

## **SCOPE OF FORENSIC ENTOMOLOGY**

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Forensic entomology is dealt with studying insects or phylum arthropods for criminal investigation (Joseph, *et al.*, 2011). Insects and arthropods feed on dead matters or carrion. Specific classes of insects called as necrophagous species which also constitute schizophagous group of insects. These insects can be used to estimate the time of death and time for decay, hence can be used for post-mortem index (PMI) analysis. For most of the PMI analysis true flies belonging to Dipterans family is commonly used. The decomposition process is divided into 5 stages- fresh, bloated, decay, post-decay and remains stage. Each of these decomposition processes has a specific behavioral and attracts most of these flies. However, among these, post-decay stage plays a major role in controlling arthropod activity. Estimation of PMI is associated with correct species identification and determining age of insect larva. Besides, different varieties of species inhabit the corpse in different stages of decay. This necessitates increasing and expanding the possible ways to deal with entomology that paves one of the most important roles for forensic examination. The first use of forensic entomology in a modern court house was in France of the 18th century, where entomological data was used as evidence to acquit the existing inhabitants of the home from which a child's skeletonized remains were recovered. In the 18th century Yovanovich and Megnin's examination of the insect succession on corpses established the science of forensic entomology. Yet forensic entomology has become increasingly popular in police investigations over the last 20 years.

Forensic entomology not only restricted to identification of insects based on the PMI, but with the advent of molecular techniques that makes the study flexible. Different types of insects and species involved in different stages of carrion transforming, is quite tedious based on morphological examination. Thus molecular typing or identification of species based on polymerase chain reaction (PCR) has made the field more flexible. Species identification especially at the larval stage is one of the crucial point to unfold the possibilities of forensic cases. Besides, the larva which feeds on the decaying body are known to secrete toxins at certain times or cases. This unravels and extends the study to forensic entomotoxicology. This field necessitates if any toxins released by the insects that can cause undesirable traits in body, that serves as clues to highlight the path for criminal investigation.

This field has open up horizons on the application based studies of ecological parameters, physiology of living organisms, behavioral patterns, environmental effects and molecular evolution. This study incorporates the findings based observation of the above mentioned fields and paves the foundation for development of robust techniques and experimentation.

Above all, it has opened up newer opportunities to inculcate parameters from wider aspects of life sciences and can contribute for a sophisticated inter-disciplinary research.

## **REFERENCES**

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