

DNA Profiling- DNA based Technology

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Abstract

DNA Profiling is the technique of determining individual's DNA characteristics, which are unique. It is an example of use of medical science technology in aid of criminal investigation and justice. It is a part of forensic aid used in a criminal investigation and justice. This method is highly appreciated than other identification methods, such as finger prints, foot prints or blood because unlike other materials the DNA material remain usable for endless period of time.

This method can be used in identifying the victim from decomposed human remains. Along with criminal investigation the method, it can also be used in identification of any missing person or victims of any disaster. The DNA profiling technique derives its authority from proven scientific principles. Test according to the said technique would definitely lead to constitute as corroborative evidence.

The said technique requires creation and maintenance of a DNA Data Bank for the purpose. Thereafter, the sample DNA be searched on the database. For creation and maintenance of the same, a proper set of guidelines is required.

As being a Medical science subject there always remain some ethical issues related to it. The author tried to understand and discuss some ethical framework regarding the same.

The Constitutional question attached to the use of DNA profiling in criminal investigation and use of same as evidence remains as whether it would amount to furnishing himself as witness against him as violative of Article 20(3). The author tried to discuss the same with reference to other fundamental rights, human rights and International conventions.

In criminal matters, the technique is used in many parts of the world. The author is also doing the analysis of the laws of different countries laws. The author also tried to understand the need for a common platform for the same for the international co-operation for international peace.

The tried to understand the need and importance of DNA profiling in the current scenario with a view for futuristic society. The author also tried to brief the "The DNA Based Technology (Use and Regulation) Bill, 2017" recommended by the Law commission in 271st Report.

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Introduction

Deoxyribonucleic acid or most commonly said DNA is a hereditary material present in every living organisms. The DNA is present in every cell of human body even in hair strand, nails and saliva. The DNA Stores the information in it. It is mainly present in nucleus of the cell. The DNA of the human being matches about 99 per cent. No persons except identical twins in rare cases share same DNA.² DNA was first identified by James Watson and Francis Crick in 1953. In 1984, Sir Alec Jeffrey discovered DNA profiling.

DNA profiling is basically identifying a person by way of analysing of DNA sample. DNA profiling is most accurate method of identifying any person. It is a forensic technique commonly used for identifying the person. Even a sample of blood, fragment of skin, hair strand, saliva or nail can be used for DNA profiling. The method is widely used in investigating of crimes, identifying the unidentified victims and determining parentage. There is no legislation in India at current stage regarding DNA profiling. Old DNA samples can also be identified.

DNA Index System is an initiative that allows generation of DNA profile from live samples. Saliva, blood stains can be identified within 90 to 120 minutes. In 1985, the courts for first time started accepting the DNA evidence. In 2016, Andhra Pradesh became the first state to allow use of DNA profiling in solving heinous crimes.

Uses of DNA Profiling

Identifying Dead

A number of unidentified dead bodies are found every year. Yearly nearly 40,000 unidentified bodies are found. There are many unclaimed dead bodies of the person, which are not claimed after any calamity or post-mortem.³

Crime Investigation

DNA Profiling technique which when used be for solving crimes can proved to be very fruitful. As the DNA is not lost the old samples collected can also be used in investigation of the case. The different samples may be present in the crime scene. In many circumstances there are samples of persons other than victim or victims which could be of the assailant or assailants being marked as suspect.

²Kevin Belhumeur, *What Are Some Characteristics of DNA?*, LEAF GROUP LTD. (Mar. 25, 2018, 2:30 PM), <https://sciencing.com/what-are-some-characteristics-of-dna-12572069.html>.

³Harish V Nair, Government plans DNA database to help find missing people, DAILY MAIL (14 July 2018, 9:30 PM), <http://www.dailymail.co.uk/indiahome/indianews/article-2692100/Government-plans-DNA-database-help-missing-people.html>.

The different samples collected firstly may be differentiated according to the different DNA. The DNA of any person other than the victim be collected and could help the police in investigation of the case. This could widely be used in confirming that whether the suspect of the crime was present in the crime scene or not.

Paternity Identification

The courts have in number of occasion have allowed the usage of DNA based technology for confirming the paternity of a child. The Supreme Court and different High Courts at times have allowed for the medical examination of the accused person.⁴

DNA based Method and Constitution

Article 20

The article 20, which is “*Protection in respect of conviction for offences.*” In its clause 3 reads as:

“(3) No person accused of any offence shall be compelled to be a witness against himself.”

The article gives one protection against self incrimination. The article gives one protection from being compelled to be witness against oneself. The protection is available only against criminal cases not in civil dispute. It gives one the right to remain silent. In *M.P. Sharma v. Satish Chandra*⁵ court gave the essentials of the article 20(3) they are:

(1) It is a right pertaining to a person who is "accused of an offence."

