
Comparative Study of Socio-Legal Aspects of DNA Technology with Especial Emphasis to the Indian Legal System

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ABSTRACT:

In 21st century when forensic DNA analysis and DNA evidence has a major impact on all major legal system our Indian legal system and investigating agencies are lacking behind in many ways because of absence of specific legislation on DNA evidence .This paper is an effort to present an extensive and panoramic view on DNA evidence by comparing with other legal systems of the world.

INTRODUCTION:

Evolution of DNA technology is having a major impact on the laws as they have or are being amended in most of the legislations worldwide. During 20th century as the science developed, the legal system was not developing keeping pace with the evolution of science to admit scientific evidence in the system of justice. The technologies that aid in solving crimes include DNA (deoxyribonucleic acid) testing. This technology has helped in solving crimes which were unsolved because of traditional methods. DNA stands for deoxyribonucleic acid, it is generally a long chain that contains genes and made of different molecules like cytosine, adenine, thymine, and guanine. This contains information in the form of genetic codes and these codes are retrieved by copying the DNA into related nucleic acid in the process called transcription. A new technology is used to identify these DNA strands called DNA fingerprinting.

According to Black's Law Dictionary DNA identification is a method of comparing a person's DNA, patterned chemical structure of genetic information with the DNA in a biological specimen. It is also known as DNA fingerprinting, as a genetic fingerprinting. DNA fingerprinting is the most significant technology 20th century's advanced forensic science and is wide spread used in forensic identification. Prof. Alec Jeffrey's of Hiecsfer University, United Kingdom has developed this technique while working on myoglobin gene. In his research, Prof. Alec Jeffrey found that in all over the world number of repeated sequence of base pairs are present in a DNA sample differ from one individual to another and it is unique in every individual and the conclusion of Prof. Jeffery's innovated an advance and 99.97% accurate forensic investigation technique to detect an individual and it is termed as DNA fingerprinting.

It was established by the discovery of DNA fingerprinting that every individual in world have different DNA sequence except monozygotic twins. Human body's cells each contain a complete sample of DNA there are muscle cells, liver cells, blood cells, sperms cells and

other. Every part of the body is made up of these tiny cells and each contains a sample or complement of DNA identical to that of every other cell within a given person. Before the advent or discovery of DNA fingerprinting in 1880 fingerprints were one of the most reliable evidence used in determination of person's individuality. The development of fingerprinting starts first from Europe in 1700-1800. Nehemiah Greur was the first scientist who published a book which was based on "ridge pattern". In 1823 Czechoslovakian physiologist J.E.Purkinje described about friction ridges. The first book which was based on fingerprinting has taken place in around 1800's. The exhaustive and comprehensive study and research work on fingerprinting was carried out by the English biologist Francis Galton for the purpose of criminal investigation in 1892.

DNA profiling

DNA profiling is useful when biological material i.e. blood, semen, etc. are suitably available at place of occurrences and databanks. If they are unavailable then DNA profiling of autopsy derived tissues is done by comparing single probe analysis with that of parents children siblings and if necessary, other relatives. Development of this technique is the most significant discovery of 20th century and now it is proved a great boon for criminal justice system. DNA evidence is most powerful when used to demonstrate that an individual is not the source of biological evidence in a criminal investigation. DNA technology (DNA profiling) tells us as to how new and improved forensic investigation techniques will makes the crime investigation much easy than earlier and this became possible by the analysis of biological material which is found at the place of occurrence. DNA technology, in comparison to blood grouping test has made it easy, reliable and accurate to give decisions in paternity disputes too.

PCR techniques

PCR(Polymerase chain reaction) is a revolutionary development in molecular biology. This method is used to amplify and small quantity of DNA into making millions of copies in a very short period of time. Formerly this task could take several days. A single copy of a target single strand of human hair or a minute blood stain can be tested by this method. This method is particularly suited to determine the maternity of a child. A very little stain of semen or blood, or saliva on a cigarette butt or beedi, or swab etc. is sufficient for conducting in PCR test.

COMPARATIVE STUDY OF DNA LEGISLATION IN DIFFERENT COUNTRIES

DNA legislation- NEW ZEALAND

"New Zealand parliament in 1995 enacted The Criminal Investigation (Blood Samples) Act 1995. The main aim of the act:

- a. To make provision for the taking of blood samples for use in criminal investigation and
- b. To authorize:
 - the establishment of a databank of information derived from the analysis of blood samples taken from certain persons; and
 - the use of information from that databank in criminal investigations; and

- to provide for matters incidental thereto.

