A STUDY ON ROLE OF DNA TECHNOLOGY IN CRIMINAL INVESTIGATION

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ABSTRACT

DNA profiling is a technique by which an individual can be identified at molecular level. The use of DNA evidence in criminal investigation has grown in recent years. DNA testing has helped law enforcement identify criminals and solve difficult crime such as rape, murder and murder with rape etc. The potential of DNA typing has made possible the resolution of immigration problems and complicated paternity testing when the father is not available. Rapid identification of individuals in mass-disaster (man-made such as explosions) using DNA typing has also been possible. No doubt, DNA has great importance in criminal investigation cases such as-murder, rape, disputed paternity, man-made disaster etc., still there is no specific provisions under Indian Evidence Act-1872 and Code of Criminal Procedure -1973 to manage forensic science issues. This paper examines the science of DNA identification and its use during criminal investigations and in criminal proceedings, including criminal trials, appeals and post-conviction proceedings. It describes the main benefits and costs of the increasing role of DNA identification in the criminal justice system with special emphasis to India. We hope that the challenges of DNA technologies will be solve in future.

KEYWORDS: DNA Profiling, Inclusion, Exclusion, Inconclusive, IPC, Cr. P. C., Indian Evidence Act and Criminal Justice System.
INTRODUCTION

Deoxyribonucleic Acid (DNA) is increasingly becoming vital to ensure accuracy and fairness in the Criminal Justice System. DNA can be used to solve crimes in several ways. DNA profile generated from exhibits from crime scene can be matched with DNA profile of suspects to either exclude the innocent or foxt culpability of offender. Suspects can be traced by matching the DNA profiles of the crime exhibits with the profiles in the offenders DNA data bank. DNA testing is also used in resolving various civil disputes including parentage, immigration, and fraudulent sale of plant and animal products. During the last decades, many new and exciting innovations and technological advancements have taken place. Now, mt DNA, Y-STRs, and SNPs are also being added to forensic DNA testing. Nanotechnology-based DNA-chip is another development to improve speed and resolution of DNA evidence analysis.

DNA profiling (earlier called DNA fingerprinting) was introduced in 1984 by British geneticist Alec Jeffrey. It was first used in catching and convicting Coin Pitchfork who raped and murdered two girls, one in 1983 and another in 1987. Since then, the science of DNA profiling has undergone developments and it will continue to do so in the future. It has now become a routine test in any forensic setting, and is in great demand in the process of criminal investigation and administering justice in criminal cases and civil disputes. Due to the extensive validation studies and challenges in courts, DNA is now considered a gold standard in forensic science.

AIMS AND OBJECTIVES

➢ To examine the development of DNA Technology and its application not only in crime prevention but also in identification of criminals.
➢ To study the constitutional validity for conducting DNA test in criminal cases under article 20 and 21 of Indian Constitution.
➢ To critically evaluate the role of judiciary for admitting DNA technology in criminal cases in India.
➢ To compare the admissibility of DNA technology in the courtrooms of USA and UK with India.
➢ To suggest remedial measures to effectuate the use of DNA technology in India.

HYPOTHESIS

H0: As DNA test is not violating the fundamental rights of the accused, it may be legally recognised.

Ha: DNA test violates the fundamental rights of the accused guaranteed under article 20 and 21 of the constitution.

RESEARCH METHODOLOGY

The methodology adapted for conducting the proposed research is Doctrinal research method. Doctrinal research in law field indicates arranging, ordering and analysis of the legal structure, legal framework and case laws to search out the new thing by extensive surveying of legal literature but without any field work.

MATERIALS

The researcher has referred secondary sources namely books, journals, research articles, unpublished theses, newspapers and e-sources for the purpose of writing this paper.

HISTORICAL PERSPECTIVE ON ADMISSIBILITY OF DNA IN INDIAN CRIMINAL INVESTIGATION

DNA Technology is the most potent and accurate method to identify the criminals in cases where trace evidence fail to provide a conclusive proof as to who is the criminal. Through DNA technology, crime investigation has become more easy and accurate. Through DNA evidence collected from the crime scene, the criminal can be traced. It is of great use in the criminal cases related to Rape, Murder, Kidnapping, Robbery, and Burglary etc. and in cases where the body is in mutilated condition as in Tandoor Case, there DNA test is the only scope for investigation.

