

Environmental Determinants of *Calliphoridae* and *Sarcophagidae* Activity and Oviposition on Baits

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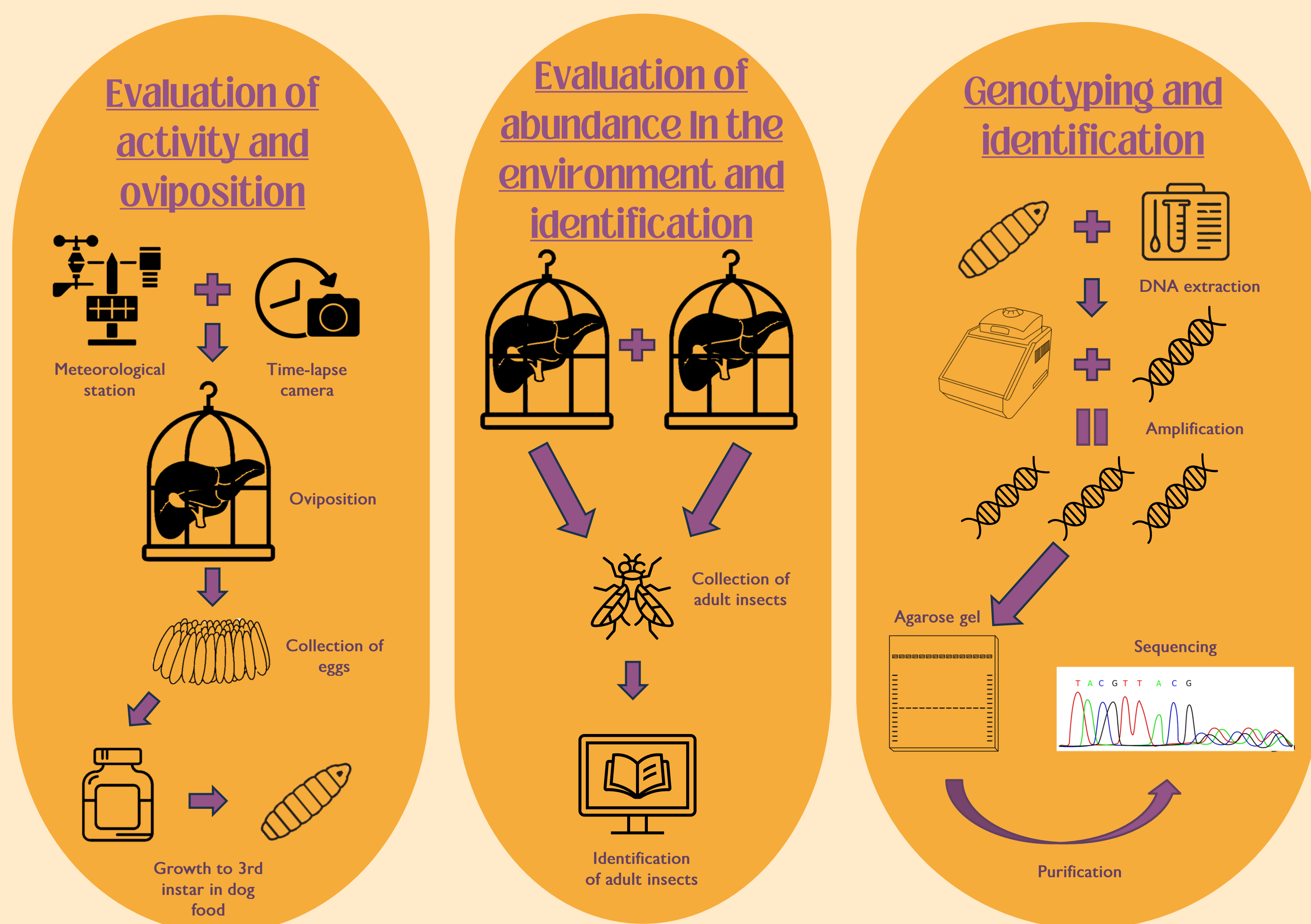
Introduction

