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**C.B.Circular No.7/2012**

**"DNA Profiling/ Fingerprinting during investigation"**

(1) **Introduction :- DNA Profiling/finger printing** can be of immense use to Police officers in investigation of crime. Each individual has an entirely unique genetic 'signature' or the DNA 'fingerprint'. The chemical structure of everyone's DNA is the same. The difference between people is the order of the base pairs. There are so many millions of base pairs in each person's DNA that every person has a different sequence. Scientists use a small number of sequences of DNA that are known to vary among individuals a great deal, and analyse those to get a match.

(2) **Which type of cases may benefit from DNA Finger printing.**

In our context DNA profiling/finger printing can be useful in following type of cases.

- Rape or attempt to rape .
- To establish identity of the deceased in case of unknown dead body or parts of dead . body.
- To link the suspect/accused to biological evidence recovered from the scene of crime.
- To establish paternity of a person.
- Wildlife cases (to determine the species)

(3) **Facilities in Odisha.**

We are in the process of creating capacities for DNA testing for Odisha Police. Steps for establishment of a DNA Lab under State Forensic Science Laboratory has also been initiated. But more importantly, Govt. of Odisha has entered in to an MoU with Center for DNA Fingerprinting and Diagnostics Hyderabad to establish a DNA Lab in Odisha. **This DNA Lab is likely to become functional by end of April/May,2012.** This Lab is for use of Odisha Police and other Odisha Govt. agencies. Presently very few cases are being referred for DNA profiling/finger printing by Odisha Police officers. This circular is a small step towards encouraging the use of DNA technology in our investigation by sharing the basic knowledge with officers.

(4) **Legal basis for collection of evidence from person of accused/victim for DNA profiling.**

Section 53-A of Cr.P.C. (introduced in 2005) states that a person arrested on charge of committing rape or attempt to commit rape can be medically examined, if examination of his person may give evidence of commission of offence. This will be at the request of police officer not below the rank of sub-Inspector and reasonable force can be used for the purpose of examination. Material can be taken from the person of the accused for DNA profiling by a registered medical practitioner.

As per Sec. 164-A Cr.P.C. victim of rape can be medically examined by registered medical practitioner for drawing material from her person for DNA profiling. However examination and drawal of material from victim can only be done with the consent of the victim or another person competent to give consent on her behalf.

As per Section 53 of Cr.P.C, if there are grounds for believing that examination of person of the accused will afford evidence about commission of offence the accused can be medically examined for that purpose. This section does not specifically refer to collection of material for DNA testing but there is nothing to indicate contrary either. Presently in non-rape cases this section is used as legal basis by police in India.

#### **5. What Biological samples are required.**

##### **To establish the source of biological evidence in sexual assault cases :**

The available body fluids or material objects pertaining to the victim/deceased victim (like bloodstained clothes/articles, seminal stains, used condoms, vaginal smear slides, vaginal swabs, pubic hair, under garments, etc.), and suspected person's bloodstains,

##### **To establish identity of the deceased :**

The available body parts of deceased (like bone, tissue, skull with teeth, hairs, etc) and bloodstains of the blood relatives (viz. mother, father or children) are required.

##### **To link the suspects to the biological evidence recovered from the crime scene :**

The available material objects pertaining to the crime scene (like clothings, masks, eyeglasses, jewellery, gloves, rope, belts, bedding sheets, blankets, comforters, pillow cases, pillows, towels, used tissues, toilet paper, paper towels, cups, cans, bottles, cigarette butts or other smoking devices, drug paraphernalia such as pipes and syringes, handled items such as weapons and tools, licked items such as envelopes and stamps, toothbrush or hair brush, and suspected persons bloodstain.

##### **To establish paternity :**

The blood samples of mother, disputed child and alleged father are required.

**Wildlife cases** – Available body parts of dead animal.

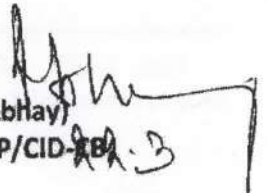
6. Following type of biological evidence are useful for DNA profiling.
  - i. Blood
  - ii. Blood stains
  - iii. Seminal stains, vaginal swabs.
  - iv. Saliva on cigarette butts, bottles, glasses etc.
  - v. Hairs with roots
  - vi. Teeth with pulp
  - vii. Bones with marrow
  - viii. Tissues & organs
  - ix. Skin

(Note :- other biological material such as tears, perspiration, serum & other body fluids are not useful for DNA analysis.)

8. **Guidelines for collection & packing of biological samples (more detailed guidelines would follow):** We acknowledge help from CFDS, Hyderabad in preparation of the guidelines.

- a) **All biological evidence should be packaged in paper bags or envelopes.** Plastic should not be used. Paper container should be large enough to allow air circulation around evidence item. Clean paper can be placed on (or in) a bloodstained garment and the garment folded so that the paper prevents contact between different stains.
- b) One evidence stain should not come in contact with other biological samples. Each individual stain should be collected separately. Two separate stains should not be packed together.
- c) **Stains should be air dried as much as possible before placing in paper bag or envelope.** If an item (such as a used condom or fetus/product of conception) cannot be dried, it may be placed in plastic and frozen. The laboratory should be contacted as soon as possible for further guidance.
- d) **Metal or glass evidence item (e.g. knife or broken, glass bottle), should be secured with wire to the bottom of a cardboard box** so that it does not pierce the sides of a paper container. If not secured, blood on a knife blade can become easily dislodged and lost. Metal or glass evidence items with blood or other body fluid stains should not be frozen. These items should be sent to the laboratory as soon as possible.
- e) Evidence samples should not be allowed to come into contact with any surface that contains residue from another biological sample (e.g. dirty tweezers, bloodstained glove, contaminated work surface).
- f) **Talk or cough** over biological evidence stains should be avoided. They may get contaminated with saliva of speaker.
- g) Evidence stains should be handled as little as possible. **When possible, the item should be submitted with the stain.** This is the easiest and best method to collect biological evidence. If the stain is on a smooth, non-porous surface and can be easily dislodged, it should be protected from contact with other objects (e.g. immobilize in box).
- h) If the stain is on a large object with a porous surface (wood or carpet), the area with the stain can be cut out and packaged in paper. A portion of the unstained material should be sent as a control.
- i) If it is not possible to collect the object or cut out the stain, the stain may be collected by using a **slightly moistened** (with distilled water) cotton swab. While collecting the stain, an effort should be made to **concentrate it onto a small area on the swab.** A control sample of an unstained area close to the bloodstain should also be collected using the same distilled water and type of swab that was used to collect the evidence. The swabs should be allowed to air dry, then packaged individually in appropriately marked paper envelopes.
- j) The size of the stain should influence the size of a substrata used to collect the stain. Thus, a small part of a swab or a small piece of gauze may be used to collect a small stain. A small stain should not be spread over a large surface.
- k) Tools (e.g. tweezers, scissors) should be cleaned thoroughly rinsing with a stream of distilled water and thoroughly drying with paper tissue. This process should be repeated twice before using tool to manipulate another sample.

- l) Each package should be sealed with tape. (staples should not be used) All seals must be marked with initials and date to identify the person making the seal.
- m) The integrity of the item often is maintained through the **package's documentation**. That documentation includes all markings, seals, tags and labels used by all of the involved agencies. Therefore, it is critical to preserve or document all packaging and labels used or received.

  
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