

Necrophagous Insect Succession on Carrion in North Maharashtra Climate: A Forensic Entomological Investigation

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Abstract: Forensic entomology plays a crucial role in medicolegal investigations by providing estimates of postmortem interval (PMI) through the study of necrophagous insect succession patterns. This study investigated the temporal succession of necrophagous insects on pig carrion (*Sus scrofa*) under controlled conditions in Chalisgaon, Khandesh Region of Maharashtra, India, considering the region's tropical monsoon climate. Experiments were conducted across three seasons (pre-monsoon, monsoon, and post-monsoon) to establish baseline data for forensic applications in the region. A total of 52 insect species from 15 families were identified during the decomposition process. Primary colonizers included *Chrysomya megacephala*, *Chrysomya rufifacies*, and *Musca domestica*, arrived in short time period of post-mortem. Secondary colonizers such as *Dermestes* spp. and *Piophilidae* appeared during advanced decay stages. Temperature and humidity significantly influenced arrival times and development rates of necrophagous insects. The study provides the first comprehensive database of insect succession patterns specific to Chalisgaon's climatic conditions, establishing a foundation for accurate PMI estimations in forensic investigations within the study region

Keywords: Forensic entomology, necrophagous insects, postmortem interval, Chalisgaon, insect succession, decomposition

