has occasionally rendered. And it is on this premise that the Supreme Court upholds the validity of the laws affecting the right to life and personal liberty, including medical examination. And it is based on the fact that several courts throughout the nation have approved the use of DNA technology in an inquiry and the production of evidence. A special law that would set the rules for DNA testing in India is urgently needed in order to ensure that new technology may be used properly.

Global Prospective and Historical Development on Admissibility of DNA in Criminal Justice System

1) Anna Anderson said in the 1950s that she was the Russian Grand Duchess Anastasia Nikolaevna. After

she passed away in the 1980s, tissue samples that had been held at a hospital in Charlottesville, Virginia after a treatment were examined using DNA fingerprinting. The results revealed that she had no ties to the Romanov family.

- 2) Richard Buckland, who admitted to raping and killing a minor close to Leicester, the location where DNA profiling was first discovered, was cleared of all charges in 1986 despite this. The first time DNA fingerprinting was applied to a criminal case was in this instance.
- 3) The first instance of the use of genetic fingerprinting in a criminal court occurred in the 1987 trial of a man who was charged with having illicit relations with a 14 - year - old female who was mentally challenged and gave birth to his child. The first instance of the use of genetic fingerprinting in a criminal court occurred in the 1987 trial of a man who was charged with having illicit relations with a 14 - year - old female who was mentally challenged and gave birth to his child.
- 4) Tommy Lee Andrews, a Florida rapist, was found guilty of raping a lady during a burglary in 1987 and was given a 22 - year jail sentence. He was the first person in the US to be found guilty based on DNA evidence.
- 5) The first conviction utilizing DNA evidence was reversed in 1989 against Chicago resident Gary Dotson.
- 6) Allan Legere, a prison escapee in 1989, committed four murders, and in 1991, he was found guilty as the first Canadian to be found guilty based on DNA evidence. The defense of the defendant contended throughout the trial that erroneous positive results may result from the area's relatively small gene pool.
- 7) In 1992, it was established via the use of DNA evidence that Nazi physician Josef Mengele was interred in Brazil as Wolfgang Gerhard.
- 8) Mark Alan Bogan was found guilty of murder in 1992 according to DNA evidence from a paloverde tree. It was discovered that the DNA of seed pods discovered in Bogan's vehicle and seed pods from a tree near the crime site matched. In a criminal prosecution, plant DNA has never before been introduced.
- 9) The first murder conviction and death sentence to be reversed by DNA evidence occurred in 1993 with Kirk Bloodworth.
- 10) Nine years have passed since the death of Seattle punk band The Gits lead vocalist Mia Zapata, who was raped and killed in 1993. Although a database search in 2001 came up empty, the killer's DNA was obtained when he was detained in Florida in 2002 for burglary and domestic violence.
- 11) Wayne Butler was found guilty of killing Celia Douty in 2001. It was Australia's first murder that was solved via DNA profiling.
- 12) Josiah Sutton was given a twelve - year term on a charge of sexual assault, although he was only sentenced to four years in jail before being released in March 2003. After the Houston Police Department's crime lab incident of improper handling of DNA evidence, suspect DNA samples collected from Sutton were retested.

- 13) Dennis Halstead, John Kogut, and John Restivo successfully appealed their conviction for murder in June 2003 thanks to fresh DNA evidence. Of the thirty - plus - year sentences that the three men were serving, eighteen years had already passed.
- 14) DNA evidence was principally utilized in the Robert Pickton trial (convicted in December 2003) to identify the victims and, in many instances, to establish their existence.
- 15) Senior judges ordered the release of Sean Hodgson in March 2009 after he had served 27 years in prison for murdering Teresa De Simone, 22, in her automobile in Southampton thirty years prior. DNA from the site was not his, according to tests. The investigation has now been revived by British police.

Indian Prospective on Admissibility of DNA in Indian Legal System

DNA testing gives accurate identifying information and is legal. DNA evidence must always be accurately and properly collected, preserved, and documented in order to convince the court that the evidence being presented is credible. Only then will DNA evidence be admissible in court. There is no explicit legislation in place in India that can give the investigative authorities and the court precise instructions on how to proceed when using DNA as evidence.

Additionally, the Indian Evidence Act of 1872 and the Code of Criminal Procedure of 1973 do not have any explicit provisions for handling matters related to science, technology, and forensic science. Because there is no such provision, an investigating officer has a difficult time gathering evidence that uses contemporary techniques to establish the guilt of the accused. A police officer may, in good faith, seek the aid of a medical professional for the investigation under Section 53 of the Code of Criminal Procedure from 1973. However, it does not allow the complainant to gather bodily fluids like blood or sperm in order to charge the accused with a crime.

The Cr. PC (Amendment) Act, 2005, which amended Cr. PC, included two new provisions allowing the investigating officer to get a DNA sample from the victim's and the accused's bodies with the aid of a doctor. Both the medical examination of the rape victim and the examination of the person accused of rape are permitted under these laws. However, because of the divergent opinions expressed by the Supreme Court and numerous High Courts in different cases, the admissibility of these evidences has remained in question.

