



Role of DNA profiling in Indian justice system

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Abstract

The advancement of science has made life easy. The advancement in science is not only beneficial for general mankind but also has immense contribution in justice administration process. One such scientific advancement helpful in justice administration is forensic science. Forensic science refers to applying scientific method and techniques to matter under investigation in the court of law. The forensic science enables to solve the cases in the better way. It not only aids in investigation but also provides valuable evidence which helps in reaching conclusion in the case. Here, this research paper basically deals with DNA profiling technique, which is one of forensic technique. However, its applicability is often subject of constitutional validity. This paper aims at understanding the concept of DNA profiling alongwith legal provisions in India and its constitutional validity.

Keywords: DNA profiling, administration of justice, constitutional validity

Introduction

The advancement in science specifically forensic science has provided new dimension to law. With the traditional method of conducting investigation and procuring evidence now with development of forensic science a new dimension is provided to investigation in law by using forensic technique which forms part of forensic science. Forensic science refers to applying scientific method and techniques to matter under investigation in the court of law. This paper deals specifically with DNA profiling which is one of the forensic techniques. DNA is Deoxyribonucleic Acid which is a molecule carrying genetic instructions for all living organisms. It can be found in nucleus of cell. It is a structure made up of two long strands that form a spiral shape called a double helix. DNA profiling techniques is one of the forensic techniques which basically identifies individual on the basis of unique pattern of DNA. The DNA Profiling in India is legally recognised. It provides great aid in investigation. To inculcate in Indian Justice System, it has been given legal sanction in the criminal laws. There are various legal provisions which provides provision for DNA profiling. It is very settled position that use of DNA profiling technique is allowed in India but its admissibility and reliability often comes in question. The constitutional validity of DNA profiling is also one of the major aspects of using this forensic technique for purpose of investigation. This paper deals with concept of DNA Profiling, legal provisions, constitutional validity and its relevancy and admissibility.

Material & Methods

- This research is doctrinal legal research. The main focus is to interpret and analyse legal rules as to DNA profiling and understand its relevancy, admissibility and constitutional validity by legal provisions and precedents.
- The material used includes law bare act, commentaries, cited case laws, online sources like e-journals, e-websites, e-articles.

Result

- After analysing all the legal provisions it can be laid that DNA profiling is relevant and admissible under Bhartiya Sakshya Adhiniyam, 2023^[3].
- However, evidence procured from DNA profiling is not the conclusive in nature and has to be corroborated from attending circumstances.
- DNA profiling technique is also constitutionally valid but it is subject to certain limitations mainly in cases of identifying paternity it is to be used carefully and not invariably. It often depends on facts and circumstances of particular case.

Discussion

Concept of DNA Profiling

The DNA (Deoxyribonucleic Acid) Profiling is one of the forensic technique. It mainly focuses on identifying individuals on the basis of unique patterns in their DNA. It is also known as DNA fingerprinting. This technique identifies individuals by analysing unique regions of their DNA. DNA is located in nucleus of eukaryotic cells (animal and plant) and the cytoplasm of prokaryotic cells (bacteria). It is shaped in form of double helix. The DNA contains 23 pairs of chromosomes, which are inherited equally from both parents, which encode genetic information in sequences of four nucleotides called Adenine (A), Guanine (G), Thymine (T), and Cytosine (C). DNA can be taken from various biological materials which include blood, saliva, hair, skin, tissue, semen, teeth, bone, and even from surfaces where these substances may be present. The samples are collected and analysed to generate a DNA profile. DNA left behind during physical contact, known as touch DNA, is often in low quantities and not ideal for profiling due to potential contamination.

Process of DNA Profiling

- The very first step is to extract DNA from the collected biological samples.
- Secondly it is to be ensured that the DNA is free from contaminants and determining its concentration.

- Third step involves replicating selected genetic markers to generate enough DNA for analysis.
- Fourthly, identifying the specific sequences of the DNA markers.
- The last step is to compare the DNA profiles and calculating the probability of a match.

Role of DNA Profiling in Legal Proceedings

- **Murder or Physical Assault:** The identity of assailant can be revealed from his blood or small piece of tissue present on clothing, body of victim or on crime scene.
- **Rape or Sexual Offences:** The semen, saliva, tissue etc left on clothing or body of victim facilitates in identification of offender. Also, presence of blood or tissue of victim on body of assailant, weapon or crime scene serves as important link.
- **Unidentified Bodies/ Mass Disasters/ Accidents:** The comparison of DNA profile with close blood relatives in case of mutilated, exhumed, disfigured or burnt bodies, skeletal remains helps in accomplishing identity of such bodies.
- **Parentage Dispute:** When the parentage of person is in question, then it can be determined with DNA matching with his biological parents. Similarly, the case of child swapping can be established by comparing DNA of child with putative father and mother.

