



AN CRITITCAL STUDY OF USE OF DNA TECHNOLOGY IN INDIAN CRIMINAL JUSTICE SYSTEM

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Abstract: *The development of Deoxyribonucleic Acid (“DNA”) innovation is one of the foremost imperative progresses within the zone of measurable science right now utilized within the criminal equity framework. DNA is ubiquitous and is shown in each single human being. It is the basic building square for any person’s hereditary cosmetics. A DNA profile, special to a person, can be obtained through DNA profiling or DNA writing, which could be a logical handle whereby the person’s hereditary fabric is confined and changed into discernible pictures. This gives quick distinguishing proof of offenders through scientific examination of wrongdoing scene tests. This article presents the diverse present-day application of DNA in Indian Criminal Justice System. DNA process could be a powerful new forensic technology that several argue is that the greatest tool within the history of forensic science. But as is usually the case for new technologies, its acknowledgement by society was not straightforward. The utilization of DNA profiling in the criminal equity framework is a crucial issue in criminal specialists today. The innovation is changing profiling has been depicted as an effective achievement in criminological science.*

DNA technology is having a stronger impact in making sure that the criminal justice system is fair and accurate. In this paper, a brief introduction is given relating to DNA, its use and application and the significance of DNA evidences in criminal judicial system in India. The existing legislation on recognition and admissibility of DNA evidences have also been briefly discussed. And lastly, how the Indian judiciary has showed its creativity in admitting or allowing for DNA evidences has also been discussed through various prominent case laws. The need for specific legislation on DNA technology in India is need of an hour.

Keywords: *Forensic science, DNA Profiling, DNA Technology and India, Criminal justice system.*

I. INTRODUCTION:

"Any sufficiently advanced technology is indistinguishable magic" - Arthur Clarke.

Crime has been a persistent aspect of human civilization since its inception, and over time, the nature of criminal activities and the methods employed by wrongdoers have undergone substantial changes. The progression of science and technology has played a crucial role in the evolution of crimes and criminals. Consequently, relying solely on traditional crime-solving approaches like questioning, information gathering, and electronic surveillance is no longer sufficient for effective investigations. In today's advanced society, outdated and harsh methods of criminal detection are deemed incompatible with civilized values. Forensic sciences have emerged as a pivotal scientific method, providing investigating authorities with powerful tools to address and resolve crimes. Over the past few decades, forensic science has gained significant prominence, finding a crucial role in the judiciary and law enforcement agencies.

Within the framework of forensic science, various techniques and branches have developed, becoming exclusive domains of this field. Sciences such as fingerprint analysis, anthropometry, track mark examination, document analysis, and forensic ballistics are integral components of forensic science. Moreover, substantial progress has been made in areas like serology, voice analysis, Odor analysis, and computer-based¹ pattern recognition, further enhancing the capabilities of forensic science in solving crimes.

A British geneticist, **Sir Alec John Jeffreys**,² developed the technique for DNA fingerprinting. In the case of *R v. Colin Pitchfork*,³ DNA profiling was utilised for the first time in UK in 1986 to give significant evidence. The essential *"building block of inheritance"* is DNA, or Deoxyribonucleic Acid. The DNA of an individual can be found practically in every cell of the human body. *Polymorphism* is a term used to describe variations in human DNA. Individuals can be identified using these polymorphic regions of the DNA molecule. DNA is a person's genetic code, *"the blue print which makes you what you are"*. Development of DNA analysis has been very crucial in most of the civil litigation, including paternity or maternity claims, baby exchange cases, as well as the scientific identification of offenders in criminal cases.

The significance of DNA evidence is evident in criminal cases in India, influencing verdicts by either convicting the guilty or exonerating the wrongly accused. In criminal investigations, sophisticated scientific equipment is utilized to collect a suspect's DNA, isolate and measure specific segments, and then match the obtained DNA profile with physical evidence samples. The absence of a match may eliminate the suspect, while a match prompts a statistical analysis used by courts to determine guilt or innocence.

II. WHAT IS DNA

¹ B.R.Sharma, *Forensic Science in Criminal Investigation & Trials*, 03 (Universal Law Publishing, New Delhi, 15th ed., 2016)

² Alec J. Jeffreys is the pioneer as far as the discovery and development of DNA Profiling is concerned. He was accorded Knighthood by Her Majesty, the Queen of England for his work in this field. The US Scientists have also made equally commendable contribution in this field. See: Paul J. Hangerman (1990), "DNA Typing in the Forensic Arena", Volume 47 *American Journal of Human Genetics*, 876-82 (1990)

³ [2009] EWCA Crim. 963

DNA, an abbreviation for Deoxyribonucleic Acid, serves as an organic component present in all living cells, offering each individual a distinct genetic blueprint. Various bodily substances⁴ such as blood, saliva, sperm, hair, bones, and other organs can be sources for extracting DNA. Widely accepted worldwide,⁵ the DNA method has become a standard in biological identification.

The human body comprises numerous cells, each containing a complete set of chromosomes. Within these cells, excluding red blood cells, there is a common component known as the "nucleus," housing an identical duplicate of an individual's genetic material—DNA or Deoxyribonucleic Acid.⁶ The nucleus contains a coiled DNA molecule and proteins, forming string-like structures called "chromosomes." These chromosomes consist of DNA coiled around proteins known as "histones," providing structural support. Multiple genes are present in each chromosome, influencing human behaviour, character, and physical traits passed down from parents to offspring.