In India, more than sixty-nine cases have been solved with the help of DNA fingerprinting including paternity disputes. Even Dhanu and Sivarasan alleged assassins of the

late Prime Minister Rajiv Gandhi, were identified by DNA profiles. Using this technique, the Federal Bureau of Investigations formally concluded on 17th August 1998, the day of Mr. Clinton’s testimony before the grand jury, that the stain of the dress contained Mr. Clinton’s DNA saying that there was only one in 7.87 trillion changes that it was not later on the formal finding was the truth. (Krawczak and Schmidtke 1992)

The first criminal conviction based on DNA testing was in the 1986 U.S. case of Florida v Andrews\(^2\), in which the DNA were compared for the purpose of identifying the perpetrator of a crime. The trial Court admitted the evidence, and the jury convicted defendant of aggravated battery, sexual battery and armed burglary of a dwelling. Thereafter various cases have been solved.

But there are few cases where DNA typing of non-human (plant and animal genetics) biological samples has been of use in criminal trials have involved identification of an individual rather than of determination of the species of origin. These cases have been unique, with title widespread application (e.g. snowball the cat and a palavered tree in Arizona), however the potential for widespread application is great, pet hairs have been transferred from suspects to crime scene and vice versa. One can imagine that plant subspecies determination or identification might be very useful for marijuana tracing. One can also imagine that grasses found on the shoes of suspects might be very important and common evidentiary specimen to link suspects to crime scenes. In these cases chances of availability of DNA fingerprint is much more than that of fingerprint. (Sathyan S and S 2015)

A DNA test has confirmed that former Asam Gana Parishad\(^3\) Minister Rajendra Mushahary was the biological father of the child whose mother had alleged that Mushahary had raped her twice and made her pregnant. The police had to seek the Court’s permission for DNA profiling when the investigation into the rape case had reached the dead end only for this unique technique. It is peculiar that demand is going on death penalty for rape but is it not desirable to go for a DNA test in rape cases to reach to a conclusion easily. This will be certainly a good piece of evidence against the accused. It will also eliminate false charges of rape\(^4\).

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\(^2\) 533 So.2d US 841 (1988)
\(^3\) A regional political party from north-eastern state of Assam
It is the technique that investigators used to expose the attempt to pass off the killing of five innocent civilians in Jammu and Kashmir as that of terrorist. To ascertain the identity of the dead the Government obtained DNA samples of the corpses to match them with the blood samples of their relatives\(^5\).

DNA fingerprinting is at the cutting edge of forensic science. If DNA fingerprinting works and receives evidentiary acceptance. It can constitute the single greatest advance in the search for truth and the goal of convicting the guilty and acquitting the innocent since the advent of cross-examination. Once a result is obtained from a DNA sample the interpretation is crucial to the correct understanding of what the result means, and this result depends on how the results are expressed, which in turn depends on what questions are asked. Asking the wrong question can mislead Judge and this is what is called the Prosecutor’s Fallacy,\(^5\)

**THE RELEVANT STATUTES ON DNA**

This chapter describes the relevant statutes dealing with DNA technology under the Criminal Justice System in India. The relevant statutes are Criminal Procedure Code, 1973 (Sections 53, 54, 53A, 164A, 173(8) and 293(2) & (4)), Indian Evidence Act, 1872 (Sections 45 and 112) and The Prevention of Terrorism Act, 2002 (Section 27(1)). This chapter also describes the relevant Articles under the constitutional law (Article 51A (h) & (j), Article 246 (entry 65 and entry 66)) and clearly analyzes the Constitutional validity of DNA technology under Articles 21 and 20(3) of the Indian Constitution.

