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DNA EVIDENCE IN INDIA

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ABSTRACT

DNA is a unique set of genetic codes that carries hereditary information. Every human being on earth has a different set of DNA except for identical twins. It is one of the most important revolutions in the field of forensic science. DNA can be used to identify the person and the accuracy of DNA profiling is almost hundred percent. It can be easily extracted from body fluids like semen, blood, saliva, or any other body tissue. Some trace of DNA is always left at the crime scene. It can be picked up from the smallest of body tissues in some cases it was even picked up from cigarette butts. It thus has a huge potential in fast-tracking the investigation and identification of suspects and exoneration of innocent. It can be used in tracing the lineage. It can be used in criminal cases like rape or murder. Although there is acceptance of DNA evidence in the judiciary in India. There is still no law regulating DNA profiling in India. This article seeks to analyze the potential of DNA evidence, the possible challenges, and the use of DNA technology in India.

KEYWORDS-DNA, DNA profiling, DNA evidence, DNA samples, DNA collection and self-incrimination, DNA collection, and privacy concerns

INTRODUCTION

The development of medical science and technology in the last few decades has revolutionized many areas of human life. These developments have also opened new avenues in the potential of the use of forensic science in criminal and civil proceedings. If these developments are utilized prudently in forensic science they can greatly increase the efficiency of justice delivery, and reduce the time taken for investigation.

One of the most revolutionary development is DNA fingerprinting. The potential of DNA fingerprinting in the Indian legal system is still not fully realized. In the past few decades, different nations have made attempts to make laws for the use of DNA evidence that considers both positive and negative aspects of DNA fingerprinting.

DNA (Deoxyribonucleic acid), sometimes known as the building component or genetic blueprint of life, was discovered in 1953 by scientists Francis H. Crick and James D. Watson. Crick and Watson discovered DNA's double-helix structure, which resembles a twisted ladder, and confirmed DNA's significance as the substance that contains the genetic code of living species.

DNA stands for Deoxyribonucleic acid. It is also known as "building blocks of life." DNA is genetic material stored in every cell of the body except red blood cells. It is because of the DNA that we consist of different characteristics derived from our parents that is different from every other human being in the world. Every individual has a unique set of DNA. It is hereditary. Every cell in the human body has twenty-three pairs of chromosomes containing genetic information. Both parents contribute one chromosome in these twenty-three pairs of chromosomes. No two human beings have the same set of DNA except for identical twins.

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In 1985, British scientist Alec Jeffreys created the current DNA profiling technique. A technique for identifying a person is DNA profiling, sometimes referred to as DNA fingerprinting.[39]

DNA profiling is a technique that makes it possible to identify a person by taking biological samples from their skin, hair, blood, saliva, and other body fluids. Every cell in our body has DNA, thus if a biological sample is found, the DNA of any individual may be easily extracted from it. Your DNA is distinct from everyone else's, thus if a sample is taken, a special DNA profile will be made using it.

Because DNA analysis, like a thumb imprint, produces a unique and particular profile for a person, Prof. Jeffreys created the phrase DNA fingerprint, which later became known as DNA profiling and DNA typing.

Use Of Technology in Law

DNA technology can play a major role in civil and criminal proceedings. In 1986, DNA made its dramatic debut in the criminal justice system when Prof. Alec Jeffreys of Leicester University in England aided the United Kingdom police in identifying the rapist of two underage girls. In this instance, DNA as a forensic instrument not only assisted in identifying the true criminal, Colin Pitchfork, but also exonerated Richard Buckland despite his admitting to raping and murdering a teenage girl near Leicester.[40]

DNA of a person can be picked up from a variety of body fluids. DNA can be extracted from semen, saliva, blood, hair, or any body tissue of an individual. The traces of DNA have even been picked from cigarette butts in a few cases. The use of DNA can ascertain the presence of a suspect on the crime scene and can also negate the possibility of the presence of an innocent who is under suspicion.

When this technology is used in the legal world as a piece of evidence the important discussion about it revolves around important factors- reliability of evidence, interpretation of evidence, and their implication on human rights.[41] In reliability, the accuracy of DNA evidence is considered 99% DNA evidence is maybe one of the most reliable of all types of pieces of evidence that are presented in the courtroom. The interpretation of evidence can be quite tricky the matching of DNA samples can indicate the presence of the person and the non-matching of DNA can eradicate the possibility of the presence of the person. The mere presence of a person cannot prove someone guilty. It is used in civil cases and family disputes to trace family lineage and to perform paternity tests. However, the sample must be handled with utmost care, swapping of samples or contamination of samples can lead to very different results.