DNA itself takes the form of a long, twisted ladder-like structure termed the "double helix," composed of four nucleotides: adenine, cytosine, guanine, and thiamine. The arrangement of these nucleotides forms a "code," and when sequenced in chromosomal DNA, these codes constitute an individual's⁷ genes. Humans possess a total of 46 chromosomes—22 pairs of autosomes and one pair of sex chromosomes (XX for females and XY for males), forming the human karyotype. Each human cell, with the exception of identical twins, contains 23 pairs of chromosomes, uniquely inherited from both parents. This genetic uniqueness renders DNA evidence highly valuable in investigations, as the likelihood of someone else having identical DNA is nearly impossible. The consistency of an individual's DNA remains unchanged over time and with age, allowing for the comparison of previous and current samples in criminal investigations.

⁴ is contained in every living cell of our bodies and may thus be extracted from a wide range of materials, a list of which is provided below:

- a) Blood and bloodstains
- b) Semen and semen stains
- c) Hair and hair roots
- d) Finger nail pairings
- e) Saliva
- f) Body tissues and body organs
- g) Bone and bone marrow
- h) Urine
- i) Faecal matter
- j) Tooth canal root pulp
- k) Foetal material
- l) Post-mortem materials
- m) Blood samples in blood relationship cases
- n) Other body fluids

⁵ Aditya Pratap Singh, "Admissibility of DNA in Indian Legal System", available at: <http://jlsr.thelawbrigade.com//index.php/2017/06/16/admissibility-of-dna-in-indian-legal-system/> (last visited on April 18, 2019)

⁶ Supra note 4

⁷ Dr. R. Kumudha, *DNA Technology Under The Criminal Justice System In India: A Critical Analysis*, 08 (International Society for Green, Sustainable Engineering and Management, Kolkata, 1st ed., 2017)

Significance Of DNA As Evidence In Criminal Justice System

The significance of DNA as evidence in crime detection is underscored by its unparalleled value, precision, and consistent nature in identifying suspects. An individual's DNA remains unchanged throughout their lifetime, providing a stable and unalterable genetic blueprint. Regardless of the tissue from which DNA is extracted, it consistently produces the same DNA fingerprinting pattern for that individual.

DNA stands out as an exceptionally stable substance on Earth. As Robert Pollack notes, *"the planet's surface has changed many times over, but DNA and the cellular machinery for its replication have remained constant."* In comparison to the ever-changing elements of the Earth's surface, DNA and its replication machinery have endured, making it an extraordinarily enduring and unchanging component. The remarkable consistency of DNA allows it to withstand various conditions, such as heating, boiling, and denaturation. This stability enables the extraction of DNA from ancient fossils or bones, spanning millions or thousands of years, respectively. In challenging situations where traditional investigative methods fail or witnesses become uncooperative, DNA evidence becomes a crucial tool for resolving cases. Even in the absence of witnesses, the scientific evidence left behind can construct circumstantial evidence.

The use of DNA evidence serves to minimize the risk of false arrests and facilitates the identification of the true perpetrator. Even minute traces of scientific material are adequate for DNA profiling, making it one of the most effective tools in crime resolution. DNA's reliability and endurance make it an invaluable asset in the quest for justice, especially when other investigative avenues prove difficult or inconclusive.

III. ADMISSIBILITY OF DNA IN INDIAN LEGAL SYSTEM

DNA proof was first acknowledged by the courts in Quite a while in 1985. The technique for DNA profiling involved today in India depends on polymerase chain response (PCR) and utilizes short pair rehashes (STR). These procedures have altered the speed and proficiency of the DNA test. These are truly solid in different nations. "Father of DNA fingerprinting" in India, Dr. V.K. Raju, created and involved this innovation in India without precedent for 1988. As the DNA test gives amazing personality yet its acceptability under the steady gaze of the court generally relies upon its exact and appropriate assortment, safeguarding and documentation which can be accepted to be sufficiently dependable to be utilized as proof. Till date no particular regulation are there in India which determines the rules to the researching offices and the court with respect to the system to be taken on in the cases that include DNA proof. Additionally, no particular arrangements are given by the Indian Proof Demonstration, 1872 and Code of Criminal Method, 1973 to oversee science, innovation and measurable science issues in DNA strategy. The exploring official needs to confront many inconveniences as a result of absence of any such arrangements in gathering confirmations which includes present day component to demonstrate the charged individual blameworthy. A cop is approved to get the help of a clinical professional with sincere intentions with the end goal of the examination as given under Segment 53 of Code of Criminal Technique, 1973. However, it doesn't approve a complainant to gather any blood, semen and so forth to bring the lawbreaker allegations against the blamed. The alteration in Cr. P.