Legal Provisions related to DNA Profiling

The DNA profiling is recognised under various Indian laws which are as followed:

a. Under *Bhartiya Sakshya Adhiniyam, 2023* ^[3]

▪ Section 39

It provides that when court has to form opinion on point of foreign law, science, art, literature or any other field or on question of handwriting or of fingerprint, the opinion of person having specialised knowledge in such filed is relevant.

▪ Section 116

It provided child born valid marriage between his mother and father or within 280 days after its dissolution is presumed to be the legitimate child of the husband unless it is shown that the parties to the marriage had no access to each other at any time when he could have been begotten.

b. Under *Bhartiya Nagrik Suraksha Sanhita, 2023* ^[2]

▪ Section 51

It provides for examination of accused by medical practitioner at request of police officer. The examination here includes examination of blood, blood stains, semen, swabs in case of sexual offences, sputum and sweat, hair samples and finger nail clippings by the use of modern and scientific techniques including DNA profiling and such other tests which the registered medical practitioner thinks necessary in a particular case;

▪ Section 184

It provides for medical examination of victim of rape. It provides collection of material from the person of the woman for DNA profiling and also to specify in report prepared by registered medical practitioner.

Constitutional Validity of using DNA Profiling Technique
Often the constitutional validity of DNA Profiling Technique is questioned in light of Article 20(3) and Article 21.

Article 20(3): Article 20(3) provides that no person can be compelled to be witness against himself. The question in issue is that whether taking DNA samples amounts to testimonial compulsion and violates right.

Article 21: Article 21 provides that no person shall be deprived from his life and liberty except under procedure established by law. In relation to this article the concern is conflict of DNA profiling technique with right to privacy.

Case Laws

▪ **State of Bombay v. Kathi Kalu**

It was held by 11 judges bench that any compulsion as to giving signature, specimen, thumb impression, voice sample hair specimen etc will not be hit by Article 20(3).

▪ **Rohit Shekhar v. N.D. Tiwari**

In this case it was laid by Supreme court that taking DNA sample or compelling to go thorough DNA test is not violative of Article 20(3) in lawsuits in which main question is to establish blood relationship where result will not be made public and main purpose of such DNA test is to serve justice.

▪ **Goutum Kundu v State of West Bengal**

In this case there was question of disputed paternity. It was held by court that no person can be compelled to give sample of blood for analysis against his/her will and no adverse inference can be drawn against him/her for this refusal. The Courts in India cannot order blood test as a matter of course. When application is made for such prayers in order to have inquiry, the prayer for blood test cannot be entertained; There must be a strong prima facie case in which husband must establish non-access in order to disprove the presumption arising under section 112 of the Evidence Act; now S.116 of *Bhartiya Sakshya Adhiniyam, 2023*. ^[3] It is duty of court to carefully examine as to what would be the consequence of ordering the blood test; whether it will have the effect of branding a child as a bastard and the mother as an unchaste woman.

Relevancy of DNA Evidence

▪ **Pattu Rajan v. State of Tamil Nadu**

In this case laid that the probative value of DNA evidence varies depending on the facts and circumstances of the case, and it is to be weighed in light of other evidence on record, whether contrary or corroborative. It was emphasised that DNA evidence, though increasingly accurate and reliable, but not infallible, and the absence of such evidence should not lead to an adverse inference against a party, especially in the presence of other cogent and reliable evidence.

▪ **Kanchan Bedi vs. Gurpreet Singh Bedi**

This case was in relation to maintenance suit by a minor. It was laid that if the paternity is denied by respondent, then the Court has to examine the entire circumstances of the case and have to see the effect of denial upon the interests of the child and thereupon it may compel the respondent to undergo the medical test.

It could be laid that DNA evidence is relevant or not depends on facts and circumstances of each case and such test cannot be ordered by court as matter of course. The evidence offered by DNA testing is reliable but cannot be said to be conclusive and requires corroboration with other attending circumstances.

Limitations of DNA

- The contamination or mishandling of samples can lead to inaccurate results.
- The process is costly and time consuming which might not be appropriate in all cases.
- DNA provides scientific proof but does not establish mens rea. It may lead to implication of person who is actually not offender in case if any sample mistakenly left by him at crime scene without knowing that it may go against him.

Suggestive measures

- DNA testing should not be ordered recklessly rather approach of harmonious construction to be adopted by court in balancing the need of evidence and right of privacy.
- The samples for conducting DNA profiling must be handled with care in order to avoid incorrect result.
- DNA profiling must be corroborated with other evidences.

Conclusion

It is to be concluded that DNA profiling helps unfigure important evidences in case and plays crucial role final determination of case. But DNA testing cannot be used balantly ordered in every case. This scientific being constitutionally valid always requires balance with fundamental rights and mainly right to privacy. However, whether to opt for DNA profiling or not depends on facts and circumstances of case. however, in case of rape such medical test is very important prima facie evidence. Therefore, it can be laid that development of DNA profiling technique is boon to investigation but must be exercised carefully.

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