

DNA FINGERPRINTING IN INDIA: AN OVERVIEW

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ABSTRACT

The discovery of DNA fingerprinting revolutionized criminal identification and forensic science. Just like ink fingerprints, DNA fingerprints are unique to every individual and can be used as legal evidence in court to prosecute or defend alleged criminals. DNA fingerprinting thus undertakes the heavy task of identifying a person uniquely. In paternity cases, DNA fingerprinting technology can be used to identify or rule out persons as biological parents of a child. Even Dhanu and Sivarasan, the assassins of the late Prime Minister of India, Mr. Rajiv Gandhi, were identified by DNA profiles. However, the development of this technology has given rise to a number of ethical debates including whether a person can be forced to give a DNA sample for analysis and who should gain access to such personal information. Also, the concept of a DNA database raises questions about personal privacy and civil rights, although it could be a key contributor to genetic research. Scientists are consistently finding new ways in which the applications of DNA can be expanded.

Keywords: DNA Fingerprinting, Criminal Identification, Privacy, Admissibility.

Introduction

What is DNA Fingerprinting

The structure of DNA (deoxyribose nucleic acid) was first discovered by Dr James Watson and Francis Crick in 1953. By employing the basic structure of DNA fingerprinting many complicated legal problems have been resolved. When adequate number of DNA patterns, in two unrelated individuals are compared, the chances of complete similarity are 1 in 300 billion, i.e., half the population of the world.

DNA or deoxyribonucleic acid consists of four nitrogenous bases- adenine, thymine, cytosine, guanine and phosphoric acid arranged in a regular structure. It is a polymer of nucleotides, which are the units strung together to form a DNA strand. The backbone of a DNA strand is formed by a sugar base component and a phosphate group. The DNA molecule is composed of two DNA strands coiled in a double spiral (helix).

DNA identification analysis, identity testing, profiling, fingerprinting typing, or genotyping refers to the characterization of one or more relatively rare features of an individual's genome or hereditary makeup. Every human, lower animal and sexually reproduced plant has a characteristic phenotype or physical appearance because each possesses a unique hereditary composition.ⁱⁱ

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Procedure

In DNA typing, the DNA from samples like blood, semen, hair etc is cut into fragments of sequence patterns using a specific enzyme. The fragments are separated into bands by gel electrophoresis and then the DNA pattern is transferred to a nylon membrane to which a radioactive probe is added. An X- ray is then taken. From any sample in that particular fragment length, the bands from the same source are the same. This individualization is utilized for comparison. The developed X- ray film shows the, DNA bands. They are often matched, with the suspect. If they match, we can say that the person for the specimen is identified and its individuality established. Thus, it is now possible to connect the blood, semen, tooth, hair from the crime scene or from a body to a particular individual.

Contribution of DNA Fingerprinting

The development of DNA fingerprinting allowed for faster and more accurate identification of suspects in criminal investigations. For example, blood found at the scene of a crime contains white blood cells that contain DNA (red blood cells don't have a nucleus and consequently don't contain any DNA). Forensic scientists can then take a sample of the blood, isolate the unique section of DNA and perform electrolysis to make a DNA fingerprint. All tried and convicted criminals have their DNA fingerprints in a database so they can be easily identified if they re-offend. However, there may be more than one set of DNA at a crime scene. For example, the victim may have bled, the criminal may have left hair behind and there could be traces of people's DNA left from days, months or years before the crime from sneezes or sweat. Apart from the samples taken from the scene, forensic scientists have to take samples directly from the victim, any suspects, and anyone who frequented the crime scene before the crime occurred in order to rule out the innocent people. Also, any police officers, detectives or forensic scientists who enter the scene of the crime have to take special precautions so that they do not contaminate the area with their DNA. Unfortunately for the victims, defense attorneys can use the argument of contaminated DNA samples in court.

The contribution of forensic science on the administration of justice is indispensable. In the present millennium winds of forensic storms are blowing over the horizon of criminal justice all over the world. Orthodox methodology of Crime- detection has now been obsolete. The application of DNA technology has heralded a new dimension in the administration of justice. DNA fingerprinting is a unique technique for criminal identification and Crime detection. It is equally applicable to both wings of justice, civil and criminal. The primitive method of identification of an accused by eye- witnesses is now not necessary in many situations. It can be done by DNA Test. The marvels of DNA- technology are so powerful that it totally exempted many innocent accused persons from the gallows in USA as they had been declared innocents by DNA test. Also in appropriate cases many justified offenders had been punished). Its application has also minimized delay in the administration of justice.