New Zealand parliament made amendment in The Criminal Investigations (Bodily Samples) Act 1995 and now it is The Criminal Investigations (Bodily Samples) Amendment Act 2003.

(s-5) The act provides that in any criminal investigation in respect of an indictable offence, a bodily sample may be taken for the purpose of that investigation from any ‘suspect’ and the suspect means any person whom it is believed has committed that offence whether that person has been charged with the offence and whether there is good cause to suspect that the person has committed the offence.

Compulsory Order- For taking Blood Sample

(s-13(1)) If there is good cause to suspect that the suspect has committed a relevant offence and he or she has refused to consent to a bodily sample request a commissioned officer of police may apply to a high court judge for an order requiring that suspect to give a bodily sample. Offences should be serious, violent and indictable or ones where it is most likely that an offender will leave DNA at the scene. Major drawbacks in some groups still are concerned about the privacy issues implicated”ⁱ.

DNA LEGISLATION-SOUTH AFRICA

South Africa does not have special rules controlling the admissibility of scientific evidence but DNA profiling is now accepted as a robust and reliable technique.

“Section-225 of the criminal procedure act states that whenever it is relevant in criminal proceeding to determine whether the accused has any characteristics feature evidence of them including the result of any blood test is admissible. Though the court is not bound by expert evidence DNA evidence is generally evaluated within the context of other evidence”ⁱⁱ.

DNA legislation-CHINA

Ever since the 1997 rape and murder of Democratic Progressive Party official Pend-Wan-Ju, sex crimes have become central issue for the public in China according to an analysis conducted by sociologists, approximately 10,000 sexual assaults are reported each year in Taiwan. Therefore the china passed the law for taking the blood sample for DNA testing. Under the law, convicted and suspected sex offenders would be asked to provide voluntary blood samples. If they refuse, a prosecutor may force them to provide samples. Major drawback is of the law: Proponents of the draft law is too restrictive because it would require judicial authorization or consent in order to force a sample from a suspect. They claim that this will cause a tremendous backlog in the courts.

DNA legislation- CANADA

Canada has passed DNA Identification Act, which became official on June 30, 2000. This legislation allowed a DNA data bank to be created and amended the Criminal Code to provide a mechanism for a judge to order persons convicted of designated offences to provide blood, buckle or hair samples from which DNA profiles will be derived. In Canada taking of a genetic sample without consent is held to be valid when the sample is collected by a health care professional.

DNA legislation-NEW SOUTH WALES (NSW)

“The crimes (forensic procedures) act of 2000 no. 59 came into operation in 2001 and regulates DNA sample collection, usage and destruction in NSW.

Forensic procedures may be performed on:

- a. Suspects: before authorizing a non-intimate procedure, the senior police officer must be satisfied that:
 - The suspect is under arrest;
 - The suspect is not a child or incapable person;
 - There are reasonable grounds to believe that the suspect has committed an offence;
 - There are reasonable grounds to believe that the forensic procedure might produce evidence tending to confirm or disprove that the suspect has committed an offence;
 - Carrying out of such a procedure is justified under the circumstances
- b. All convicted serious indictable offenders.
- c. On a volunteer, other than a child.
- d. Unknown deceased persons.
- e. Missing person.”ⁱⁱⁱ

According to act, sample of accused may be retain for further investigation. The act provides for destruction of forensic material obtained from a person who is acquitted or whose conviction is quashed. By contrast DNA profiles taken from volunteers for limited purposes may be matched against the crime scene in respect of which the volunteer has freely provided his/her DNA

DNA legislation-SOUTH AUSTRALIA

In South Australia there is specific law which deals with DNA legislation (Criminal law (forensic procedures) act 2007) provides for carrying out of forensic procedures to obtain evidence relevant to the investigation of criminal offences & makes provision for a DNA database system.

The act distinguished b/w procedures to be followed depending on whether the person from a sample is to be taken is a volunteer, a suspect or convicted offender.