**THE CRIMINAL PROCEDURE CODE, 1973**

Though there is no specific DNA legislation enacted in India, Sections 53 and 54 of the Code of the Criminal Procedure, 1973 provide for DNA tests impliedly before 2005 amendment and they were extensively used in determining complex criminal cases. Section 53 deals with the examination of the accused person by a registered medical practitioner at the request of a police officer if there are reasonable grounds to believe that an examination of his person will afford evidence as to the commission of an offence. Section 54 of Criminal Procedure Code, 1973

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\(^5\) Ibid
provides for the examination of the arrested person by a registered medical practitioner at the request of the arrested person.

Section 53 of Criminal Procedure Code has been subsequently amended in the year 2005 by the Code of Criminal Procedure (Amendment) Act, 2005. The Code of Criminal Procedure Act, 2005 amendment has added two new Sections, namely Section 53A and Section 164A which authorize the investigating officer to collect DNA sample from the body of a person accused of rape as well as the rape victim with the help of a registered medical practitioner. Though Section 53 refers only to examination of the accused by a medical practitioner at the request of the police officer, the court has wider power for the purpose of doing justice in criminal cases, by issuing direction to the police officer to collect blood samples from the accused and conduct DNA test. After the completion of investigation, the charge sheet is filed before the Magistrate. In case of necessity the police can make an application before the court to conduct further investigation under Section 173(8) of Criminal Procedure Code, 1973. Then, the court may order for further investigation under Section 173(8) of Criminal Procedure Code, 1973. The report of certain Government Scientific experts may be used as evidence in any enquiry, trial or other proceedings under Section 293(4) of Criminal Procedure Code. Section 293(2) provides that the court may, if it thinks fit, summon and examine any such expert as to the subject-matter of his report. (Dikshit 2007)

The Supreme Court in Pokar Ram v. State of Rajasthan, noted: “The release of an arrested person on bail did not appear to make any difference, since he did not cease to be an arrested person or an accused person for the purpose of Section 53 of Criminal Procedure Code, if the examination therein is found to be necessary by the Court for the purpose of proper investigation or an effective trial.”

In Krishana Kumar Malik vs State of Haryana. After the incorporation of sec 53 (A) in Cr.P. Code, it has become necessary for the prosecution to go in the DNA test in such type if cases, facilitating the prosecution to prove its case against the accused.

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6 AIR 1985 SC 969: (1985 Cri LJ 1175)
7 1977 AIR 366: (1977 Cri LJ 225)
Section-164 A of Cr.P.C.- Medical examination of the victim of rape:

Medical examination of the victim of rape.– (1) Where, during the stage when an offence of committing rape or attempt to commit rape is under investigation, it is proposed to get the person of the woman with whom rape is alleged or attempted to have been committed or attempted, examined by a medical expert, such examination shall be conducted by a registered medical practitioner employed in a hospital run by the Government or a local authority and in the absence of a such a practitioner, by any other registered medical practitioner, with the consent of such woman or of a person competent to give such consent on her behalf and such woman shall be sent to such registered medical practitioner within twenty-four hours from the time of receiving the information relating to the commission of such offence. (Ashworth 2015)

INDIAN EVIDENCE ACT

The Indian Evidence Act 1872 does not directly specify the use or applicability of DNA technology. But some of its sections take into consideration the use of the DNA technology as a matter of Evidence. The sections, which take in to consideration the use and application of DNA technology directly or indirectly, are as under

Section -9 deals with “Facts...which establish the identity of anything or person whose identity ids relevant ....are relevant in so far as they are necessary for that purpose”

Section -45 Deals with the expert evidence “When the court has to form an opinion upon a point of foreign law or science or art or as to identify the handwriting or finger impressions, the opinion upon point of that person specially skilled in such foreign law, science, or art in question... such persons are called experts”

Section -46- Facts bearing the opinion of an expert

Section-51 deals with grounds of opinion,

Section 112-deals with the provision of the legitimacy of the child born. At the same time illegitimacy of the of a child if “no access” between husband ands wife is established.