(2) It is a protection against "compulsion to be a witness".

(3) It is a protection against such compulsion relating to his giving evidence "against himself."

A debate which rises out is that whether giving of DNA sample in the DNA bank for the purpose of crime investigation is equivalent to the being witness against one self. The Supreme Court in *Smt. Selvi & Ors. v. State of Karnataka*⁶ expressly gave guidelines regarding Use of Lie Detector test and similar method. The guideline reads as:

“(i) No Lie Detector Tests should be administered except on the basis of consent of the accused. An option should be given to the accused whether he wishes to avail such test.

⁴GoutamKundu v. State of West Bengal AIR 1993 SC 2295, 1993 Cri.LJ 3233, 1993 SCC 418, 1993 AIR SCW 2325; Kamti Devi v. Poshi Ram.AIR 2001 SC 2226.

⁵AIR 1954 SC 300.

⁶Criminal Appeal No. 1267 of 2004.

(ii) If the accused volunteers for a Lie Detector Test, he should be given access to a lawyer and the physical, emotional and legal implication of such a test should be explained to him by the police and his lawyer.

(iii) The consent should be recorded before a Judicial Magistrate.

(iv) During the hearing before the Magistrate, the person alleged to have agreed should be duly represented by a lawyer.

(v) At”

If the DNA sample is being given same treatment then the due process is to be followed. Then there should be no provision of making of DNA data bank and collecting samples. The sample be collected and the same be destroyed at the same time. Moreover, be never used again in same or similar case in which the person is suspect. The police or any other investigating agency would have to take consent for every cases from the suspect. Thereafter the investing agency could proceed forward with the said technique.

In *Amrit Singh v. State of Punjab*,⁷ the court held that asking of hair of the accused if not given wilfully or without consent amounts to testimonial compulsion and is prohibited under law. The accused has right to refuse to give specimen of hair for the purpose.

In *State of Bombay v. KathiKaluOghad*,⁸ and later in *State v. M. Krishna Mohan*,⁹ the court held that the specimen fingerprint, palm print, footprint and handwriting does not amount to specimen compulsion. The court in *State of Bombay v. KathiKaluOghad*,¹⁰ had written:

“To be a witness” may be equivalent to “furnishing evidence” in the sense of making oral or written statements, but not in the larger sense of the expression so as to include giving of thumb impression or impression of palm or foot or fingers or specimen writing or exposing a part of the body by an accused person for purpose of identification.”

Single Judge of Gujrat High Court held forced medical examination is bar under Article 20(3).¹¹ On examining the different decisions of the court it can be inferred the court have different views regarding different methods or types of evidence. The court has stood against the compulsion of giving of hair strand for identification. The DNA based investigation is also of a similar kind of it.

⁷AIR 2007 SC 132.

⁸AIR 1961 SC 1808.

⁹AIR 2008 SC 368.

¹⁰*Supra*8.

¹¹*Najabhai v. State of Gujarat* ST1972 Cr. LJ 1605.

Article 21

The article 21, which is commonly known as ‘Right to Life’ ensures no person is deprived of his life or personal liberty except according to procedure established by law. The said article only prohibits acts, which deprives one of life and liberty from acts where due process of law is not being followed. Section 53, which gives for medical examination of the person arrested by the doctor on request of police officer is held to be valid. The court in *Anil AnantraoLokhande v. State of Maharashtra*¹² observed:

“ ... Once it is held that Section 53 of the Code of Criminal Procedure does confer a right upon the investigating machinery to get the arrested persons medically examined by the medical practitioner and the expression used in Section 53 includes in its import the taking of sample of the blood for analysis, then obviously the said provision is not violative of the guarantee incorporated in Article 21 of the Constitution of India.”

The scope of examination was defined by the amendment in 2005 in the Criminal Code of Procedure. The amendment in section 53 reads:

“ —examination shall include the 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”

With regard to testing of blood sample the court observed in *Jamshed v. State of Uttar Pradesh*¹³:

“We are therefore of the view that there is nothing repulsive or shocking to the conscience in taking the blood of the appellant in the instant case in order to establish his guilt.”

With regard to privacy, the court in *Sharda v. Dharampal*¹⁴ the court had upheld the decision of lower court of mental examination of parties in the divorce proceedings. In *X v. Hospital Z*¹⁵ where the hospital had disclosure of the patient being HIV positive, the court held that the same would not amount to breach of duty of confidentiality between the doctor and patient. One could not invoke the right to privacy in the circumstance. Justice SaghirAhmad, held that:

¹²1981 Cri L J125 (Bom).

¹³1976 Cri L J 1680 (All).