Forensic medico-legal entomology uses entomological methods to estimate the postmortem interval (PMI). Its minimum can be determined by assessing the developmental stage of insects found on a corpse. However, this method does not account for the time between death and the first oviposition, known as the pre-oviposition PMI. Estimating it can be complex, as it requires considering environmental conditions at the site, such as temperature and light, along with the seasonal presence of scavenger insects. Therefore, while the method for estimating minimum PMI is well established, there is a significant lack of knowledge regarding pre-oviposition PMI estimation.

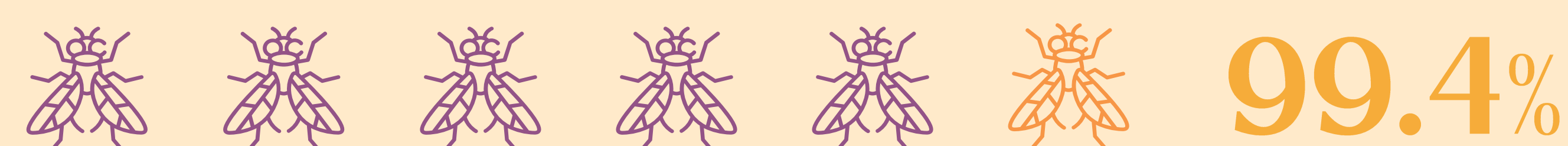
Objective

To address this gap, the present pilot study explores how meteorological conditions and the abundance of scavenger insects from *Calliphoridae* and *Sarcophagidae* families affect their activity and time to oviposition.