C. by the Cr. P. C. (Alteration) Act, 2005 has added two new segments which enables the researching official to gather DNA test from the body of the charged and the casualty with the assistance of clinical practitioner.⁸ These areas accommodate assessment of both the blamed for assault and the assault casualty by the clinical specialist. Be that as it may, the tolerability of these confirmations is as yet dubious as choices of the High Court and different High Courts in different cases stayed clashing. In 2003, the drive to draft a Bill directing the utilization of DNA tests for wrongdoing related cases was started. Later in 2006, a council was laid out by the Branch of Biotechnology (DoB) to make proposals for the drafting of the DNA profiling Bill which was known as the DNA Profiling Warning Board of trustees, 2006, which came as the Human DNA Profiling Bill, 2007. The 2007 draft Bill was ready by the Division of Biotechnology alongside the Middle for DNA Fingerprinting and Diagnostics (CDFD). In 2007, the draft Human deoxyribonucleic corrosive distinguishing proof Bill was unveiled, but was never presented in Parliament. In February 2012, another form of the Bill was spilled. At the point when passed, the Bill will start a state-level DNA information bases which will additionally converge into a public level DNA data set, and proposes to direct the utilization of DNA for the motivations behind security and government assistance of the general public and furthermore to give equity to all. The Bill laid out a DNA Profiling Board which is liable for 24 capabilities, including the particular rundown of occasions for human DNA profiling and the wellsprings of assortment, recommending rules for capacity and obliteration of organic examples. It likewise makes reference to the principles and methodology for foundation and working of DNA research centres and DNA Information Banks. The absence of similarity and strategy shows that there is a need in India for normalizing the assortment and utilization of DNA tests. In spite of the fact that DNA proof for the most part end up being useful in addressing wrongdoing examination yet the ongoing 2012 draft Bill doesn't explicitly accommodate the basic shields and specialized guidelines which are fundamental to forestall the abuse of DNA and safeguard the freedoms of the people. DNA can uncover extremely private data about a singular like clinical and family ancestry, and area, in contrast to different sorts of identifiers, like fingerprints. Hence, having a DNA data set with a wide extension and adding more DNA profiles onto a data set, builds the potential for abuse of data put away on the information base, since there is a ton of opportunity for distinguishing proof, following of individuals, and admittance to private information.

At present, the Bill safeguards against such abuse somewhat by restricting the data that will be put away with a DNA profile and in the lists, however the Bill doesn't make reference to it whether the DNA profiles of people sentenced for a wrongdoing will be put away and looked freely from different profiles. Furthermore, however as far as possible the utilization of DNA profiles and DNA tests to ID of culprits, it considers DNA profiles and other data with the end goal of recognizable proof exploration, convention improvement, or quality control given that it contains no face-to-face particular information and doesn't disregard moral standards. In the Indian Proof Demonstration, 1872, there are such arrangement as Segment 112,⁹ which

⁸ DNA Profiling And The Forensic Use Of DNA Evidence In Criminal Proceedings:

https://www.jstor.org/stable/43953503?seq=1#page_scan_tab_contents

⁹ Birth during marriage, conclusive proof of legitimacy

assists with deciding the paternity of the kid and expresses that a kid brought into the world in a legitimate marriage among mother and her better half in something like 280 days of the disintegration of the marriage, and the mother staying unmarried demonstrates that the kid has a place with the previous spouse, except if demonstrated in any case however again there are no particular arrangements in regards to the cutting edge logical strategies. DNA examination assumes a significant part in deciding the paternity of a youngster in common cases. Need of this proof is additionally significant in the lawbreaker cases, and in the support continuing under Segment 125 of the Code of Criminal Procedure¹⁰ in the crook courts. Yet, on a few events High Court held that right to life and individual freedom is definitely not a flat out right.

IV. BENEFITS OF DNA ANALYSIS

➤ **Accuracy**

The DNA evidence is becoming more widely accepted because it is more trustworthy than the Narcos analysis.¹¹ The subjective nature of the narcotic analysis method makes it susceptible to manipulation. While people can tell lies, DNA cannot. It was previously questioned whether two identical twins could have the same DNA sequence. However, it has now been proven that no two twins can have the same DNA thanks to technological advancements. Because narcotics analysis is so unreliable, courts do not accept it as evidence. In addition to crimes, it is also utilized for non-criminal purposes such as diagnosing, confirming the legitimacy of client products, and conducting paternity tests.

➤ **Reliability**

Since DNA evidence is more trustworthy than narcotics analysis, it is becoming more and more accepted. The subjective nature of the narcotic analysis method makes it susceptible to manipulation. The adage "people lie, but DNA does not" is well-known. It was previously questioned whether two identical twins could have the same DNA sequence. However, it has now been proven that no two twins can have the same DNA thanks to technological advancements. Because narcotics analysis is so unreliable, courts do not accept it as evidence. In addition to crimes, it is also utilized for non-criminal purposes such as diagnosing, confirming the legitimacy of client products, and conducting paternity tests.

¹⁰ Order for maintenance of wives, children and parents

¹¹ Narco analysis involves the injection of a drug, sodium pentathalon, which induces a hypnotic or sedated state in which the subject's imagination is neutralized, and they are expected to divulge true information

V. DIFFICULTIES IN USING DNA ANALYSIS IN INDIA

➤ **Handling of Samples**

The DNA test yields an impeccable identity; however, its admissibility in court is contingent upon precise and appropriate collection, preservation, and documentation. The infamous OJ Simpson case¹² demonstrated how careless handling of DNA evidence can result in the guilty being found not guilty. Using sterile gloves and forceps, the process of gathering and preserving DNA samples is crucial and must be carried out correctly. DNA will mix with the person collecting it if bare hands are used for the collection process. Nonetheless, police constables in India are not instructed in the process of obtaining DNA samples. In other nations, after a crime is committed, forensic scientists and investigators who have received the necessary training visit the crime scene to gather forensic evidence. However, in India, an inexperienced constable goes there first, follows his instincts, and ends up cleaning the body. This eliminates and obliterates the crucial DNA proof. They will therefore receive training on handling forensic evidence and how to gather and seal it appropriately. On the other hand, the test result will reveal any contamination or tampering with the evidence. However, the court rejects this tainted evidence.¹³

➤ **Storage of Samples**

DNA samples are kept in National DNA Databases in the US and the UK. The police are only allowed to collect and depose DNA; they are not permitted to keep the DNA that is recovered from the crime scene. In contrast to India, the police have unrestricted authority to gather and keep suspects' DNA even after they are found not guilty. This gives rise to worries regarding the improper use of DNA databases and could compromise suspects' or individuals' privacy even after they are found not guilty. All prisoners' DNA should be kept in a database so that it would be simple to capture more than one criminal.

