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# Gnathopleura semirufa (BRULLÉ, 1846) PARASITOID OF DIPTEROUS SYNANTHROPIC IN SOUTHERN GOIÁS, BRAZIL

Carlos Henrique Marchiori<sup>1</sup>

<sup>1</sup> Instituto Federal Goiano

## Abstract

This work reports the occurrence of parasitoid *Gnathopleura semirufa* (Brullé, 1846) (Hymenoptera: Braconidae) parasitizing *Oxysarcodexia thornax* (Walker) (Diptera: Sarcophagidae), *Peckia chrysostoma* (Wiedemann) (Diptera: Sarcophagidae) *Sarcodexia lambens* (Wiedemann) (Diptera: Sarcophagidae) in Brazil. The pupae were obtained by the flotation method. They were individually placed in gelatin capsules until the emergence of flies or their parasitoids. The percentage of parasitism *O. thornax*, *P. chrysostoma* and *S. lambens* was 24.6%, 35.7% and 17.0%, respectively.

KEY WORDS: Insecta, Diptera, biocontrol, Hymenoptera, enemy natural

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## INTRODUCTION

The Sarcophagidae are distributed worldwide and contains about 2600 known species (Pape, 1996). Are present in all biogeography regions, but mostly concentrated in tropical climate to warm temperate (Mcalpine, 1983). The neotropical fauna of Sarcophagidae is very diverse, with over 750 described species (Pape, 1996), and although despite this, little is known about the biology of the group in this region.

As a possibility to control these flies certain groups of parasitoids, agents responsible for reducing flies (Marchiori et al., 2002) can be used.

Parasitoids are important regulators of insect populations and stand out as the main

group of natural enemies in agricultural systems. Are dispersed in several families of insects and their adaptation to the parasitic mode of life is more diverse and abundant in Hymenoptera (Panizzi and Parra, 2009).

The Braconidae are one of the largest Hymenoptera families, with approximately 40,000 species (Sharkey, 1993), divided into 45 subfamilies (Achterberg, 1992). The most common hosts of braconids are the larvae of Lepidoptera, Coleoptera and Diptera.

The Alysini are a large subfamily of Braconidae containing over 1,000 described species worldwide. All alysiines are koinobiont endoparasitoids of cyclorrhaphous Diptera (Wharton, 1984). They larviposit or oviposit on the host, the larvae penetrate into the host and the adults emerge from the puparia.

The aim of this study was to record the parasitoid *Gnathopleura semirufa* (Brullé, 1846) parasitizing flies of the family Sarcophagidae in Brazil

## MATERIALS AND METHODS

The study on pitfall traps was also conducted on the campus of the Agronomy School in Itumbiara, Goiás, between January and November 2005. Each trap consisted of a plastic receptacle (basin) of 15 cm in diameter by 10 cm in height. Each receptacle was buried in earth, such that its upper extremity was at the ground surface level.

One liter of water, 20 ml of detergent and 2 ml of formol were placed in each receptacle. A 200 ml pot was attached to the basin by means of a thin wire that went across it close to its edge, so as to keep the pot hanging and centralized in the basin. The bait, consisting of human feces, was placed in this pot. This trap was protected by another plastic receptacle of the same measurements (15 x 10 cm), which functioned as a cover. This contained four diametrically opposite holes of around 5 cm in diameter and 7 cm in height, and was supported on a metal wire suspended 10 cm from the group.

Six traps were used, with separations of two meters between each other, placed randomly. The bait was replaced every 15 days. The pupae that were found in the bait were separated out by means of the floatation method. These were then individually packed in gelatin capsules until the parasitoids emerged.

The percentage parasitism of each parasitoid species was calculated by means of the number of pupae parasitized per species of parasitoid, divided by total number of pupae

from that host, and multiplied by 100.

## RESULTS AND DISCUSSION

Collected from 305 pupae *Oxysarcodexia thornax* (Walker) (Diptera: Sarcophagidae), 143 *Peckia chrysostoma* (Wiedemann) (Diptera: Sarcophagidae) and 182 of *Sarcodexia lambens* (Wiedemann) (Diptera: Sarcophagidae) that emerged 75, 51 and 31 parasitoid species *G. semirufa*, respectively (Table 1).

The total percentage parasitism observed was around 25.0%. The host showing the highest percentage parasitism was *P. chrysostoma* in cattle liver (Table 1), and this was probably due to the seasonality factor presented by this species.

The percentage of parasitism observed in *O. thornax*, *P. chrysostoma* and *S. lambens* was 24.6%, 35.7% and 17.0%, respectively (Table 1). Probably, these parasitism obtained may have been due to variations in the quality and availability of food resources or the densities of hosts.

Barros (et al 2006) reported *Peckia (Squamatodes) trivittata* (Curran) (Diptera, Sarcophagidae) being parasitized by *G. semirufa* in the savanna of Brasilia, DF.

These traps pitfall are used for studying parasitic Diptera and Hymenoptera. This work marks the first occurrence of *G. semirufa* parasitizing *O. thornax*, *P. chrysostoma* and *S. lambens* in southern of Goiás, Brazil.

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**Table 1. Registration *Gnathopleura semirufa* (Brullé, 1846) parasitizing the dipterous family Sarcophagidae listed in Itumbiara, southern Goiás, using pitfall trap, in the period January at November 2005.**

| Diptera                     | Frequency<br>Dipterous | Frequency<br>Parasitoid | Pupae<br>parasitizing | Percentage of<br>parasitism |
|-----------------------------|------------------------|-------------------------|-----------------------|-----------------------------|
| Sarcophagidae:              |                        |                         |                       |                             |
| <i>Oxysarcodexia thomax</i> | 305                    | 75                      | 75                    | 24,6                        |
| <i>Peckia chrysostoma</i>   | 143                    | 51                      | 51                    | 35,7                        |
| <i>Sarcodexia lambens</i>   | 182                    | 31                      | 31                    | 17,0                        |
| Total                       | 630                    | 157                     | 157                   | -----                       |