¹⁴AIR 2003 SC 3450.

¹⁵(1998) 8 SCC 296.

“... When a patient was found to be HIV (+), its disclosure by the Doctor could not be violative of either the rule of confidentiality or the patient’s right of privacy as the lady with whom the patient was likely to be married was saved in time by such disclosure, or else, she too would have been infected with a dreadful disease if marriage had taken place and been consummated.”

The courts have over time have taken different view regarding privacy and the act committed. No set procedure or standard can be followed by the courts. The courts take the view according to the circumstances pertaining to issues involved in the case.

The government of India recently refused to sign a MoU with United Kingdom for keeping a check over illegal migrants. The pact was to use DNA sampling method for confirming the identity of the person concerned. The pact was to confirm identity of person suspected to overstay in U.K. with suspected family member of the person. Indian Government cited the practise as unethical and infringing one’s right to privacy.

Judicial Pronouncements

In *Kamalnath and others v. State Of Tamil Nadu*,¹⁶ the court in the rape case relied on DNA evidence to the extent of admissibility of same in United States. The court has inferred that when a person refuses to give sample for DNA examination the court could draw an adverse inference out of it.¹⁷ Whereas, a concerned high court in *Bipin Chandra Shantilal Bhattv. Madhuriben Bhat*,¹⁸ had held that no one can be forced to undergo medical examination without prior consent. In *Najabhai v. State of Gujarat*,¹⁹ the Gujrat High court said that forcible examination amounts to be violative of Article 20(3). The court said, *“It proceeds on the principle that a compulsion to undergo medical examination is certainly an interference with the personal liberty of a citizen and such personal liberty could only be interfered with under the provisions of any penal enactment or in exercise of any other coercive process vested in the Court under law.”*

In, *CBI v. Santosh Kumar Singh*²⁰ court held that it is burden of the state to prove that the DNA sample sent for examination is not being tampered. In *GeetaDaha v. NCT of Delhi*,²¹ the court had ordered for the DNA test of the foetus of the rape victim. The court also

¹⁶2005 (2) SCC (cri.) 1121, 2005(4) SCJ 724 SC.

¹⁷*Dwarika Prasad Satpathy v. BidyutPrava Dixit* (2000 Cri LJ 1 : AIR 1999 SC 3348, 1999 (3) ACR 732 SC), *HargovindaSoni v. Ram Dularey* AIR 1986 MP 57(62)., *K. Selvaraj v. P. Jayakumari* 2000 Cri LJ 4748 (Kerala).

¹⁸ AIR 1963 Gujarat 250.

¹⁹1972 Cr. LJ 1605.

²⁰AIR 1994 SC 786.

²¹1997(1) JCC 101 259.

differentiated the same from the case of *GoutamKundu v. State of West Bengal*,²² where the court had held that wife could even refuse to give blood sample for DNA examination.

European Convention on Human Rights and Fundamental Freedoms, 1950

The European Convention Article 8 ‘Right to respect for private and family life’ and Article 14 ‘Prohibition against Discrimination’ are the two articles which are of concern regarding the use of DNA based technology. The same was being discussed in *R (on the application of S) v. Chief Constable of South Yorkshire*²³ on examination the court held that the court took a balanced view on retention of the DNA and the fingerprint of the suspect of any case and further use of the same data.

Path to DNA Bill

After the 1985 when courts started accepting DNA evidence several drafts for DNA based technology use were under work but until now no legislation has been put upon work. In 2003, for the first time a committee formed by the department of biotechnology known as DNA profiling advisory committee. It was formed for recommendation for drafting of DNA profiling bill, 2006. The bill later became DNA profiling bill 2007. The 2007, draft was prepared by the department of biotechnology along with Union Government. The Bill was made public in 2007, but never introduced in the parliament. It was widely criticised as the issue of not addressing the issue of privacy.

In 2013, the department of biotechnology made an expert committee to address the issue of concern. The government had planned to table the bill in 2015. But did not do so due to privacy concerns. In 2016, “The Use and Regulation of DNA-based Technology in Civil and Criminal Proceedings, Identification of Missing Persons and Human Remains Bill, 2016” was listed in parliament for passing. The same was forwarded to law commission for recommendation. Law commission in its 271st report devised a new draft bill titled “The DNA Based Technology (Use and Regulation) Bill, 2017”. In the recent Monsoon session of Parliament of 2018 “DNA Technology (Use and Application) Regulation Bill, 2018” has been introduced in the Rajya Sabha.

DNA Technology (Use and Application) Regulation Bill, 2018

After passing from Union Cabinet, the 2018 bill introduced in Rajya Sabha contains 61 clauses in nine chapters. The bill provides for establishment of DNA Data bank at National as well as regional level. The bill provides for the establishment of regulatory board, which

²² 1993 Cri LJ 3233: AIR 1993 SC 2295.