Methodology



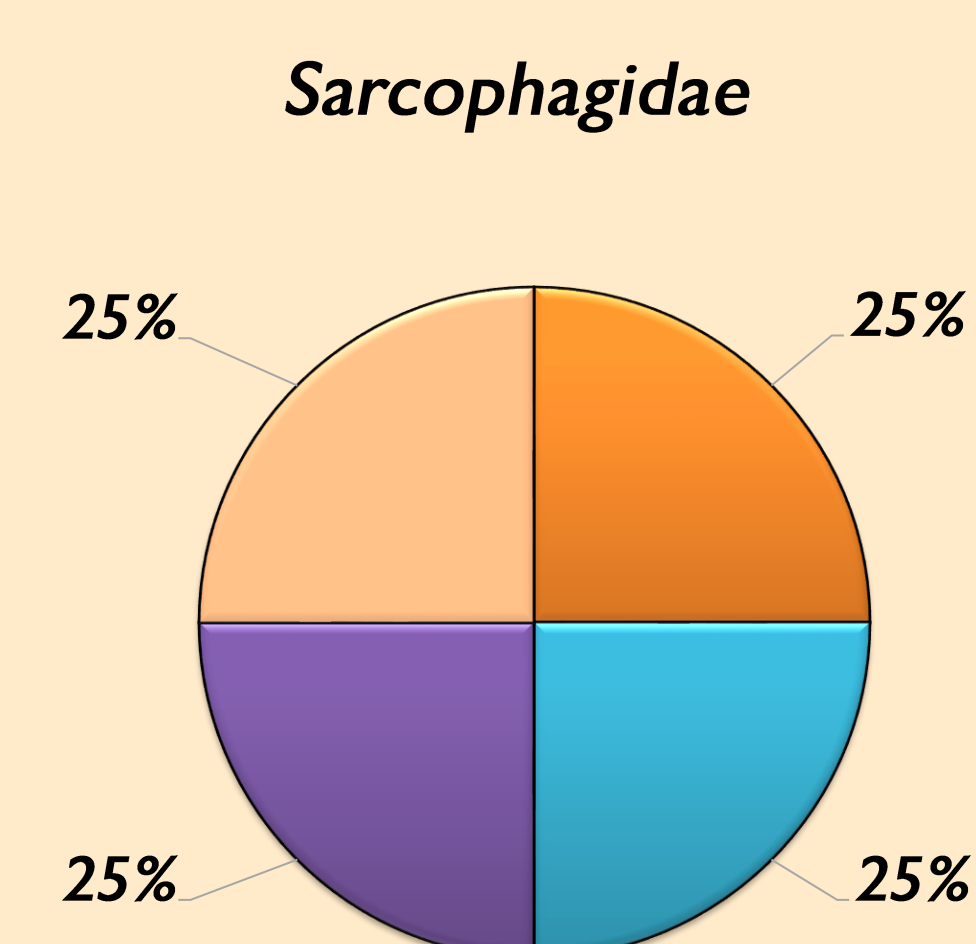
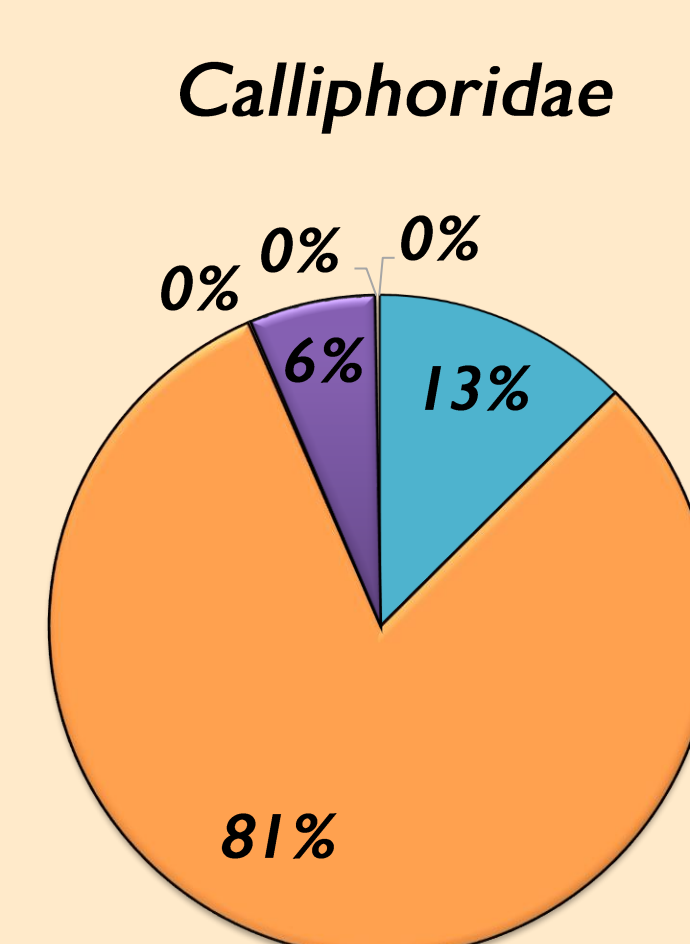
Results



Regarding the available abundance flies, the initial trial, conducted during the cold season revealed that the *Calliphoridae* family constituted the most predominant group, accounting for 99.4% of the total, while the *Sarcophagidae* family exhibited a significantly lower prevalence, representing only 0.6%.

702 flies

4 flies



- Calliphoridae vicina*
- Calliphoridae vomitoria*
- Lucilia silvarium*
- Lucilia sericata*
- Lucilia caesar*
- Calliphoridae albiceps*
- Sarcophaga carnaria*
- Sarcophaga variegata*
- Sarcophaga sexpunctata*
- Sarcophaga vagans*

The most prominent species in the *Calliphoridae* family is *L.sericata* followed by *C.vicina* and *L.Caesar*. Meanwhile, in the family *Sarcophagidae* all species have the same relevance.

Final Remarks

This study aims to enhance the accuracy of PMI estimations within the field of forensic entomology by integrating a model for estimating the pre-oviposition period. The model considers the impact of meteorological conditions and the prevalence of scavenger insects belonging to the *Calliphoridae* and *Sarcophagidae* families.

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