

Calliphora Romantis: Discovery of A New Species in The Field of Forensic Entomology

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Abstract

Over the years, different entomological genera have been found for forensic analysis. Their biological cycles and how they interact with decomposing bodies have become known. But it is when it comes to identifying a species that problems arise. Firstly, to analyse a corpse, there is a minimum of ethical laws, without which the study would be impossible. On the other hand, these species vary according to geographical and climatic zones. Therefore, what is studied in one place will not be the same as what is studied in another, which has different characteristics.

In this study we want to present one of the recently found species and how it was found.

Introduction

The study began with the discovery of a body on the riverbank. It was a 43-year-old man who had drowned. When forensic experts arrived [1], they began to take samples of the larvae contained in the body. Among them they found several unusual larvae, and these were taken for analysis. The biological cycles were completed under conditions like those in the area where the body was found. It was then that the possibility of the discovery of a new species was discovered, and it was named *Calliphora romantic*. [2]

Objectives

This study was carried out for:

- Analyse the diversity of necrophagous species.
- Analyse the biological cycles and morphology of the species in question.
- Explore climate and its relationship with necrophagous species.

Method

To analyse the possible new species, it had to be bred by using the specific climatic conditions of the place where the carcass was found. By following the life

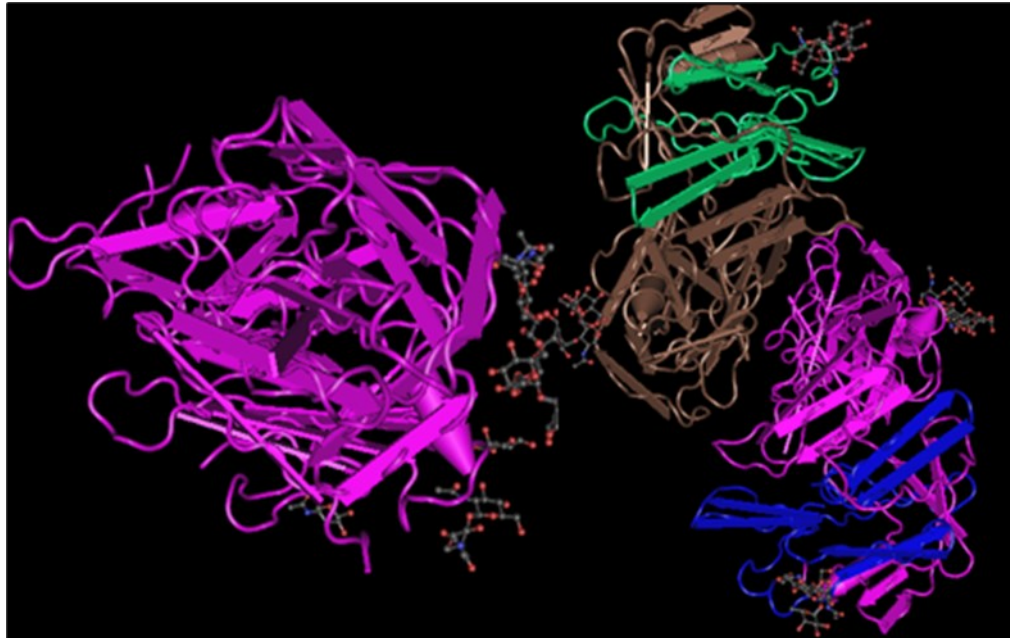


Figure 1 . *Calliphora romantic* proteolytic enzyme

cycle process and its stages and analyzing the morphology of this possible new species.

DNA analysis was also used, and the DNA molecule was examined [2,3], including the gene that contains the most important proteolytic enzyme. (Figure 1)

The collaboration of some investigation and research centers improves the study.

Discussion

This species belongs to the genus *Calliphora* [4,5]. They are dipterans that in their last instar reach 11-14mm in length and generally exhibit bright greenish-red metallic colours. It is a fly found on decaying carcasses in areas with humid climates, abundant rainfall, and mild temperatures.

Life cycles showed the following: Egg laying is approximately 160-210 per clutch, reaching a total of 2500 in the life of the fly. Egg hatching occurs within 9 h of laying if climatic conditions are suitable. As they are poikilothermic, apart from high humidity, they are temperature dependent. They need controlled temperatures of 22°C [5,6].

Newly hatched larvae go through 3 stages of development. They differ from each other in the number of black heart-shaped dots on their thorax. Stage 1 larvae have 1 heart, stage 2 larvae have 3 hearts and stage 5

larvae contain 5 hearts. It then enters the pupa stage and finally emerges as an adult. This adult has the 5 hearts that the stage 3 larva had. It is because it has these characteristic hearts that it was given the name *Calliphora romantic* [3,4,5,6].

The female is larger than the male, so there is sexual dimorphism. Its head has a well-marked frontal suture. It also has trisegmented antennae, but without any feathery edges. Its scales are more developed than normal [5,6].

It should also be noted that females are protein-deficient, requiring the ingestion of decaying meat. By means of proteolytic enzymes (Figure 1) specific to this species, they can introduce themselves into the carcass to feed. In this way, they obtain the proteins necessary for egg-laying [5].

In conclusion, specific temperatures and humidity contribute to entomological diversity. Among this diversity, many species remain to be known and studied, but through this study it has been possible to determine a new species of the genus *Calliphora*, named *Calliphora romantis* because of its thorax, that contains black hearts [1,2,3,4,5,6].

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