➤ **Lack of Test Centres**

In foreign nations, there are sufficient facilities and testing centres for DNA testing and fingerprinting. However, there aren't many facilities in India that require people to travel to Hyderabad's Centre for Cellular and Molecular Biology, or CCMB,¹⁴ just to perform a DNA test. Not everyone may be able to pull this off. Given the effectiveness of this technology, this institution ought to have test centres and sub-branches spread across the entire nation. Additionally, it needs to be ensured that DNA testing is easily accessible to citizens of the entire nation.

¹² The People of the State of California v. Orenthal James Simpson, 1995

¹³ Evidential Value of DNA: A Judicial Approach: <http://docs.manupatra.in/newslines/articles/Upload/BF936E7D-4211-4AE4-9BD7-3D721A8E424C.pdf>

¹⁴ The Centre for Cellular & Molecular Biology (CCMB) is a premier research organization in frontier areas of modern biology.

VI. DNA ANALYSIS IN ACCORDANCE TO CONSTITUTION

DNA fingerprinting can't be examined without the point of view of self-implication under Article 20 (3) and the topic of infringement of private space of an individual and its ramifications related under Article 21 of the Constitution of India.

The Indian courts are questionable in tolerating the proof which depends on DNA Test since it provokes the Right to protection and the Right against self-implication of a person.

The Constitution of India gives insusceptibility to a blamed against self-implication under the Article 20(3) - 'No individual blamed for an offense will be constrained to be an observer against himself'. The article depends on the legitimate proverb "*nemo tenetur prodre accusare pisum*", and that signifies "*No man is obliged to an observer against himself.*"

There are various legal proclamations under these articles that have relatives like a pendulum that is bringing about extending the vulnerability as for the lawful place of the DNA innovation. There are cases in the Hon'ble High Court which held that the Right to Life and Individual Freedom isn't outright and it very well may be dependent upon specific limitations.

In *Kharak Singh v. Province of Uttar Pradesh*,¹⁵ the zenith court held that the Right to Security isn't ensured under the Constitution. The courts have approved DNA tests on a couple of events which are to be utilized in an examination for creating proof.

On account of *Kanchan Bedi v. Gurpreet Singh Bedi*,¹⁶ the inquiry emerged on the parentage of the newborn child, and the mother of the baby recorded an application for leading DNA test, to which the dad of the baby went against and contended on his privileges that are being disregarded. The Hon'ble Court held that where the parentage of a youngster is dubious and being referred to, a guided individual to go for a DNA test doesn't add up to an infringement of principal privileges. The Court rested on the judgment given in *Geeta Saha v. NCT of Delhi*, where the seat has requested a DNA test to be hung on the baby of an assault casualty.

There is a renowned ND Tiwari case which includes the utilization of DNA fingerprinting in India. In the said case, ND Tiwari a legislator was claimed by Rohit Shekhar that he is his natural dad. This case raised numerous lawful issues as for the precision of DNA testing and whether the people reserve the privilege to keep the consequence of such test in private. As per the regulations in India, an individual can't be constrained against his/her will to give DNA proof. Yet, for this situation, the court requested ND Tiwari for his blood tests in the enormous interest of the general population. The courts can compel individuals to give their blood tests to give equity.

¹⁵ 1963 AIR 1295, 1964 SCR (1) 332

¹⁶ 2003 IIAD Delhi 252, AIR 2003 Delhi 446, 103 (2003) DLT 165, I (2003) DMC 458, 2003 (67) DRJ 297, 2003 RLR 229

VII. THE RELEVANT LEGISLATIONS ON DNA IN INDIA

In India, using DNA or any other type of biological evidence is nothing new. Although there isn't any official legislation that deals with these biological evidences—specifically, DNA profiling—we have repeatedly found that these evidences are very relevant to the resolution of many important cases. In addition to being used in criminal investigations, DNA profiling can be useful in determining parentage, confirming the legitimacy of a child, finding missing people, and locating unidentified deceased bodies. The pertinent laws are the Criminal Procedure Code of 1973 (henceforth abbreviated as Cr. P. C.] (Sections 53, 53A, 54, 164A, 173(8) and 293(2) and (4)); Sections 45 and 112) of the Indian Evidence Act of 1872; and Section 27(1) of the Prevention of Terrorism Act of 2002. The Indian Constitution, which is the supreme law of the land, contains several articles that address DNA. These are Articles 20(3), 21 and 51A (h) and (j), as well as entry 65 and 66 of Article 246.

i. The Code of Criminal Procedure, 1973

As per Segment 53¹⁷ of Cr.P.C., a cop might demand that an enlisted clinical expert inspect a blamed individual assuming that they have motivation to trust that doing so may accommodate the proof of the direct of a wrongdoing. Segment 54¹⁸ arrangements with the arrestee's solicitation for a clinical assessment by an ensured clinical specialist. In case of a capture made in consistence with Segment 438 of Cr.P.C., even after the wrongdoer has been conceded bail, Area 53 of the Cr.P.C. might be utilized. On the solicitation of the guidance or the cop for a powerful examination, the Justice can arrange for the assortment of blood tests for DNA testing.