²³(2003) 1 All ER 148 (CA).

would consist of eminent shareholders of their respective fields. It addresses all the issues concerned with the formation and maintenance of DNA laboratories. The bill regulates the collection and maintenance of the DNA data.

The central government is empowered to form regional data bank by notification. The regional data bank has to share its data with National Data bank. The bill have provision for collection of DNA under no. of following indices

1. Crime scene index;
2. Suspects' index or undertrials' index;
3. Offenders index;
4. Missing persons index.; and
5. Unknown deceased persons index.

The missing person Index includes DNA profile of (i) unidentified human remains; (ii) the personal effects of persons who are missing; and (iii) the bodily substances of relatives of the missing persons. The National data bank may compare a sample DNA profile received from any foreign country or international organisation or any organisation of foreign country with prior approval from the central government. After the matching of the DNA profile with the National DNA Data Bank the Bank may inform the concerned authority with the notification from central government as namely

1. if there is no match between the profiles ;
2. if there is a match between the profiles, any information relating to such matching DNA profile;
3. if, in the opinion of the Director, National DNA Data Bank, the DNA profile is similar to the one contained in the DNA Data Bank, information relating to such similar DNA profile.

On receiving the opinion that it is similar, the DNA Profile further information may also be sought by foreign agency and be provided by government in authorised manner.

The bill prohibits forcefully taking of any bodily substance of any suspect or under trial of an offence for which the prescribed punishment is less than 7 years. If one voluntarily gives his/her bodily substance the consent has to be taken in written. In case where the investing officer feels the need for the bodily substance the officer has to file an application before the magistrate.

The bill provides for the information of under crime scene indices be stored. The information of the suspect shall be removed after filing of the police report under the statutory provision. Whereas, the profile of under trials would be removed after the order of the court.

On receiving the request of removal of person who is neither a suspect or under trial nor offender but the profile has been stored under the crime scene index or missing person index shall be removed according to the regulation.

To safeguard its usage of any DNA profile it has been specifically spelled out that the DNA sample will be used only for identification of person only. The bill also mentions the punishment for misuse of the DNA sample, undue disclosure of profile, for unlawfully accessing the data and contaminating or altering the sample or profile.

Law in other Countries

DNA profiling technique is legal in 60 countries. Different countries follow different rules and regulations for maintenance of DNA. Some countries allow DNA profiling in serious cases only.

United States of America

In United States, different states have different regulation for the purpose of the maintenance and usage of DNA. Sex offenders in all 50 states have to provide their DNA sample. 12 states allow the DNA sampling of the arrestee.

For removal of DNA Profile in some states according to statute, removal of profile is done. In some states offender has to initiate the process.

United Kingdom

In United Kingdom, the sample of any person arrested or convicted of any recordable offence is being taken. The crime scene sample is also taken. The same is being retained indefinitely. The crime scene stains are preserved until identification of sample is done.

Similarly, in Scotland all the samples are taken. The profile of convicted persons are kept indefinitely whereas the profile of suspect is destroyed when the suspect is acquitted.

European Union

Different European countries follow their municipal law for the purpose. In Austria the Sample of offender is retained indefinitely. Whereas the sample of suspect is removed after acquittal. The crime scene stains are kept till the case is being solved.

In Denmark, the sample of individual who is convicted of offence of more than one and half year is kept until 2 years after the death of the person or till person reaches age of eighty. The crime scene stains are removed after prescribed time.

In France, the person charged with serious offence sample is being taken. The same is retained for forty years or are removed on eightieth birthday by motion. The crime scene stains are removed after 40 years.

In Germany, the sample of person charged with serious offence or convicted of same minor offence is taken. The same is removed when the no longer need of retention of same is being felt. Crime scene stains are removed after 30 years.

In Hungary, the profile of person convicted of categories classified under law or the person who is suspect of crime punishable with 5 years or more are being kept. Convicted person details are retained for 20 years and suspects data are removed upon acquittal.

Conclusion

It is the fundamental duty of every citizen to strive to develop for scientific temperament. In the same direction the state should also work. The use of scientific method surely helps in criminal investigation. The scientific method saves time and gives a specific lead in criminal investigation.

It is obvious that there would be number of concern for the regarding the judicious use of the scientific technology. Nevertheless, refraining from using the method is not an option. It surely puts a step back in the face of development.

The concern for privacy is also the top priority. The bill regulates most of the concern which would relate to breach of the data and punishment for the same is prescribed. The bill introduced and debated in Rajya Sabha will open in new scope for the criminal reform and investigation. With technological advancement more reforms in the direction will also be appreciated.