DNA legislation-USA (UNITED STATES)

Legislation- Mainly 3 legislation deals with DNA legislation and DNA evidence

1. The DNA identification act 1994 allows for DNA identification records to be kept of;
 - a. Persons convicted of crimes.
 - b. DNA samples recovered from crime scene.
 - c. DNA samples recovered from unidentified human remains.
 - d. DNA samples voluntarily contributed from relatives of missing person.
2. The justice for all act 2004

This act allows for retention in National DNA Index System (NDIS) of DNA profiles from persons who have been charged in an indictment, even if the charges are eventually dropped or not pursued.

3. The violence against women act 2005 – allow for the uploading of an arrestee's DNA profile into NDIS. The act removes the burden from the state to remove on arrestees was later acquitted or if the charges were dismissed.

Thus many countries across the world enacted law dealing with DNA technology and DNA evidence.

JUDICIAL-LEGAL ASPECTS OF DNA TECHNOLOGY

“Right to privacy” and “DNA profiling”

Right to privacy is implicit in Right to life. The right to life implicit in the right to life and liberty guaranteed to the citizens of India by Article 21 of the Constitution of India. It is a “right to be let alone”. A citizen has a right to safeguard the privacy of his own, his family, marriage, procreation, motherhood, child-bearing and education among other matters. None can publish covering the above matters without his consent whether truthful or otherwise laudatory or critical.

“Right to privacy” and “DNA testing” In Indian constitution the provision of protection of life, liberty and freedom has thoroughly interpreted and Articles 14, 19, 21 are best examples for any other constitution of world regarding right to privacy. In last 20 years, it proves that Indian Supreme court has adopted the organic dynamic interpretation.

Protection in respect of conviction for offences provision relating to self-incrimination (Article 20(3)) No person accused of any offence shall be compelled without his consent to submit to DNA test.

Taking of fingerprint under valid laws does not violate rights under Article 20(3) of the Constitution- ‘To be a witness’ may be equivalent to “furnish evidence” in the sense of making oral or written statements, but not in the large sense of the expression so as to include giving of thumb- impression or impressions of palm or foot or fingers or specimen writing or exposing a part of the body by an accused person for purpose of identification. “Furnishing evidence” in the latter sense could not have been within the contemplation of the Constitution makers for the simple reason that though they may have intended to protect an accused person from the hazards of self-incrimination, in the light of the English Law on the subject they could not have intended to put obstacles in the way of efficient and effective investigation into crime and of bringing criminals to justice. The taking of impressions of parts of the body of an accused person very often becomes necessary to help the investigation of a crime.

A person cannot be compelled to undergo a medical test

There is no provision in the Code of Criminal Procedure under which a Court can compel an accused person to get himself medically examined.

Medical examination and blood test

In view of Section 129-A and Rule 4 of Bombay Prohibition Act and Bombay Prohibition (Medical Examination and Blood Test) Rules, 1959 respectively blood samples of a person can be collected for chemical examination and the said act would not hit the freedom guaranteed to that person under the Constitution of India. Collection of blood samples would not infringe the personal liberty of that person.

Person can't be compelled to undergo DNA test in Indian law no court compel anybody to undergo DNA test it result in violation of fundamental right that is right to privacy. But in other countries like Canada person's DNA sample can be taken without his consent.

In a case like this was held that "if person is not willing to give statement of blood sample, the CBI couldn't have taken recourse of section 166 Cr. P.C".^{iv} "Right to privacy is available under article 21 as such no person can be compelled to undergo any scientific test for collective evidence against himself or herself".² Thus in India nobody can be compelled to give his body sample because of violation of fundamental rights.

Maintenance and paternity disputes

Role DNA testing though there is no special law relating DNA testing especially in case like providing maintenance to children and paternity disputes. Recent discoveries have made it possible to find out whether a particular child is son of his putative father. So with advancement of Science the court in India is accepting this test to do justice with people. In recent case of N.D. Tiwari case such types of dispute arise.

The latest decision on this point rendered by Supreme Court held "It can't be said that the court has no power to order blood test of DNA test to be conducted. In appropriate cases where direction is found necessary on the factual situation arising in a case that such course should be adopted".^v

DNA TECHNOLOGY IN INDIAN CRIMINAL JUSTICE SYSTEM

Indian legal system when Indian Evidence Act 1872 or Code of Criminal Procedure 1973 were enacted legislature cannot be anticipated the tremendous development of modern science and technology and its impact on forensic science as well as administration of justice. There is no specific provision in Indian Evidence Act 1872 is so beautifully framed that they are applied to both criminal as well as civil cases simultaneously.