If there should be an occurrence of Pokar Slam v. Territory of Rajasthan,¹⁹ that's what the High Court held, "the arrival of an individual on bail didn't seem to have any effect, assuming the assessment is viewed as essential by the court for successful examination because he didn't fail to be a captured individual or blamed individual for the reasons for Segment 53 of Cr.P.C."

¹⁷ **The Code of Criminal Procedure Act, 1973, S.53: Examination of accused by medical practitioner at the request of police officer.**

It shall be lawful for a registered medical practitioner, acting at the request of a police officer not below the rank of sub-inspector, and for any person acting in good faith in his aid and under his direction, to make such an examination of the person arrested as is reasonably necessary in order to ascertain the facts which may afford such evidence, and to use such force as is reasonably necessary for that purpose when an individual is arrested on a charge of committing an offence of such a nature and alleged to have been committed under circumstances that there are reasonable grounds for believing that an examination of his person will yield evidence as to the commission of an offence.

¹⁸ **14The Code of Criminal Procedure Act, 1973, S.54: Examination of arrested person by medical practitioner at the request of the arrested person.**

When an arrested person, whether on a charge or not, claims, either at the time of his appearance before the magistrate or at any point during his incarceration, that an examination of his body will provide evidence that disproves the commission of an offence by him or that another person has committed an offence against his body, the magistrate shall, upon the arrested person's request, order that a registered medical professional examine the arrested person's body; otherwise, the magistrate may believe that the request is made to cause inconvenience, delay, or to thwart the interests of justice.

¹⁹ AIR 1985 SC 969: (1985 Cri LJ 1175)

Fazl Ali, J., of High Court of India noticed that,²⁰ "...the term 'expectant bail' is actually a misnomer, since what the segment considers isn't expectant bail, however simply a request delivering a blamed in the occasion for capture." People who are conceded bail don't stop being captured or blamed people under Segment 53 for the Cr.P.C.

The Code of Criminal System (Change) Act, 2005 modified Segment 53 of the Demonstration and presented two new arrangements, Segment 53A²¹, which takes into consideration clinical assessment of a blamed individual for assault and Segment 164A,²² which accommodates clinical assessment of a survivor of rape. With the help of a guaranteed clinical expert, the examining authority can in this way get a DNA test from the individual associated with assault as well as from the casualty of assault. Besides, assuming the cop accepts that further request is expected after the finish of the examination, he might document an application with the Judge under Area 173(8)²³ of Cr.P.C. Under Area 293(4)²⁴ of Cr.P.C., the report of specific Government Logical Master might be utilized as proof in an enquiry, preliminary or different procedures and the court may "bring and meet with any such master regarding the topic of his report" on the off chance that it sees appropriate under Segment 293(2)²⁵ of Cr.P.C.

ii. **The Indian Evidence Act, 1872**

In India skilled is no forbiddance in some law for permitting DNA evidences in the court exercise but by way of the absence of particular constitution concerning this, the judgment display or take public the hands of judges to either admit or prohibit these evidences. Apart from the indicated supplying of Cr.P.C., the Indian Evidence Act, 1872 specifies for Section 45 that deals with "belief of specialists". It is established that when

²⁰ Balchand Jain v. State of Madhya Pradesh; 1977 AIR 366: (1977 Cri LJ 225)

²¹ **The Code of Criminal Procedure Act, 1973, S.53A: Examination of person accused of rape by medical practitioner –**

When an individual is detained on suspicion of rape or attempted rape, and there are good reasons to believe that interrogating the suspect will reveal information about the commission of the offence, it is permissible for a licensed medical professional working for the government or a local government, or, if one is not available, any other licensed medical professional operating within sixteen kilometers of the scene of the crime, acting at the request of a police officer not lower than the rank of sub-inspector, and for anyone acting in good faith with his assistance and guidance, to conduct the appropriate examination of the arrested individual and to use whatever force is reasonably required.

²² **The Code of Criminal Procedure Act, 1973, S. 164A: Medical examination of the victim of rape-**

In instances where an investigation is underway into an alleged incident of rape or attempt at rape, and it is suggested that the woman involved be subjected to a medical expert's examination, this examination will be carried out by a registered medical professional working in a government-run hospital or, in the event that the practitioner is not available, by any other registered medical professional acting with the consent of the woman or a representative who is competent to act on her behalf. The woman will be referred to the registered medical professional within twenty-four hours of the investigation.

²³ **The Code Of Criminal Procedure, 1973, S. 173(8)**

Nothing in this section will be interpreted as preventing further investigation into an offence after a report under sub-section (2) has been sent to the magistrate. If, during that investigation, the officer in charge of the police station gathers additional oral or documentary evidence, he will submit a report—or reports—about that evidence to the magistrate in the format specified. The sub-sections (2) through (6) will, to the extent possible, apply to the report or reports in the same way that they do to reports sent under sub-section (2).

²⁴ **The Code Of Criminal Procedure, 1973, S. 293(4)**

(4). This section applies to the following Government scientific experts, namely:-

- (a) any Chemical Examiner or Assistant Chemical Examiner to Government;
- (b) the Chief Inspector of- Explosives;
- (c) the Director of the Finger Print Bureau;
- (d) the Director, Haffkeine Institute, Bombay;
- (e) the Director 1 , Deputy Director or Assistant Director] of a Central Forensic Science Laboratory
- (f) the Serologist to the Government.