Section114- Court may presume existence of certain facts -The Court may presume the existence of any fact which it thinks likely to have happened, regard being had to the common course of
natural events, human conduct and public and private business, in their relation to the facts of the particular case. (Munir and Saharay 2006)

CONSTITUTION OF INDIA

Under the Part IV of the Constitution of India, Article 51A denotes the fundamental duties. This Article represents that every citizen is obligated to perform certain duties called the fundamental duties. Article 51A (h) and (j), comments that it shall be the fundamental duty of every citizen of India to develop the scientific temper, humanism and the spirit of enquiry and reform and strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher level of endeavor and achievements. The word scientific temper denotes:

(i) The mental attitude which is behind the method of acquiring reliable and practical knowledge

(ii) Not accepting answers without testing and trial

(iii) Requiring solid information and incontrovertible data, and then suitable analysis before accepting anything

(iv) Not accepting views and opinions, simply because traditionally these views are accepted

(v) Not observing obscurantist and superstitious practises and

(vi) Openness of mind and absence of dogmatism.

The Division Bench of Delhi High Court in Shri Rohit Shekhar v. Narayan Dutt Tiwari, clearly explains that: Even the Constitution of India, while laying down the fundamental duties, by Article 51-A (h) and (j) declares it to be the duty of every citizen of India to develop a scientific temper and the spirit of inquiry and reform and to strive towards excellence, to reach higher levels of achievement. What we wonder is that when modern tools of adjudication are at hand, must the courts refuse to step out of their dogmas and insist upon the long route to be followed at the cost of misery to the litigants. The answer obviously has to be no. The courts for doing justice, by adjudicating rival claims and unearthing the truth and not for following age-old practises and procedures when new, better methods are available.

8 http://therationalistsociety.com/blogging/?p=221
9 FAO (OS) No.547/2011
In another Article under the Indian Constitution Article 246-Entries 65 and 66 of the Union List, the Parliament has a power to make laws under the Constitution of India. The Parliament is legislatively competent to make laws with respect to the Union agencies and institutions for professional, vocational or technical training, promotion of special studies or research, or scientific or technical assistance in the investigation or detection of crime and with respect to coordination and determination of standards in institutions for higher education or research and scientific and technical institutions. These constitutional provisions take care of the scientific developments that may take place and may be put to use for the benefit of the people. The Constitution provides efficient scales for balancing between public and private interests and the Courts have put to use its provisions for an effective social engineering to protect both the cherished human rights recognized by the Constitution and the paramount public interest in a welfare State.  

**Article 20(3):**

Articles 20(3) of the Indian Constitution provides that no person accused of any offence shall be compelled to be a witness against himself. Article 20(3) is based upon the presumption drawn by law that the accused person is innocent till proved guilty. It also protects the accused by shielding him from the possible torture during investigation in police custody. What Article 20(3) contemplates is forcing testimony thereby incriminating oneself in a crime. Therefore police cannot forcibly extract confession. The term witness in this clause means source of information thereby incriminating self. But precondition to this is some sort of force or coercion. One cannot take advantage of his own wrong. Using DNA Technology for detecting the culprit is in no way against this right. In reality it facilitates the advancement of Justice; anyhow it is different from confession provided that DNA test is carried under the supervision/guidance of Judiciary, which will ensure just, fair and reasonable procedure. In Raman Lal Bhogi Lal Shah Vs V.K. Guha, Supreme Court held that protection under Article 20(3) is only against the person being compelled to be a witness against himself. It doesn't mean that he need not give information of matters, which don't tend to in cremate him. The accusatorial system gives too

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much importance to the right of the accused. It doesn’t care about law enforcement if the accused is innocent then why he is refuge under Article 20(3), when subjected to DNA test. In order to reach the right conclusion, one must see the right perspective. [Munir and Saharay 2006; Inbau 1999]

(iii) Article 21-Right to life

Our Constitution being an organic document caters the need of organic man with its omnipresence in every part of our lives. Fundamental rights are incorporated with a view to foster development of man and to check state action in this field. Fundamental rights in themselves are not absolute, which is in consonance with jurisprudential ideology. So they cannot be stretched too far or else the legal system will be in problem.

