

(CASE REPORT)



First occurrence of *Necrobia rufipes* (De Geer) (Coleoptera: Cleridae) in dipteran pupae in Brazil

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Abstract

Larvae and adults of *Necrobia rufipes* (De Geer) (Coleoptera: Cleridae) were found in animal carcasses after the carcass deterioration stage and consider it a forensic indicator for southeastern Brazil. This paper reports the occurrence of *N. rufipes* collected from immature stage (pupae) of *Peckia chrysostoma* (Wiedemann) (Diptera: Sarcophagidae) by means of traps containing some fish bait in a forest area close to the Parque da Serra de Caldas Novas, Goiás, Brazil, in the period from August to November, 2003. It was collected a total of two specimens *N. rufipes* from 303 pupae of *P. chrysostoma*. This paper reports the first occurrence of *N. rufipes* in fly pupae.

Keywords: Forest; Beetle; Fly; Coleopteran; Carcasses

1. Introduction

The genus *Necrobia* is found in carcasses, feeding on larvae and fatty substances attached to dry bones [1]. Larvae and adults of *Necrobia rufipes* (De Geer) (Coleoptera: Cleridae) (Figure 1) were found in animal carcasses after the carcass deterioration stage and consider it a forensic indicator for southeastern Brazil [2].

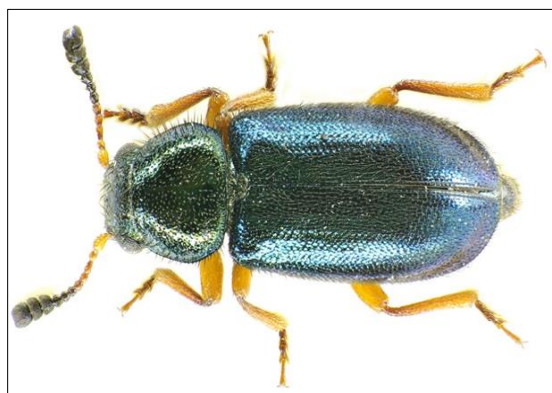


Figure 1 *Necrobia rufipes* (De Geer) (Coleoptera: Cleridae).

Source: <http://ilustraciencia.info/en/portfolio/necrobia-rufipes/>

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In Campinas-SP found *N. rufipes* associated with human corpses [3]. In Canada *N. rufipes* is found to be associated with stored products such as nuts producing economic losses [4].

Peckia chrysostoma (Wiedemann) (Diptera: Sarcophagidae) is a synanthropic species found in many parts of the world [5]. In Rio de Janeiro this species shows a preference for places inhabited by man and fish is the bait that has the most attraction [6].

The aim of this study is to report the occurrence of *N. rufipes* in *P. chrysostoma* pupae.

The study was conducted in the Serra de Caldas Novas Park, located in the city of Caldas Novas-GO (18°25'S - 49°13'W) in forest area. The flies were collected by using traps (Metal container trap) (Figure 2), made of dark cans measuring 19 cm in height and 9 cm in diameter, with two openings resembling blinders, located in the lowest third of the can, to allow flies to enter. The top of the can was connected to a nylon funnel that was open at both ends, with the base pointing down. This was wrapped in plastic bags, so that when they were removed, the flies and parasitoids could be collected. The following items were used as baits: human feces, bovine liver, bovine kidney, fruits and fish, which were placed inside the cans, over a layer of earth. Five traps were used and they were hung on trees at a height of one meter above the ground, two meters apart from each other.



Figure 2 Metal container traps

The insects collected were taken to the laboratory, sacrificed with ethyl ether and kept in 70% alcohol for further identification. To obtain the parasitoids, the contents of the traps were placed in plastic containers with a layer of sand for use as a substrate for transformation of the larvae into pupae. This sand was sifted after being in the fields for 15 days and the pupae were extracted from it and were individually placed in gelatin capsules in order to obtain the flies and/or parasitoids. The pupae were dissected not hatched for the presence of flies and / or parasitoids.

From August to November 2003, 303 pupae of *P. chrysostoma* (Figure 3) were collected, from which two pupae and after dissection two living specimens appeared of *N. rufipes*. Probably, the first stage larvae may have penetrated small holes in the pupae that served as food for coleoptera development. Members of *N. rufipes* supplement their diet by acting as a predator for other insects [7].

Necrobia rufipes is of importance in Forensic Entomology is the scientific study of the invasion of the succession pattern of arthropods with their developmental stages of different species found on the decomposed cadavers during legal investigations. It is the application and study of insect and other arthropod biology to criminal matters [1, 3, 8].



Figure 3 *Peckia chrysostoma* (Wiedemann) (Diptera: Sarcophagidae)

Source: <http://sarcophagidae.myspecies.info/taxonomy/term/1873/media>

Necrobia rufipes was found associated with pig carcasses collected in pasture and forest areas in Itumbiara Goiás, Brazil. [8].

2. Conclusion

It is believed that further research should be conducted to obtain further information about *N. rufipes* biology. This paper reports the first occurrence of *N. rufipes* in dipterans pupae.

Compliance with ethical standards

Acknowledgments

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