²⁵ The Code Of Criminal Procedure, 1973, S. 293(2) The Court may, if it thinks fit, summon and examine any such expert as to the subject- matter of his report

a court is necessary to form a belief concerning a matter of unfamiliar standard, wisdom, skill, or longhand (or finger imprint) labelling, the belief of individuals the one is unusually aware in aforementioned unfamiliar regulation, erudition, creativity, or writing (or finger imprint) labelling are appropriate details. Such an individual is popular to be an expert. In *Uniramian v. Manoj*,²⁶ skilled was a dispute concerning point of supply, place upon the security of wedding the fellow relaxed accompanying the daughter and the lady took pregnant. On her being meaningful, the youth declined to wed her. However, later the beginning of the teenager she demanded for perpetuation but the guy renounced. The court orderly for DNA tests. Through the test it got confirmed that he is the father of the infant. The court consented to grant evidence under division 45 of Indian Evidence Act, 1872. Later, the Kerala High Court supported the lower court's resolution, ruling that the results of the DNA experiment unique are damning evidence in deciding family. To determine the toddler's legality or ancestry of a teenager, Section 112 of the Indian Evidence Act of 1872 states that, "one innate all along the addition of a right merger 'tween welcome or her parent and any fellow or inside 280 days following in position or time the death of wedding, the parent staying widowed, be going to be definite authentication that he is the legal teenager of a man, except that it may be proved that the bodies had "no approach" for each additional at whatever time when the baby commit have happened created. "The only exemption of disproving the 'legality of kid' under portion 112 search out substantiate "no approach". In *Krishnappa v. Venkatappa*,²⁷ the Madras High Court elucidated the phrase "no approach" of portion 112 that resources simply the chance of no sexual intercourse and useless approach. In the case of *Geeta v. State of Kerala*,²⁸ repeated had connection with point of supply dispute, ancestry sample of the applicant and the infant were shipped for DNA tests. It was emptied for one report that the toddler was not found to have happened sired for one applicant. On disputing the appropriateness of report it was governed for one court under portion 293 of Cr. P.C., that the report of the DNA Finger Printing & Diagnostic Centre, Hyderabad, a Central Government attempt for operating the DNA test, maybe accepted as evidence without the expert's test. DNA experiment in beginning positions concede possibility not should as a rule or routine by courts of standard. The courts must continually depend the "hypothesis of portion 112 of the Indian Evidence Act, 1872", and only in cases of "eminent need" DNA experiment can be certified if the Court cannot achieve the authenticity outside being helped for one organic evidences.

iii. The Prevention Of Terrorism Act, 2002

The Prevention of Terrorism Act of 2002's Section 27²⁹ subtly permits the application of DNA technologies. When a police officer carrying out the investigation files a formal request for a sample of the

²⁶ (1991) 3 Crimes 860 (Ker.)

²⁷ AIR 1943 Mad. 632

²⁸ AIR 1993 SC 2295

²⁹ **The Prevention of Terrorism Act, 2002, S. 27**

27. Power to direct for samples, etc.—

(1) When a police officer investigating a case requests the Court of a Chief Judicial Magistrate or the Court of a Chief Metropolitan Magistrate in writing for obtaining samples of hand writing, finger-prints, foot-prints, photographs, blood, saliva, semen, hair, voice of any accused person, reasonably suspected to be involved in the commission of an offence under this Act, it shall be lawful for the Court of a Chief Judicial Magistrate or the Court of a Chief Metropolitan Magistrate to direct that such samples be given by the accused person to the police officer either through a medical practitioner or otherwise, as the case may be.

accused's voice, blood, saliva, sperm, hair, fingerprints, or photos with the Court of Chief Judicial Magistrate or the Court of Chief Metropolitan Magistrate. Depending on the circumstances of each case, the aforementioned courts may legitimately order the accused to provide these samples to the police officer, either directly or through a medical professional. If the offender declines to provide the sample, the court will remove any negative conclusion against him.

iv. The Constitution of India

Part IV of the Constitution of India connotes 'fundamental charges. According to Article 51A, each voter is necessary to attempt sure responsibilities famous as fundamental burdens. Article 51A (h) and (j) states, each national be going to have a fundamental responsibility "to evolve experimental temper, values of a people and the soul of inquest and correct" and "seek towards superiority effectively circles of individual and composite venture because country with its own government uniformly rises to larger level of endeavour and successes". In *Shri Rohit Shekhar v. N.D. Tiwari*,³⁰ Division court of Delhi High Court precisely illustrates, "...that when new finishes of judgment are within reach, must the courts refuse to get off transportation their dogmas and demand the long route expected understood at the cost of woe to the litigants...the courts are for achievement lawfulness, adjudicating rival claims and bringing to light the loyalty and other than following antiquated practices and processes when new, better forms are vacant. "As stated in Article 246, introductions 65 and 66 of the Union List, the Parliament has the right to conceive legislations. Parliament likewise has the capacity to accomplish regulation concerning the Union's instrumentalities and organizations for university; for research in experimental or mechanics organizations, for the publicity of specialised study or research, or for experimental or mechanics aid in the inspection or discovery of misdeed. Any new experimental procedure that is to say second-hand in criminal actions must obey the constitutional necessity that it bears not defile one the fundamental rights noticed in the Constitution. DNA science be going to not defile the right to solitude owned by *Article 21*³¹ or the right against self-accusation revered in *Article 20(3)*³². The Orissa High Court noticed in *Thogorani alias K. Damyanti v. State of Orissa*,³³ that the court concede possibility equal out all interest accompanying the blamed person's right given under *Articles 20(3) and 21* of the Constitution, while it issues a command for accumulating ancestry samples from the blamed for DNA experiment. In *Bhabani Prasad Jena v. Convener Secretary, Orissa State Commission for Women*,³⁴ the High Court orderly for DNA experiment of the accused and the kid. The Supreme Court has articulated allure outlook as "when skilled is seeming inconsistency betwixt rights to solitude of one and not to offer to do

(2) If any accused person refuses to give samples as provided in sub-section (1), the Court shall draw adverse inference against the accused.

