First occurrence of the parasitoid Kleidotoma nigra (Hartig) (Hymenoptera: Figitidae) in immature stage of Brontaea quadristigma (Thomson) (Diptera: Muscidae) in cattle dung in Brazil

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Abstract

This paper reports the first occurrence of the parasitoid Kleidotoma nigra (Hartig) (Hymenoptera: Figitidae: Eucoilinae) in pupae of Brontaea quadristigma (Thomson) (Diptera: Muscidae) in cattle dung in Brazil. The experiment was undertaken in municipal, Goiás. The pupae were obtained by the flotation method. They were individually placed in gelatin capsules until the emergence of the adult flies or their parasitoids. The percentage of parasitism was 9.5%.

KEY WORDS: Hymenoptera, Diptera, fly, first occurrence, parasitoid.


Introduction

Eucoilinae (Hymenoptera: Figitidae) are koinobionts endoparasitoids of Diptera Cyclorrhapha larvae that emerge from the host pupa (GAULD & BOLTON, 1988), belonging to the Figitidae family, Cynipoidea superfamily (FERGUSSON, 1990). Approximately 29 genera and 55 species of Eucoilinae are known in Brazil (MALAVASI & ZUCCHI, 2000; GUIMARÃES et al., 1999). According to FERGUSSON (1995), much of the neotropical Eucoilinae fauna has not yet been studied.

The use of some chemical substances to control this fly may result in high production costs, causing damages to the environment and to human health as well. So, search for effective natural enemies may be a viable alternative to hold this plague in a long-term control program (Marchiori & Silva, 2003).
The objective of this study is to verify the dipteran species and their parasitoids in cattle feces in the municipality of Panamá, Goiás, Brazil.

Material and Methods
The experiment was conducted in Panama Farm, located in the city of Panama (18°10'36" S and 49°21'15" W), Goiás Brazil. Every fortnight, 10 plates of fecal cake (of approximately 3 kg each) were produced from fresh bovine feces that were collected immediately after defecation in pastures of Brachiaria brizantha (Hochst ex. A. Rich) and in corrals. The material was collected in plastic buckets and was homogenized. It was then placed in 10 round plastic supports, with a hole to allow rainwater to drain away.

This methodology was used for precise determination of the time between the emission of the fecal cake and its collection. The feces remained exposed (five in the pastures and five in the corrals) for 15 days. After this period, the feces were taken to the laboratory for extraction of pupae by means of the flotation method. The pupae were removed with the aid of a sieve; they were counted and individually stored in gelatin capsules (number 00) until the dipterous insects emerged. The flies that emerged were identified with the aid of a stereoscopic microscope and were conserved in 70% alcohol.

Parasitoids were identified using Diaz et al. (2000) and the hosts CARVALHO & PONT (1997).

The percentage parasitism of each parasitoid species was calculated by means of the number of pupae parasitized per species of parasitoid, divided by the total number of pupae from that host, and multiplied by 100.

Results and Discussion
In period from June to October 2003, two specimens of the parasitoid *Kleidotoma nigra* (Hartig) (Hymenoptera: Figitidae) were obtained from 21 pupae of *Brontaea quadristigma* (Thomsom) (Diptera: Muscidae). The percentage of parasitism was 9.5%. Probably, this percentage of parasitism obtained may be due to variations in the quality and availability of food resources, parasitoid searching capacity or host densities.

*Kleidotoma nigra* in Brazil was found in pupae of *Palaeosepsis* spp. (Diptera: Sepsidae) in the states of Mato Grosso do Sul (DIAZ & GALLARDO, 1996) and Goiás (MARCHIORI et al, 2001).
This paper reports the first occurrence in Brazil of the species *K. nigra* as parasitoid *B. quadrirstigma*.

**References**


