

LEGAL FOUNDATIONS OF FORENSIC EVIDENCE IN CRIMINAL JUSTICE: A STUDY WITH SPECIAL REFERENCE TO FINGERPRINT AND DNA EVIDENCE IN INDIA

AUTHOR – ISHAN SHARMA, STUDENT AT AMITY UNIVERSITY

BEST CITATION – ISHAN SHARMA, LEGAL FOUNDATIONS OF FORENSIC EVIDENCE IN CRIMINAL JUSTICE: A STUDY WITH SPECIAL REFERENCE TO FINGERPRINT AND DNA EVIDENCE IN INDIA, *INDIAN JOURNAL OF LEGAL REVIEW (IJLR)*, 5 (10) OF 2025, PG. 473-474, APIS – 3920 – 0001 & ISSN – 2583-2344

Abstract

Forensic evidence plays a vital role in the contemporary criminal justice system by improving the accuracy of investigations, identifying perpetrators, and ensuring fair outcomes. In India, the legal framework for forensic tools like fingerprint and DNA analysis is shaped by statutory laws, judicial decisions, and procedural safeguards. This paper investigates the regulatory framework governing such evidence in India, focusing on its admissibility and procedural rules.

1. Introduction:
The integration of scientific methods into criminal investigations has significantly enhanced justice delivery. Forensic science now stands as a critical pillar in reinforcing judicial credibility. However, for scientific evidence to uphold its value in courts, it must be embedded in a sound legal structure. This study analyzes the regulation, interpretation, and application of fingerprint and DNA evidence within India's legal context.

2. Forensic Evidence under Indian Law:
Forensic evidence encompasses scientifically derived information used in legal proceedings to verify claims. Under the Indian Evidence Act, 1872 (Sections 45–51), expert opinions—including those from forensic specialists in handwriting, fingerprinting, and biology—are legally recognized. Additionally, the Code of Criminal Procedure, 1973, along with the amended Identification of Prisoners Act, 1920 (now the Criminal Procedure (Identification) Act, 2022), outlines procedures for collecting biometric and biological data from suspects.

3. Legal Framework for Fingerprint Evidence in India:

3.1 Historical and Legal Background:
Fingerprint analysis has been legally recognized in India since colonial times. The Indian Evidence Act, 1872, under Section 45, permits courts to admit expert opinions on identity, including fingerprint analysis.

3.2 Procedures and Safeguards:
The Criminal Procedure (Identification) Act, 2022 expanded the scope of biometric data collection to include palm prints, footprints, and other identifiers, extending beyond just convicted individuals. However, this expansion has raised concerns about privacy violations, especially in light of the Supreme Court's decision in *Justice K.S. Puttaswamy v. Union of India (2017)*. To mitigate these concerns, robust data protection measures and judicial oversight are essential.

3.3 Admissibility and Judicial Views:
Courts in India have consistently acknowledged the reliability of fingerprint evidence when handled properly. In *State of U.P. v. Ram Babu Misra (1980)*, the Supreme Court stressed the need for expert analysis corroborated with other evidence to enhance probative value.

4. Legal Position of DNA Evidence:

4.1 Emergence and Significance:

DNA testing, known for its accuracy, is now extensively used in cases of rape, murder, and disputes involving paternity or missing persons.

4.2 Legal Framework and Issues:

While there is no standalone law dedicated to DNA evidence, it is covered under Section 45 of the Indian Evidence Act. Provisions under Sections 53, 53A, and 164A of the CrPC also facilitate DNA testing during medical examinations. The proposed DNA Technology (Use and Application) Regulation Bill, 2019 seeks to regulate DNA analysis and establish oversight bodies, but privacy concerns have delayed its passage.

4.3 Judicial Interpretation:

Judicial pronouncements have reinforced the validity of DNA evidence. The Supreme Court, in *State of Himachal Pradesh v. Rajeev Singh Rana (2016)*, accepted DNA results as conclusive proof. Similarly, in *Krishan Kumar Malik v. State of Haryana (2011)*, DNA profiling was upheld as a highly reliable method of identification. Nonetheless, the court in *Selvi v. State of Karnataka (2010)* emphasized that involuntary forensic procedures violate the constitutional right against self-incrimination, highlighting the need for consent and procedural fairness.

5. Reconciling Forensic Use with Fundamental Rights:

The increasing dependence on forensic tools requires a balance between effective policing and safeguarding individual rights. In the *Puttaswamy* ruling, the right to privacy was acknowledged as a fundamental right encompassing bodily and informational integrity. Since forensic procedures often intrude upon personal autonomy, they must adhere to principles of legality, necessity, and proportionality. Ensuring safeguards like informed consent and judicial scrutiny is imperative to prevent misuse.

6. Recommendations:

- **Comprehensive Legislation:** Enact dedicated laws governing forensic practices, particularly DNA evidence.
- **Privacy Protections:** Incorporate stringent privacy and accountability provisions in forensic legislation.
- **Capacity Building:** Enhance training for police, forensic personnel, and judicial officers to promote ethical and accurate application.
- **Judicial Oversight:** Implement mechanisms for court-supervised forensic procedures to protect individual rights.

7.

Conclusion:

Fingerprint and DNA analysis have become essential components of the Indian criminal justice process. While their legal recognition is well-established, evolving challenges related to privacy, consent, and reliability demand legislative and procedural refinement. A cohesive strategy encompassing legal reform, technical capacity, and human rights safeguards will ensure that forensic science continues to uphold justice without compromising personal liberties.