Under the garb of Article 21, the accused cannot be helped to free him. The concept of predominance of the legal sprit as accepted by the general conscience of the common man and the intellect speaks that if there is a written law or even there if there is not written law, such law must provide for justice which is actually manifested in action and not only on paper. So to be in line with predominance of legal sprit, care must be taken not only of the interest of the accused but the interest of the victim and society at large. Therefore proper thought should be given while appreciating any form of evidence within the notion of predominance of legal sprit.

Whenever any new scientific tools adopted in criminal cases, it should fulfill the constitutional mandate of right to privacy and right against the self-incrimination under Article 21 and Article 20(3) of the Indian Constitution. So, when applied new scientific DNA technology it should not violate the person’s right to privacy and right against self-incrimination under Articles 21 and 20(3) of the Constitution of India.

JUDICIAL APPROACH TOWARDS DNA TESTS

CIVIL MATTERS

Initially, the Judges took very conservative view regarding the application of DNA Technology in resolving cases. Though, with the passage of time the courts have adopted a positive view of DNA evidence. The right to privacy, social aspects and constitutional provisions
has been proved to be a barrier in taking the DNA evidence in the fields of maintenance, inheritance and succession etc. The DNA evidence has been sparingly used.

DNA Evidence in Paternity Cases: Conflicting Views: Indian judges often face a debatable question in deciding matters of paternal responsibility that whether the law should give priority to biological parentage over social parentage. Section 112 Of Indian Evidence Act 1872, provides presumptions regarding legitimacy of a child unless it can be shown that the parties had no access to each other at the time when child could have been begotten. DNA parentage testing may be used to rebut a presumption arising under the Evidence Act or in cases where no presumption arises.

The first case in which DNA fingerprinting was used in India was Laxmi’s case, two names for the same five-year-old girl. One couple claimed the daughter Laxmi as theirs while another couple who had long ago lost their child Mary claimed her to be their daughter lost earlier. With the help of DNA fingerprinting, it was found that the child was in fact Mary. (Committee on DNA Technology in Forens..., Moenssens 2017)

Gautam Kundu v State of West Bengal where a woman and a child filed case for maintenance under section 125 Cr.P.C. The father claimed himself not to be father of child and prayed for blood test. In this case, the plea of father was rejected by Magistrate as well as by the High Court on the grounds that during the continuance of marriage if a child is born, then it is a conclusive proof of legitimacy. The Supreme Court also held that the application for blood test cannot be accepted. It was also said that no person could be compelled to give a sample of blood for DNA testing against his or her will and on or refusal to give sample, no adverse inference can be drawn.

In Sajeera v P.K. Salim the paternity of a child was challenged in the maintenance case. The father contended that there was no need of DNA test but agreed to conduct of the test on the expense of the petitioner. In this case the Honorable Kerala High Court observed that, “though by blood test it cannot be positively established the paternity of child, it can certainly exclude individual as the father of child.... It is true that without the consent of the person, blood test

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cannot be conducted and there is no law in India enabling the court to compel any person to undergo for blood test...”

Also in the case of Syed Mohd. Ghouse v Noorunnisa Begum\textsuperscript{13} the Andhra Pradesh High Court relied on the judgments in the GautamKundu case and held that court cannot compel a person to undergo a DNA test it is however relevant in the case of Swati Lodha v State of Rajasthan, much earlier the Rajasthan High Court observed that taking of blood test is not violative of Article 20(3) of the Constitution of India and when the accused refuses to give sample blood for determining paternity, refusal amounts to corroboration.

In Kanti Devi v Poshi Ram\textsuperscript{14} the court gave priority to social parentage over biological parentage and rejected DNA evidence by observing that though the result of DNA test is said to be scientifically accurate; It is not enough to escape from conclusiveness of Section 112 of Indian Evidence Act of 1872.