An ordinary fingerprint is a reliable technique in crime detection but DNA fingerprinting is much more reliable, because ordinary fingerprints are not always available in the crime scene, as shrewd criminals commit crimes by using hand gloves.

In **Gangadharappa v. Basvaraj**, the plaintiff instituted a title suit against his father claiming for partition and separate possession of his share in the Coparcenary properties. The defendant's father opposed the petition on the ground that the plaintiff was not born to him. The defendant filed an application under Order 26 Rule 10-A of the Code of Civil Procedure along with Section 151 for appointment of a commissioner for conducting blood- test and genetic finger print test of the plaintiff for ascertaining whether he is his son. The petition was opposed by the plaintiff on ground of Article 20(3) of the Constitution of India and the petition of the defendant for conducting DNA fingerprinting was rejected. When in revision the matter came up before the Hon'ble High Court of Karnataka, it ordered for appointment of Commissioner for the purpose of genetic finger printing.

Impact of DNA Fingerprinting

It is the certainty and accuracy of a DNA test result that provides the many benefits of DNA testing. The fingerprinting and profiling that is carried out for a DNA test helps to identify people.

DNA fingerprinting has enormous impact on the administration of justice:

- **For Identification Purpose**

In many heinous crimes, the offenders leave the cadaver by severing the head of the victim on the crime- spot, leaving on the spot the head- less corpse; very often it becomes difficult to identify a dead body without head. In such a situation DNA test can solve the problem. These types of incidents very often happen on a railway track. Particularly in the remote villages, in committing murder, the dead-

body is kept hidden inside a deep pond for long days. The dead- body being non- traceable for long days undergoes decomposition in the water and the fishes and other aquatic creatures eat the human flesh resulting unworthy of identification of the decomposed body. In such a situation DNA test can solve the mystery.

- **For Baby- Exchange Cases and Paternity Cases**

In many parts of India there is illegal practice of new- born baby exchanging in the Hospitals. The real biological parents are deprived of their original babies. Generally, a female baby is exchanged with a male boy. The mother is deprived of her original baby. This is a cheating of the worst kind. Such type of practice is prevailing in different parts of India. But DNA test in such situations, has solved the mystery. Who is the actual real mother of the disputed baby can be ascertained by DNA test.

The fact that the Hon'ble Supreme Court agreed with the judgment of the Delhi High Court in which Congress leader N.D. Tiwari was ordered to undergo a DNA test, which is very important for the admissibility of such evidence. In this case, Rohit Shekar claimed to be N.D. Tiwari's biological son.

- **Rape Cases**

In rape cases, DNA has enormous applications. Immediately after the commission of rape, if the vaginal swab is collected and sample sealed and semen collected from the accused and both the samples are examined in the DNA laboratory, the reality can be ascertained.

DNA fingerprinting has been used to solve many cases like Santosh Kumar Singh v. State thr. CBI, victim was a 25-year-old law student who was found raped and murdered in the house in New Delhi in 1996. In 2006, the Delhi High Court found accused Santosh Kumar Singh guilty of rape and murder charges.

- **Murder Cases**

In murder cases, DNA fingerprinting technique may be used for detection of the culprit who has committed murder. Different types of trace elements may be available in the crime spot such as blood, hair roots etc. In many cases blood- stained clothes of the victim may be recovered from the possession of the accused or the blood- stained weapon, sword, bhojali, dagger etc. may be recovered from the possession of the accused. All these elements are valuable materials for identification of the accused.

- **For General Identification of Criminals**

Identification of a criminal and connecting it with crime is the paramount purpose in a criminal trial and DNA technology serves this purpose. Very often criminals leave on the crime spot many elements inadvertently like blood, hair, skin cells and many other genetic evidences, if these are collected and compared through VNTR Patterns with the DNA of a criminal, he can be spontaneously identified.ⁱⁱⁱ

- **For Detecting Innocence of Suspects**

DNA technology is not only helpful for crime detection and identifying criminals, it is also helpful for exonerating many innocents from the trap of malafide criminal prosecution.

- **Personal Identification:**

DNA fingerprinting has an outstanding characteristics for identifying a person amidst millions of people. The DNA method is far better than dog tags, dental records and blood typing strategies.

There should be no shame in errors made by well- meaning jurors, because human error is inevitable.

