DOI: 10.20396/revpibic2720191776

XXVII Congresso de Iniciação Científica Unicamp
16 a 18 de outubro de 2019 - Campinas | Brasil

Description of third larval instar of *Lucilia eximia* and *Lucilia cuprina* (Diptera, Calliphoridae): comparative aspects between two species of forensic importance

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Abstract
Morphological description of insects has been used as a basis for research in several research fields, as forensic entomology, science that uses information on the biology and ecology of different species to solve crimes. The post mortem interval considering the insect development can often be estimated when the literature records its life cycle, morphological description, and other information of extreme importance to distinguish the species in question. Therefore, it is crucial to obtain detailed descriptions of species of forensic importance that allow them to be identified.

Key words:
Identification, blowflies, forensic entomology.

Introduction

Among the organisms that contribute to the biomass cycle, members of the Diptera order are very important, because they are usually the first to reach the carcasses, where the adult will oviposit minutes after the death of the animal[1]. In addition, the immature stages of many species use carcasses as a site of development[1]. This behavior of the flies makes them excellent postmortem interval markers (PMI), due to the constant development time of the larvae when in normal situations, which are left to develop in the decomposing human body.

The *Lucilia eximia* species, commonly known as the green bottle fly, can inhabit both urban and rural environments, with some studies indicating a high index of sinantropism[2]. As in *L. eximia, Lucilia cuprina* females perform oviposition on decaying material, since their larvae feed on animal carcasses. The adult forms are common to infect especially sheep, having great veterinary importance[3].

This study aimed to provide morphological descriptions for the identification of the third larval instar of two blowflies' species: *Lucilia eximia* and *Lucilia cuprina*.

Results and Discussion

The analysis of the larvae of both species was able to gather information on determinant identification characteristics, such as the cephalopharyngeal skeleton (Fig. 1), anal division, tubercles arrangement, spiracles and segmentation spines (Fig. 2).

Figure 1. Cephalopharyngeal skeleton of *Lucilia cuprina* (on the right) and *Lucilia eximia* (on the left).

Figure 2. Lateral view of *Lucilia cuprina* (above) and *Lucilia eximia* (below).

Conclusions

This study succeed to gather data on the characteristics of the third larval instar of *Lucilia eximia* and *Lucilia cuprina*, allowing the identification of both species of forensic importance in Brazil.

Acknowledgement

This study is the result of a project developed during an undergraduate course (BP 586) at the Institute of Biology of UNICAMP.

[1]SMITH, K.G.V et al. A manual of forensic entomology. **1986**.
[2]SPINDOLA, Aline F. et al. Attraction and Oviposition of *Lucilia eximia* (Diptera: Calliphoridae) to resources colonized by the invasive competitor *Chrysomya albiceps* (Diptera: Calliphoridae). Journal of Medical Entomology, **2016.**
[3]FERNANDES, F.M. et al. Curva de sobrevivência e estimativa de entropia em *Lucilia cuprina* (Diptera, Calliphoridae). Iheringia, Sér. Zool., Porto Alegre, Sept. **2003**.