Again in case of Sharda v Dharam Pal\textsuperscript{15} the Supreme Court took a very positive view regarding the importance as well as admissibility of DNA evidence in matrimonial cases. In this case, the Supreme Court held that a Matrimonial court has the power to order a person to undergo medical test and this would not amount to violation of Article 21 of the Constitution. In case of refusal to undergo test, the court would be entitled to draw an adverse inference against him. The Delhi High Court has also adopted the same view in Mrs. Kanchan Bedi v Gurpreet Singh\textsuperscript{16} where the parentage of infant was in question and the application filed by the mother was opposed by the father for conducting DNA test. The court held that, “It appears for me to be difficult to resist that the law as it presently stands, does not contemplate any impediment or violation of rights in directing persons to submit themselves for DNA test, especially where the parentage of a child is in controversy for the grant of maintenance\textsuperscript{17}.”

\textsuperscript{13} 2001 CrLJ 2028
\textsuperscript{14} AIR 2003 SC 3450
\textsuperscript{15} 1993 (3) SCC 418
\textsuperscript{16} AIR 2003 Delhi 446
\textsuperscript{17} The Indian Police Journal, 16(2001).
Criminal Matters

It is again interesting to observe that the Criminal Law is also significantly silent on such a power of a “Court to direct the taking of blood samples for blood/DNA analysis.

A single Judge of Gujarat High Court in Najabhai v. State of Gujarat,\(^\text{18}\) has held that the bar of Article 20(3) of the Constitution of India would extend with regard to compelling the accused to submit himself to medical examination also. However, this proposition runs contradictory to a decision by Apex Court in State of Bombay v. Khathi kalu\(^\text{19}\), wherein, such examinations were held not included within the meaning of becoming a witness. Referring to the powers conferred under Section 53, Cr. P.C. the Andhra Pradesh High Court has held that although there is no clear provision in Cr. P.C. for taking such blood samples yet there is no prohibition for taking such blood samples of an accused by exercising powers under Section 53 Cr. P.C. The Court observed that taking samples of blood and semen would come within the scope of examination of the person of the arrested person and therefore, “examination of a person by a medical practitioner must logically take in examination by testing his blood, sputum, semen, urine etc. The Court further held that Section 53 provides the use of such force as it reasonably necessary for making such an examination. Therefore, it held that whatever discomfort might be caused, when samples of blood of semen are taken from an arrested person, would be justified under the provision of Section 53 and 54 of Cr. P.C.\(^\text{20}\).

The Present Indian Scenario

Several convictions have occurred in India where the scientific evidence (DNA) has been accepted under Section 45 of the Indian Evidence Act. It is the section dealing with the opinion of the expert. It states, that when the court has to form an opinion upon a point of foreign law, or science or art, or as to identity of handwriting or finger impressions, the opinions upon that point of persons specially skilled in such foreign law, science or art, or in questions as to the identity of handwriting or finger impressions are relevant facts. The Courts have opined that medical evidence is only an evidence of opinion and is hardly decisive. It is not substantive evidence. But they say that that the opinion of the doctor who has held the postmortem examination and of the forensic science laboratory is reliable. The Supreme Court of India has further stated that unless

\(^{18}\) R/CRA/1254/2005

\(^{19}\) 1961 AIR 1808, 1962 SCR (3) 10
there is something inherently defective in the medical report, the Court cannot substitute its own opinion for that of the doctor.

Section 293 of the Code of Criminal Procedure deals with reports of certain Government scientific experts. Section 293(2) says that the Court may, if it thinks fit, summon and examine any such expert as to the subject-matter of his report. The underlying principles of the technique (DNA typing for example) cannot be questioned; legal scrutiny can only revolve around questions related to the collection, forwarding and authentication of samples\(^{20}\). On the other hand, there are no proper international as well as national guidelines and that each laboratory has its own control and standardization methods. But the fact remains that the court is unlikely to understand in any detail the principles of the process. The expert’s opinion is taken by the Courts on trust and faith. Some Courts may still be reluctant to admit some type of scientific evidence (like DNA typing) as they may feel that it does not follow the Frye Rule. However of late, it is generally held that unless there is some special circumstance, all relevant evidence is admissible.