DNA Fingerprinting and Indian Law

As such there is no specific provision or provisions relating to DNA test under the Indian Laws but there are certain provisions in Acts and Codes which deal with the use of DNA technology for administration of justice. The new waves of technology have entered the society and the Laws of a Country are bound to change due to the revolutionary scientific changes as it is a very popular say that 'Law is dynamic and not static'.

DNA analysis is also extremely important in determining the paternity of a child in cases of civil disputes. The need for this evidence is most important in criminal cases, civil cases and maintenance proceedings in criminal courts under Section 125 of the Code of Criminal Procedure, 1973. Also, the acceptance of Delhi High Court's decision by the Honorable Supreme Court was welcomed by senior Congress leader N.D. Ordering Tiwari to undergo DNA test is very important from the point of view of admissibility of such evidence. In this matter Rohit Shekhar N.D. Claims to be Tiwari's biological son. It

will be very interesting to see how Indian courts will allow the acceptance of DNA technology in the future. Taking the above further, there are certain provisions in the Indian Evidence Act, 1872 such as Section 112 which reads as follows:

"The fact that the birth of any person was born during the continuance of a valid marriage between his mother and any man, or within two hundred and eighty days of its dissolution, the mother being unmarried, shall be conclusive proof that he The man is his legitimate son, unless it can be shown that the parties to the marriage had no access to each other at any time when he could have been born."

There is no doubt as to the existence of law in India for forceful extraction of blood for DNA test which conclusively determines the paternity or maternity of a child or of any person. The pronouncement in **Gautam Kundu's case**,^{iv} clearly states that:

- Courts in India cannot order blood test as a matter of course;
- Wherever applications are made for such prayers in order to have roving enquiry, the prayer for blood test cannot be entertained; and
- No one can be compelled to give sample blood for analysis.

Supreme Court's judgement under Article 141 of the Constitution of India amounts to law and binding on all Courts of India. Courts in India are very cautious in following DNA paternity testing as they feel that it may go against the basic principles of Human Rights and Dignity as the order for such test may interfere with the personal liberty of that person (Article 21 of the Constitution of India). Court also feel that such an order may violate the right of an accused person protected under Article 20 of the Indian Constitution.

Under Section 53 of the Code of Criminal Procedure 1973, an investigating officer with the help of a medical practitioner then by force of this decision shall not be entitled to compel the accused for extraction of blood for the purpose of criminal investigation from the body of the accused if necessary situation arises. Hon'ble Kerala High Court already stated that there is no law in india enabling the Court to compel any person to undergo blood- test as available in England.¹³But decision in **Swati Lodha's case**,^v tells us that taking of blood from veins of accused is not violative of Article 20(3) of the Constitution of India.¹⁵

In 2011, however, Delhi High Court issued contempt notice to N.D.Tiwari for his deliberate disobedience of its order to give blood sample for DNA test to determine a youth's paternity.

Order 26 Rule 10A of the Code of Civil Procedure deals with commission for scientific investigation. The guidelines in Gautam Kundu's case comes in conflict with the spirit of Section 53 of CrPC for which an investigating officer with the assistance a medical practitioner can collect materials from the body of the arrested accused like blood, semen, urine etc. for the purpose of DNA examination. In such is the position of law in India for collection of blood, the purpose of investigation of criminal cases shall be totally frustrated and jeopardized as DNA test has a serious impact on investigation of rape and murder cases and in many other cases.

A uniform DNA legislation in this regard is, therefore, urgently needed in India. The Indian Evidence Act, the Code of Criminal Procedure, the Code of Civil Procedure should be amended and new Sections should be inserted.

Conclusion

Due to modern advancement of science and technology, the *modus operandi* of committing crimes has been totally changed. The criminals are committing crimes with the latest invention of science and technology. So, for combating such types of crimes, the ordinary and obsolete methods of crime-detection are not tenable in the present day circumstances. And for this reason DNA Fingerprint becomes a blessing for the detection of crimes and in the administration of justice.

There is a growing concern that this technology intrudes on an individual's right to privacy like never before, but there are plenty of other positives stemming out of the work as well. Biologists use it to study genetics not only in humans, but also in other species. Anthropologists use DNA fingerprinting to study evolution in humans and their current global variation through millions of years. A discovery that took Jeffreys just an instant is helping us trace back through our own history.

Advancements and amendments are therefore needed to cope up with the growing technology so that administration of justice is not frustrated and faces a set back on this point.

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