³⁰ 2011 (121) DRJ 562(Delhi)

³¹ The Constitution of India, 1950, Art. 21

"Protection of Life and Personal Liberty: No person shall be deprived of his life or personal liberty except according to procedure established by law."

³² **The Constitution of India, 1950, Art. 20(3)**

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

³³ 2004 Cri. LJ 4003

³⁴ AIR 2010 SC 2851

something against one's will for health examination, the court must exercise allure judgment only later weigh out the interests of the bodies". In another case of *Shri Rohit Shekhar v. N.D. Tiwari*,³⁵ the court depended worldwide civil rights mechanisms and established that an adolescent has the right to experience the one welcome or her birth father is as revered under the Universal Declaration of Human Rights and Article 7³⁶ of the Convention on the Rights of the Child, 1989. In *Anil Ananthorav Lokhande v. State of Maharashtra*,³⁷ the court emphasises that, "accumulating ancestry sample of the blamed for corresponding does not total tribute compulsion. As a result, skilled is no breach of Article 20(3) of Indian Constitution". The earlier determinations have certainly proved that, under Indian Constitution, gets ancestry samples or bodily samples from the blamed for DNA experiment similarly the certified order does not violate the right to solitude or right against self-accusation of the blamed. However, *Inayath Ali & Anr.v. State of Telangana & Anr.*³⁸, the Apex Court while set aside the conclusion of High Court admitting DNA experiment to decide the ancestry of two kids in consideration of confirm the claim created by spouse against her relative grasped that, "solely cause entity is allowable under the society cannot should inevitably expected acted specifically when a route to that effect hopeful obtrusive to the material independence of one. The result thereof would not be limited to the question concerning either specific an order would influence tribute drive, but circumscribes right to solitude also. Such course would defile the right to solitude of specific characters bear hardship aforementioned tests and maybe harmful to the future of two kids the one was too wanted expected led inside the extent of the Trial's Court management. "Furthermore, in the case of *Smt. Selvi & Ors. v. State of Karnataka*,³⁹ the Supreme Court of India, while examining the legality of aggressive presidency of few experimental processes, to a degree the Brain Electrical Activation Profile (BEAP) test, Narco Analysis and Polygraph Examination, it was established: "DNA profiling method has happened definitely contained between the differing forms of health examination in the improved clarification of Section 53, Section 53A and 54 of Cr. P.C. It must too be explained that a 'DNA characterization' is various from DNA sample that maybe acquired from bodily meanings. A DNA sketch is a record constructed on the support of DNA samples fashioned vacant to legal specialists. Creating and upholding a DNA sketch of perpetrators and guesses are valuable practice because recently acquired DNA samples maybe effortlessly doubled accompanying existent characterizations that are before in the property of police officer's instrumentalities. Hence, the attractive and memory of DNA samples that are in the character of tangible evidence does not face constitutional hurdles in the Indian framework." As a result, if DNA science is reinforced and utilised for "tribute reasons," that use of it grants permission face permissible concerns from now on.

³⁵ 2011 (121) DRJ 562(Delhi)

³⁶ The Convention on the Rights of the Child, 1989, Art. 7

1. The child shall be registered immediately after birth and shall have the right from birth to a name, the right to acquire a nationality and, as far as possible, the right to know and be cared for by his or her parents.

2. States Parties shall ensure the implementation of these rights in accordance with their national law and their obligations under the relevant international instruments in this field, in particular where the child would otherwise be stateless.

³⁷ 1981 CriLJ 125 (Bom.)