It can be used to help confirm the guilt of the criminal and prove the innocence of not guilty. In the case of criminal suspects, it can confirm the suspect's presence on the crime scene and act as a piece of corroborator evidence. However, caution must be exercised while interpreting the DNA evidence. The presence of DNA can indicate that sexual intercourse happened but it does not help conclude if the intercourse was sexual or not. The presence of DNA at a crime scene also cannot confirm the guilt of a person.

Perhaps the most important use of DNA evidence is to erase suspicion from those who are innocent. Legal proceedings especially in India often take a long time to conclude. In this scenario often innocent persons accused of crime suffer because of a lack of conclusive

[39]Goswami, G.K., Goswami, S. (2018). Three Decades of DNA Evidence: Judicial Perspective and Future Challenges in India. In: Dash, H., Shrivastava, P., Mohapatra, B., Das, S. (eds) DNA Fingerprinting: Advancements and Future Endeavors. Springer, Singapore. https://doi.org/10.1007/978-981-13-1583-1_11

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[41]Subhash Chandra Singh,*DNA PROFILING AND THE FORENSIC USE OF DNA EVIDENCE IN CRIMINAL PROCEEDINGS* ,53(2) ,Journal of the Indian Law Institute195,196 (2011),,https://www.jstor.org/stable/43953503 last accessed 30/6/3023.

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evidence of their innocence. DNA evidence can serve as proof of their innocence.

Use of DNA Technology in Indian Law

Though there is acceptance in the court of the accuracy and usefulness of DNA evidence. There is still no law or provision that specifically deals with the standard procedure and methods of use of DNA technology in civil and criminal matters. Neither the Indian Evidence Act of 1872 nor the Code of Criminal Procedure of 1973 has explicit provisions for dealing with science, technology, and forensic science issues.

Other provisions are indirectly applied by the court to accept DNA evidence.To accept DNA evidence, the court relies on few provisions in the Indian Evidence Act and the CrPC that deals with medical examination and expert opinions . while considering the DNA evidence the factors that are taken into consideration are the methods and procedure that were followed in collection, preserving and testing of DNA samples, these factors together contribute to accuracy and acceptability of DNA evidence in court . In a case Supreme court observed.

"If DNA evidence is not properly documented, collected, packaged, and preserved, It will not meet the legal and scientific requirements for admissibility in. a court of law. Because extremely small samples of DNA can be used as evidence, greater attention to contamination issues is necessary while locating, collecting, and preserving DNA evidence can be contaminated when DNA from another source gets mixed with DNA relevant to the case."[42]

Section 53 of the 1973 Code of Criminal Procedure allows a police officer to seek the help of a medical practitioner by performing an examination of he accused in investigation if required.[43]The Cr.P.C. (Amendment) Act of 2005 introduced two new sections that allowed the medical examination of accused and victim of rape. Section 53A allows the examination of person accused of commiting rape or attempt to commit rape.[44] Section 164A of the same statute allows for medical examination of rape victim.[45]

Section 45 of Indian Evidence Act deals with the opinion of expert is also usd by the judges to DNA evidence.[46]

The first case solved in India utilising DNA fingerprinting technology was a parentage dispute DNA fingerprinting was used to settle a paternity issue in 1991 Kunhiraman vs Manoj.[47]

Since then, the technology has been used to resolve thousands of civil and criminal matters, including many high-profile and sensational cases, such as the of Ms. Priyadarshini Mattoo murder caseSri Beant Singh and Sri Rajiv Gandhi assassination cases, the Naina Sahani Tandur case, the Swami Premananda and Swami Shraddhananda case(s), t, the ND Tiwari case of parentage disputes, and others.

In India, DNA profiling can only be used as corroborative evidence. In India to convict someone the evidence must prove that charges levelled against the accused are true, "beyond a reasonable doubt.".It is just that the DNA was collected following all the proper guidelines and procedures. The DNA must be analysed and properly for it to be accepted as evidence. If there is any failure in proper following of procedure and guidelines then the DNA evidence becomes inadmissible.

In a case Supreme Court observed

"The DNA evidence is in the nature of opinion evidence as envisaged under Section 45 and like any other opinion evidence, its probative value varies from case to case."[48]

India has tried to frame a law on DNA profiling but as of now, no law governs the way DNA

[42]Rahul v. State (NCT of Delhi), (2023) 1 SCC 83(India).
[43]Code of Criminal Procedure, 1973, § 53, No. 2, Acts of Parliament, 1974 (India).
[44]Code of Criminal Procedure, 1973, § 53A, No. 2, Acts of Parliament, 1974 (India).
[45]Code of Criminal Procedure, 1973, § 164A, No. 2, Acts of Parliament, 1974 (India).
[46]Indian Evidence Act, 1872, § 164A, No. 1, Acts of Parliament, 1872 (India).
[47] Kunhiraman vs Manoj (1991) II (1991) DMC 499 (India).
[48]Rahul v. State (NCT of Delhi), (2023) 1 SCC 83 (India).