The Supreme Court of India has held that, “A medical witness called in as an expert and the evidence given by the medical officer is really of an advisory character based on the symptoms found on examination. The expert witness is expected to put before the court all materials inclusive of the date which induced him to come the conclusion and enlighten the Court on the technical aspects of the case by explaining the terms of science so that the Court although not an expert, may form its own judgment on these materials after giving due regard to the expert’s opinion because once the expert’s opinion is accepted it is not the opinion of the medical officer but that of the Court”. Thus, it can be said that the laws and Courts in India are still not clear on the matter on the criteria of admissibility of scientific matters and confusion still prevails.\(^{20}\)

**LIMITATIONS OF DNA TECHNOLOGY**

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In spite of the fact that the application of DNA technology in the criminal justice system is a social necessity, this new technology is not above criticism. Questions remain concerning whether DNA evidence is a threat to the right to a fair trial or the right against incrimination as guaranteed by both the Indian and American Constitutions. There are also concerns about the statistical probabilities. Critics argued that no matter how small the chance might be that two persons will have the same profile, can we convict a person on the basis of probability? Moreover, O.J. Simpson case\textsuperscript{21} was the exception because his Defense Attorney was able to attack the DNA evidence presented by the prosecution. Actually, though the entire process of procuring DNA evidence is controlled by human agencies (i.e. investigating officers and forensic scientists), there is ample chance for manipulation, tampering of such evidence by corrupt officers or scientists which, needless to say, highly prejudices the accused person. The science may be infallible, but human action, which controls the result of the scientific forensic examination, is always fallible and there is probability of manipulation and tampering with the scientific evidence.\textit{(Martin-Scott 1967)}

The most glaring example in favour of the aforesaid argument is the recent incident in the State of Kashmir in March 2000 where five persons killed and burnt in a remote South Kashmir hamlet and dubbed militants with responsibility for massacre of 35 Sikhs at Chittisinghpura, were innocent local civilians. In this case, the Central Forensic Science Laboratory’s report on the DNA at Chittisinghpura nailed the Jammu and Kashmir Government and proved that the State machinery had tampered with DNA samples. Another Indian example is Priyadarshini Matto murder case where the accused Santosh Kumar Singh, the son of Pondicherry Inspector General of Police, J.P. Singh was acquitted because DNA samples were fudged by the deliberate inaction of Delhi Police.\textit{(Bharti 2006)}

Thus, three questions are still remaining unanswered regarding the credibility of DNA evidence could more than one person have the same DNA structure? Would investigators take care in gathering the evidence? Could they fake the evidence? Despite the above criticism, it cannot be denied that DNA fingerprinting is the most effective tool in the search for justice. It provides the prosecution with a way to finger suspects with a high degree of certainty and can exonerate others without the expense and suffering caused by trial. In answering the above

\textsuperscript{21} People v. Orienthal James Simpson
criticism, Daniel Koshland, the Editor of Science Magazine of USA observed: Caution is appropriate, unreasonable doubt is not.

ADMISSIBILITY OF DNA EVIDENCE IN CRIMINAL CASES IN USA AND IN ENGLAND

AMERICA

In USA, all scientific evidence in criminal trials including evidence derived from DNA identification analysis, must satisfy the test of admissibility in effect in a particular jurisdiction. In general, courts use of two tests. The so-called Frye test, which was pronounced by the U.S. Circuit Court for the District of Columbia in Frye v. United States,( 293 F. 1013, 1014 (D.C. Cir. 1923) or one of its variations, is used in a majority of jurisdictions. Under the Frye test, a novel scientific technique must have gained general acceptance the relevant scientific community before it is admitted by the court. The second rule follows the basic relevancy standard of the federal rule of evidence and is used in a majority of state jurisdictions. For admissibility under the federal rules, scientific evidence must have some relevance to the issues in the case, and its probative value must outweigh the potential for prejudice. (Committee on DNA Forensic Science: An...)