³⁸ 2022 Live Law (SC) 869

³⁹ (2010) 7SCC 263

VIII. DNA AND SELF-INCRIMINATION

Recently fact-finding the exercise of DNA tests in criminal cases hopeful had connection with visualize on the off chance that it insults the principal right of the individual against self-accusation. A Structure Seat of the Hon'ble Supreme Court, in *Selvi v State of Karnataka*⁴⁰, inasmuch as experiment the legality of DNA tests on the iron block of Article 20(3)⁴¹ of the Constitution of India, fashioned attractive following in position or time idea, “The corresponding of DNA samples is arising as a lively form for connecting guesses to distinguishing criminal acts. It grants permission still be remembered that as per the plurality conclusion in *Kathi Kalu Oghad*, the use of material samples in the way that fingerprints for contrasting and labelling does not equal a tribute substitute Article 20(3). Hence, the attractive and memory of DNA samples that are like material evidence do not face constitutional hurdles in the Indian circumstances. “The Constitution of India by Article 51A (h)⁴² and (j)⁴³ commands that it endure be the basic responsibility of each taxpayer of India —to build the probable condition, values of a people, and the spirit of asking and correctl and endeavour towards splendour comprehensively circles of man and composite exercise because the country continually rises to bigger levels of endeavour and talents. Even though skilled's no particular DNA law accomplished in India, portions 53⁴⁴ and 54⁴⁵ of the Code of Criminal Procedure, 1973 (Cr PC) present for DNA tests submitted and they are widely handled in determining complex criminal cases. Section 53 bargains that accompanying a test of the condemned apiece healing expert at the request of a military police, skilled are realistic domains to acknowledge that a test of welcome individual will control to confirm the commission of the displeasure. Section 54 of Cr.P.C.⁴⁶ advance gives for the test of the arrested individual for one recorded healing professional at the request of the grabbed individual. By the Amendment Act of 2005, the Cr.P.C. was corrected bury alia to contain new portion 53-A that commands the test of an individual attacked of assault by a healing professional. By this fixing, new explanation combines inside allure extent test of ancestry and ancestry stains. Semen, spit, swabs, sweat, eyebrow tests, and fingernails for one exercise of up-to-date forms inside the case of intercourse offenses expecting DNA profiling and different tests that is essential in a distinguishing case. Even though Section 53-A⁴⁷ refers as though to the test of the damned by a healing authority at the request of the constable, the court has more far-reaching control for the reason of achievement impartiality in criminal cases⁴⁸, by emitting courses to the deputy to draw ancestry tests from the loaded and conduct DNA test for the reason of assist test beneath divisions 173(8)⁴⁹ and 293(4)(e)⁵⁰ of the Cr

⁴⁰ *Selvi v State of Karnataka* (2010) 7 SCC 263

⁴¹ Constitution of India 1950, art 20(3)

⁴² Constitution of India 1950, art 51A(h)

⁴³ Constitution of India 1950, art 51A(j)

⁴⁴ Code of Criminal Procedure 1973, s 53

⁴⁵ Code of Criminal Procedure 1970, s 54

⁴⁶ Code of Criminal Procedure 1970, s 54

⁴⁷ Code of Criminal Procedure 1973, s 53(A)

⁴⁸ *Sudhanshu Ranjan et al.* (n 34)

⁴⁹ Code of Criminal Procedure 1973, s 173(8)

⁵⁰ Code of Criminal Procedure 1973, s 293(4)(e)

PC. Separated from these plans, division 4556 of the Indian Evidence Act, 1872 is more lively so aloof as the rightness of DNA evidence is worried. Section 45⁵¹ bargains accompanying the belief of the master.

IX. CONCLUSION

In conclusion, the use of DNA evidence in the criminal lawfulness plan has transformed the habit evil are examined and prosecuted. DNA electronics has given investigators accompanying a strong finish to label perpetrators, exonerate the blameless, and resolve earlier uncertain misconducts. The veracity and dependability of DNA evidence have influenced to an extreme level of trust and assurance in the criminal lawfulness structure. However, the use of DNA evidence more raises moral, permissible, and public concerns. The group, depository, and reasoning of DNA dossier raise solitude, consent, and secrecy issues. Misusing or abuse DNA evidence can have serious results, containing evil confidences and rapes of civil rights. The regulation has to progress in consideration of equal wisdom and concerning details bettering, exceptionally in regions place these incidents have explained expected intensely advantageous in detecting misdemeanours and resolving permissible disputes. In this regard, DNA electronics has had an important impact and reinforced habits for endowing miscellaneous types of criminal and civil cases. The DNA experiment is second-hand not only to double-check the valid perpetrator, but too to free harmless folk from the permissible line that has happened established about their necks. Scientific evidence will stretch to be crucial in agreeing cases in two together community and criminal matters from now on. Other countries with its own government have captured note concerning this case and included it therefore by containing DNA evidence and experiment measures in their current legislations. Furthermore, various nations, to a degree Canada, have selected obvious DNA statute. Unlike UK, USA or Canada, contemporary India lacks a specific bill on DNA.

In fact other than this, different other arising nations place judicial science and new experimental approaches have enhanced the presidency of lawfulness, India's procedural statutes stand non-improved or straight to involve DNA as evidence. Up till immediately only few parts of Cr.P.C. were altered in 2005 to influence "DNA Profiling" inside allure sphere. Despite a lack of particular society, our Indian judges recognises DNA as indirect evidence in criminal proceedings. Almost each case certain for one Apex Court or one the High Court, explains that "DNA evidence plays a critical function in recognizing the perpetrator accompanying fantastic veracity". No statute on DNA Technology has visualized the light of the era in India but differing steps have existed captured because the period 2007 for formulating a correct act on DNA Profiling. Recently in the year 2017, The DNA Technology (Use & Regulation) Bill, 2017 was adapted and imported in Parliament, still that Bill too acted not enhance the standard of land. It is troublesome to understand reason this is the case, but it is proven that our country lags far behind in the meaningful use of DNA science for civic and criminal issues. While the legal method has displayed allure artistry by admitting DNA experiment or reasoning in analysis of crime and heritage asking's, but still not bearing correct constitution on DNA Technology is a question of a moment. Thus, our Parliament needs to think the significance of controlled evidences and be going to plan a positive society on DNA experiment at the most shortly.

⁵¹ Indian Evidence Act 1872, s 45

Therefore, it is owned by have appropriate procedures and requirements working to rule the use of DNA evidence in the criminal lawfulness structure. The use of DNA evidence should adopt moral law and respect for individual rights and freedoms. Proper preparation and instruction for police officers' civil servants, attorneys, and judges on the use and understanding of DNA evidence are likewise important to guarantee allure direct and fair use in the criminal fairness structure.