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technology is utilized in India. The most recent attempt by Indian government was The DNA Technology (Use and Application) Regulation Bill, 2019. The bill made provision for formation formation of a DNA regulatory board, regional and national DNA data banks , DNA labs. It made rules for the cases where the DNA samples could be collected their use and removal of such data. The bill also made provisions to ensure privacy and confidentiality of the person whose samples were collected. The bill drew criticism and the mechanism to ensure privacy was thought not be strong enough. The bill also drew criticism for lack of independence of board and lack of judicial review and transparency of its actions. The bill was referred to the standing committee of parliament.

The bill covered many important aspects of DNA technology on which there is an urgent requirement of law. A new bill covering the loopholes of the bill and addressing its criticism needs to be soon introduced.

CHALLENGES

The biggest concern regarding the use of DNA evidence is the possible violation of fundamental rights. Use of DNA evidence can lead to a violation of the right against self-incrimination and the right to privacy a part of the right to life recognized by the apex court.[49]

The right against self-incrimination is contained in Article 20(3) of the Indian constitution. This article gives a person right accused of crime not to be forced against witness against oneself. The term witness includes oral as well as documentary evidence. Forcing a person to give a DNA samples can be seen as forcing accused to incriminate himself. Because the nature of DNA evidence goes against fundamental rights. Indian judiciary has been very cautious in accepting the DNA evidence.

Judiciary has allowed investigating authorities to collect DNA samples based on the reasoning that no fundamental right is absolute and in certain cases, the fundamental right must bow to public interest.

To strike a balance between the balance of fundamental rights and the use of DNA evidence in criminal trials is a tight rope Indian judiciary has to walk on.Based on the same fundamental right the judiciary prohibits Narco tests and brain imaging of those accused.

Another challenge is the lack of proper infrastructure and several medical professionals that can support a judicial system that often uses DNA evidence in a large number of cases.

The investigating officials also do not have the proper training to collect samples from the crime scene. The samples found on a crime scene can easily be destroyed or contaminated if not handled carefully. The lack of proper training in investigating officials is more dangerous because the DNA samples found at the crime scene are difficult to pick up and they are exposed to different weather conditions like temperature changes, sunlight, water, etc. Indian police are still following traditional methods for investigating cases. For harnessing the full potential of DNA as well as forensic science, in general, the investigating authorities in the country need to be trained on proper procedures that should be followed so that the evidence is in the best condition for laboratory tests.

The scientific validity of detection procedures is a crucial consideration in the use of DNA as evidence.The scientific validity of detection procedures is a crucial consideration in the use of DNA as evidence.[50] Collecting the must be done with extreme caution to avoid contamination.[51]The test's validity is based on its ability to accurately identify real matches and

[49]Justice K.S. Puttaswamy (Retd.) & Anr. vs. Union of India & Ors. (2017) 10 SCC 1 (India)

[50] Subhash Chandra Singh,*DNA PROFILING AND THE FORENSIC USE OF DNA EVIDENCE IN CRIMINAL PROCEEDINGS* ,53(2) ,Journal of the Indian Law Institute195,200 (2011),https://www.jstor.org/stable/43953503 last accessed 30/6/3023.

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true non-matches.Concerns have been raised concerning the validity of DNA typing for forensic purposes due to the nature of the samples. Samples are taken from a range of sterile materials that have been exposed to sunshine, moisture, or desiccation (for example, glass, wood, soil, and cloth). Unknown genetic elements, such as bacteria and animal secretions, can contaminate samples. The samples found at crime scene are vulnerable to damage, those mst be collected with caution.

The investigation officers should be aware of how samples are collected, preserved, and to be transported for them to be in the best possible condition for various test that needs to be conducted on the evidence samples.

The development of the profiles necessitates biochemical knowledge. Testing dangers include the possibility of combining samples prior to testing; mismanagement resulting in contamination at the time the sample is obtained or later in the laboratory; and contamination with bacterial, viral, or other human or nonhuman DNA at the crime scene. A little sample can complicate the test and make additional verification hard, as well as cause the test to be performed improperly.[52]

CONCLUSION

DNA profiling has a huge scope as evidence in civil in criminal trials. The use of genetic material as a way to identify people or to trace lineage is a revolutionary way to improve the current practice of investigation. Every human being except for twins has a different set of DNA. Thus it can be of great importance to identify suspects and acquit innocent people. DNA profiling is a very effective tool but it must be used carefully.

There are a lot of challenges to its use. First is the lack of legislation, and second one is the possible violation of fundamental rights right of privacy and the right against self-incrimination. Third is the lack of adequate infrastructure and training.

DNA profiling is a revolutionary method and can be a game changer in the current way of investigation and conduct of trials. It is high time that we work to overcome the challenges and use this tool in the best possible way.

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