In Daubert v. Merrell Dow Pharmaceuticals, the U.S Supreme Court ruled that the federal rules of evidence have replaced the Frye test in federal court trials. Additionally, the court defined a new federal standard under the rules, the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable. Determining reliability entails a preliminary assessment of —whether the reasoning or methodology underlying the (expert) testimony is scientifically valid and whether the reasoning or methodology can be applied properly to the facts in issue. While the Daubert test applies to federal courts, most state courts continue to follow the Frye test. In general, state and federal courts have increasingly accepted DNA evidence as admissible..

ENGLAND

England is widely recognized as having the most effective and efficient approach to the use of DNA technology in the world. DNA technology and DNA data basing have been central to the process of criminal investigation since the establishment of the National DNA Database in 1995, England has become a world leader in discovering innovative ways to use DNA to identify suspects, protect the innocent to convict the guilty.

CONCLUSION

Fingerprinting become most accurate and cheap method. Then recently addition of DNA profiling and computer forensic start to predict most passable criminal identification, this new technology including internet may have big contribution to further development of criminal investigation because their aspects are endless. DNA, fingerprinting and computer forensic are very big area but it described briefly due to worlds limits. Though there is general acceptance of admissibility of scientific evidence and expert’s opinion in Indian Courts, there is no special law with respect to this and enable democratic institutions to function lawfully. Section 45 of the Indian Evidence Act is insufficient in this regard. In case of doubt, the Daubert Guidelines can be adhered to. Proper National protocol should be formulated and extensive studies carried out with respect to quality control, interpretation of results and understanding the potential error rates of scientific evidence matter.

At present the DNA test are being admitted by the court as evidence on larger scale. However it is not to be forgotten that each DNA case is unique and the results depend vastly on circumstances and situations. It is noteworthy that DNA testing in the Indian Criminal Justice System does not have any set standards, guidelines etc. which are very relevant with the rapid spread of the routine use of DNA testing in our country.

RECOMMENDATIONS FOR EFFECTIVE APPLICATION OF DNA TECHNOLOGY

1. For the purpose of crime investigation, Section 53 CrPC should be more specific, clearer, more unambiguous, more meaningful, and more purposeful so that an investigating officer may not face any difficulty for the purpose of crime investigation.

2. There is a necessity to amend the provisions of the Criminal Procedure Code, to include the scientists of this institute in Section 293(4) CrPC and to treat their reports as evidence. Otherwise
it is difficult for these experts to go around the country for giving evidence at every trial, in cases where they are to give expert opinion.

3. Article 20(3) of the Constitution of India has to be reinterpreted to the effect that the accused should not get protection of this article when the investigating officer or the court direct him to give DNA sample for the purpose of investigation and if he does not give consent then an adverse inference should not be drawn against him.

4. A specific unambiguous scientific DNA legislation is the paramount need of this age for effective application of this new gift of forensic science in our legal system.

5. In the line of the US DNA Identification Act of 1994, we have to make a specific DNA legislation which would authorise to set up the combined DNA Index System (CODIS). This infrastructural set-up, laid down in the said legislation, will provide error-free result of DNA testing in our country.

6. DNA sampling involves intrusion into three forms of individual privacy; bodily privacy, genetic privacy and behavioural privacy. Privacy and respect for human dignity need not be abandoned when balancing civil liberties with the larger interests of the community. Formulation of sound privacy principles can enhance the integrity and legitimacy of DNA profiling.

7. Legislation should be enacted to ensure that only government-recognised laboratories in accordance with the regulatory requirements that may be statutorily laid down conduct DNA parentage testing in India. The Family Courts Act should be amended to provide a special chapter dealing with DNA parentage testing.

8. Again, the law should recognise a child’s right to give or withhold consent to the testing of his or her own genetic sample where the child has acquired sufficient maturity and understanding of the process and its implications to safeguard his or her own interest.

Lastly, under Article 245 of the Constitution of India, Parliament is legislatively competent to make laws with respect to the Union agencies and institutions for professional, vocational or technical training, promotion of special studies or research, or scientific or technical assistance in the investigation or detection of crime and with respect to coordination and determination of
standards in institutions for higher education or research and scientific and technical institutions
(Entries 65 and 66 of the Union List).

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