Section 3 and Section 4 of Indian Evidence Act are helpful to determine whether DNA evidence in a particular case is relevant or not. To prove the guilt or innocence of accused DNA evidence and it cannot be seen in isolation in a criminal case but it is not used as substantial evidence. Delhi H.C. held that "merely because the reports emanate from a certain doctor or expert of foreign country is no guarantee that the reports are meticulous and court is bound to accept or rely upon them blind folded".^{vi}

Sec 9, Evidence Act in criminal cases DNA test for matching and identification are done during process of investigation either to identify the victim who was subjected to a criminal activity or accused. Victims are identified through the remains of body parts or pieces of bones while the accused is identified through DNA profiling tests for matching his samples

found at the crime scene. Any kind of exercise related with fixing the ‘identity’ of a person is legally controlled by provisions of section 9 of Evidence Act 1872.

Opinion of experts

In the question of identity where the law allows taking the opinions of certain and specific persons having special knowledge and experience in this field. Such opinion are may be taken as evidence and have incorporated in the provisions of section 45 to 51 of Evidence Act.

Sec 45 opinion of Experts: -When the court has to form an opinion upon a point of foreign law or of science of art or as to identify of handwriting or finger impression the opinion upon that point specifically skilled in such foreign law, science or art, or in questions as to identify of handwriting or finger impressions, are relevant facts. Such person is called Experts. “Opinion of only person especially in relevant science or art is acceptable as expert evidence”^{vii}.

Code of criminal procedure 1973 and DNA profiling

Recently inclusion of DNA profiling in examination of accused under section 53 and section 53 A of code of criminal procedure (amendment), 2005 is a boon for investigation authorities and criminal justice system. Though these section does not specifically say whether it would be applicable to the DNA tests.

IMPACT OF DNA TECHNOLOGY ON SOCIETY AT LARGE

The impact of DNA technology on the societies in different as per the social conditions, the different historical background and culture traditions that prevails . In India, the use of DNA fingerprinting could prevent the large-scale exploitation of women, several kinds of litigation and the helpful in the criminal investigation. On a global scale, the availability of this technique and its refinement to a stage where it would become virtually foolproof could act as a deterrent to certain kinds of crime. The large-scale application of the new DNA technologies have a historical imperative and it is necessary to understand the problems that are likely to arise for e.g. issues relating to right to privacy or infringement of human right etc.

CONCLUSION (NEED OF SPECIFIC DNA LEGISLATION IN INDIA)

The growing application of DNA technology and its impact on human rights protection are main concern at present time. We should not only evaluate the application of DNA technology on the ground that its results are almost certain for the purpose of truth finding but should also analyze it from its adverse side. If the data collected is from wrong sample due to any cause of mischief or error then it may lead to prosecute an innocent and will exonerate the guilty. So, it is necessary to see whether the acceptance of this scientific technology based finding in legal field independent of the circumstantial evidence will be safe from the point of its acceptability by the courts or the courts can use it only of the tools along with the others for finding the truth. In our country the society is changing faster under influence of modern scientific and technological revolution, law is lagging behind. In criminal investigation an investigating officer has to face trouble in absence of a specific DNA legislation. For collecting blood sample, semen sample or any other sample there is no specific statutory

provisions except section 53 of Cr.P.C which is again not sufficient. So an investigation officer faces trouble in collecting materials from the person of the suspected accused in absence of proper legislative guidelines. A specific legislation is required which can not only provide an objective guideline to the investigating agency for handling DNA samples but also helps the judges for the accessing the admissibility of DNA evidence at the time of trial. A specific DNA legislation aims to create a susceptible balance between the constitutional rights of the susceptible balance between the constitutional rights of the suspects or the accused and the larger public interest. Today science and technology have been developed and for keeping with the development of science and technology new techniques of scientific investigations must be employed in crime investigation processed also in civil and criminal disputes a uniform statute is required which will be helpful for investigation like USA, DENMARK, GERMANY, RUSSIA, SWEDEN blood testing should be allowed in the civil and criminal courts in India therefore a separate DNA legislation of paramount importance in India.

ENDNOTES

- ⁱ DNA Test In Criminal And Paternity Disputes By Dr. Gupta And Agrawal, Premier Publication Company ,Allahabad,2014 Edition.
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- ^{iv} Narindra Singh V. State Of Punjab(2004 Cr.L.J ,P1446)
- ^v Sharda V. Dharampal,Air 2003(4)Scc493
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