Although judges accept the scientific veracity and verifiability of DNA testing, they can refuse to allow this evidence due to a legal or constitutional restriction or, in certain situations, public policy. As there is no regulation in the Indian Evidence Act of 1872 or the Code of Criminal Procedure of 1973 to handle science and technology challenges, it is necessary to review these parts and legislation. After DNA testing was used in the judicial system, several industrialized nations were obliged to amend their statutes.

There are provisions in the Indian Evidence Act, 1872 that determine a child's parentage, such as Section 112, which states that, unless it can be proven otherwise, a child born in a legally binding union between a mother and a man within 280 days of the union's dissolution proves that the child belongs to the man. However, there is no specific provision that would apply to modern scientific techniques. In situations of civil disputes, DNA analysis is crucial for establishing a child's paternity. The importance of this evidence is especially important in criminal, civil, and maintenance trials under Section 125 of the Criminal Procedure Code.

Some legal and basic human rights, such as the "Right to privacy" and the "Right against Self - incrimination, " have been seriously threatened by the arrival of DNA technology. The court's reluctance to accept evidence based on DNA technology is due in large part to this, which is the main reason. According to Article 21 of the Indian Constitution, which also guarantees a person's right to life and personal freedom, there is also a right to privacy. Article 20 (3) of the same document also guarantees a person's protection from self - incrimination in criminal proceedings by prohibiting them from testifying against themselves or in ways that could prove they are guilty.

The Right to Life and Personal Liberty, however, has not always been recognized by the Supreme Court as an unalienable Right. The Supreme Court ruled in *Govind Singh v. State of Madhya Pradesh* that a basic right must be subject to limitations based on a compelling public interest. The Supreme Court's varied rulings over the years have made it abundantly obvious that the rights to life and personal liberty guaranteed by our Indian Constitutions are not absolute and may be subject to limitations. And it is on the basis of this that the Supreme Court upholds the validity of legislation affecting the right to life and personal liberty, including regulations requiring medical examination.

And it is based on the fact that several courts throughout the nation have approved the use of DNA technology in an inquiry and the production of evidence. A special law that would set the rules for DNA testing in India is urgently needed in order to ensure that new technology may be used properly. From the perspective of the admissibility of such evidence, the Supreme Court's decision not to overturn the Delhi High Court's judgment requiring senior congressman N. D. Tiwari to submit to the DNA test is crucial. In this case, RohitShekhar has asserted that he is N. D. Tiwari's biological son; however, N. D. Tiwari is unwilling to submit to such a test, claiming that doing so would violate his right to privacy and subject him to public humiliation.

The Supreme Court, however, dismissed this argument, ruling that there was no purpose in being humiliated as the test results would be kept secret and in a sealed envelope. In addition, the Supreme Court declared that the young guy should not be left without any recourse because we want him to receive justice. The way Indian courts will eventually permit the use of DNA technology is something that will be extremely intriguing to watch.

2. Suggestions

- For the accused to disclose their DNA samples to the investigating Agencies on the instruction of an appropriate court, the Criminal Procedure Code, 1973 has to be amended by the government.
- The government has to act quickly to build a DNA database based on ethnicity and geography.
- When collecting DNA, accountability and openness are required.
- Forensic experts must also possess the necessary legal knowledge and be well - versed in all government regulations and decrees that are periodically released.
- A change must be made to Section 112. The harmed party must be given a fair chance to use a DNA test to refute the presumption established by Section 112 of the Indian Evidence Act, 1872, whether they are the husband, wife, or kid.
- The UK may be used as a model for the adoption of cutting - edge technology such as Laboratory Information Management Systems and Automation (LIMS), familial searches, and LCN DNA testing. You can copy the United States of America's post - conviction DNA testing procedure.
- India is now very populous and has inadequate money, staffing, and lab resources compared to the United Kingdom and the United States of America. The proper direction should be taken from other countries, particularly the United Kingdom and the United States of America, who have effectively incorporated DNA laws into their own countries.

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3. Conclusion

The effect of DNA as evidence on the Indian social system and judicial system has increased widely and its credibility is increasing day by day. In today's era, DNA as evidence is being recognised as conclusive evidence in the judicial system. Although DNA is an accurate science, there are still issues with using it as evidence. These issues are made worse in India since the gathering of evidence is often done slowly and the validity of medical tests is sometimes questioned. Although courts make an effort to stay up, it is stated that the law lags behind science by a considerable margin. In my opinion, the court should exercise caution when using such evidence to ensure that all parties receive justice. On the civil side, the Supreme Court has issued remarks advising judges to be exceedingly cautious when requesting DNA tests. However, there are no such rules or regulations on the criminal side, where there is a high level of guilt and punishment, and this is an area that needs our attention.

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