

***GNATHOPLEURA QUADRIDENTATA***  
**(HYMENOPTERA: BRACONIDAE: ALYSIINAE),**  
**A NEW NATURAL ENEMY OF *PECKIA CHRYSOSTOMA***  
**(WIEDEMANN) (DIPTERA: SARCOPHAGIDAE) IN BRAZIL**

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**ABSTRACT**

This note reports for the first time the occurrence of the parasitoid *Gnathopleura quadridentata* (Hymenoptera: Braconidae: Alysiinae) parasitizing pupae of *Peckia chrysostoma* (Wiedemann) (Diptera: Sarcophagidae) in Brazil. The flies were collected with traps baited with bovine liver in a wooded area in the vicinity of the Parque da Serra de Caldas Novas, Goiás, from September to December, 2003. A total of four specimens of the parasitoid *G. quadridentata* were reared from a total of 65 pupae of *P. chrysostoma*.

**KEYWORDS:** Hymenoptera. Diptera. Forest. Parasitoid. Caldas Novas. Goiás.

Flies are an outstanding model for the study of synanthropy, not only for their ecological importance, but also due to medical-veterinary implications, for they are vectors of pathogens, such as amoeba cysts, helminth eggs, enterobacteria, viruses and fungi (Greenberg 1971, D'Almeida 1992).

Sarcophagidae are ovoviviparous or rarely viviparous flies (Lopes & Leite 1989, Shewell 1987). Approximately 600 species of Sarcophagidae have been recognized from Neotropical region. These flies are of public health importance, for being mechanical vectors of human pathogenic micro-organisms (Greenberg 1971, Marchenko 1985).

*Peckia chrysostoma* (Wiedemann) (Diptera: Sarcophagidae) is a widely distributed neotropical synanthropic species (Ferraz 1995). In Rio de Janeiro,

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this species has shown preference for environments inhabited by humans, being attracted primarily to raw fish (D'Almeida 1984).

It is known that fly control using insecticides usually selects resistant populations. Mendes & Linhares (1993) stated that new methods for fly control are needed, and a possible method to control these insects is the use of natural enemies such as parasitoids, which may be responsible for the reduction of synanthropic fly populations in nature.

The Hymenoptera is one of the largest orders of insects and one of the most important groups of parasitoids that develop in or on immatures (egg, larvae or pupae) of other arthropods. Approximately 50% of all Hymenoptera are parasitoids, and they are of considerable importance as control agents of insects pests (Askew 1971).

Braconidae is one of the largest Hymenoptera families, with approximately 40.000 species (Sharkey 1993), divided in 45 subfamilies (Achterberg 1992). The most common hosts of braconids are larvae of Lepidoptera, Coleoptera and Diptera. The Alysiniinae is a large subfamily of Braconidae containing over 1.000 described species worldwide. All alysiinines are koinobiont endoparasitoids of cyclorrhaphous Diptera (Wharton 1984). They larviposit or oviposit on the host, the larvae penetrate in the host and the adults emerge from the puparia.

The objective of this note is to report for the first time the occurrence of *G. quadridentata* parasitizing *Peckia chrysostoma* in Brazil.

The study was conducted in a wooded area at the Parque da Serra de Caldas Novas, located in the vicinity of the city of Caldas Novas, GO (18°25'S – 49°13'W), Brazil. The flies were attracted to the traps made of dark cylindrical metal cans, measuring 19 cm of height and 9 cm of diameter, with two openings measuring 30 mm, located in the inferior third to allow the entrance of the flies. A more detailed description of the traps is given by Ferreira (1978). Bovine liver (200 g) was used as bait. Four traps hanging from trees one meter from the ground, and two meters apart were used. The collected insects were taken to the laboratory, sacrificed with ethyl ether and kept in 70% alcohol for further identification. The baits were removed from the traps and placed in plastic containers with a layer of sand to be used as substratum for the larvae to pupate. The sand was then sifted to collect the pupae. They were then placed individually in gelatine capsules (00 number) and kept until the emergence of the flies or their parasitoids.

The specimens were stored in the Laboratory of Biology of the Lutheran Institute of Superior Teaching. The parasitism prevalence was calculated using the following formula:  $P = (\text{parasitized pupae} / \text{total of pupae}) \times 100$  (Bush et al. 1997).

From September to December 2003, 4 specimens of *Gnathopleura quadridentata* were found in 65 pupae of *Peckia chrysostoma*, a prevalence of

4.6%. This prevalence can be related to the search ability of the parasitoid and to resource availability. *Gnathopleura quadridentata* showed preference for calyptrate muscoid flies, specially sarcophagids (Shenefelt 1974). This parasitoid is solitary and emerges from the puparium of the host. Species of *Gnathopleura* have been released for biological control of sarcophagids and muscids (Wharton 1979).

Penteado-Dias (1995) collected three specimens of *Gnathopleura* sp from the vegetation and seven of them reared from puparia of *P. chrysostoma* in a wet area near the Miranda River, MS, Brazil.

This work reports the occurrence of *G. quadridentata* for the first time on *Peckia chrysostoma* in Brazil.

## RESUMO

*Gnathopleura quadridentata* (Hymenoptera: Braconidae: Alysiinae), um novo inimigo natural para *Peckia Chrysostoma* (Wiedemann) (Diptera: Sarcophagidae) no Brasil

Este trabalho relata a primeira ocorrência do parasitóide *Gnathopleura quadridentata* Wharton (Hymenoptera: Braconidae: Alysiinae) coletado de pupas de *Peckia chrysostoma* (Wiedemann) (Diptera: Sarcophagidae). Na coleta, utilizou-se fígado bovino como isca para as armadilhas, colocadas em uma área de mata do Parque da Serra de Caldas Novas, Goiás, no período de setembro a dezembro de 2003. Foram coletados 4 espécimes de *G. quadridentata* em 65 pupas de *P. chrysostoma*, relatado, nesta nota, como um novo hospedeiro para essa espécie de parasitóide no Brasil.

DESCRITORES: Hymenoptera. Diptera. Mata. Parasitóide. Caldas Novas. Goiás.

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