

First record of *Peckia (Sarcodexia) lambens*
(Wiedemann, 1830) (Diptera: Sarcophagidae)
parasitizing *Spodoptera frugiperda* (Smith, 1797)
(Lepidoptera: Noctuidae) in Brazil

Primeiro registro de Peckia (Sarcodexia) lambens (Wiedemann, 1830)
(Diptera: Sarcophagidae) parasitando Spodoptera frugiperda (Smith, 1797)
(Lepidoptera: Noctuidae) no Brasil

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ABSTRACT: Collections of larvae of *Spodoptera frugiperda* (Smith, 1797) (Lepidoptera: Noctuidae) carried out in the field in three localities in the city of Campo Grande, Mato Grosso do Sul, Brazil, from October 2012 to March 2014, recorded the presence of three species of Diptera parasitizing *Spodoptera frugiperda*: two species of Tachinidae, *Achytas incertus* (Macquart, 1851) and *Winthemia trinitatis* Thompson, 1963, and one species of Sarcophagidae, *Peckia (Sarcodexia) lambens* (Wiedemann, 1830). The latter is identified for the first time parasitizing *S. frugiperda* in Brazil.

KEYWORDS: agroecosystem; biological control; fall armyworm caterpillar; parasitoid.

RESUMO: Coletas de larvas de *Spodoptera frugiperda* (Smith, 1797) (Lepidoptera: Noctuidae) realizadas no campo em três localidades da cidade de Campo Grande, Mato Grosso do Sul, Brasil, entre outubro de 2012 e março de 2014, registraram a presença de três espécies de Diptera como parasitoide de *S. frugiperda*: duas espécies de Tachinidae, *Archytas incertus* (Macquart, 1851) e *Winthemia trinitatis* Thompson, 1963, e uma espécie de Sarcophagidae, *Peckia (Sarcodexia) lambens* (Wiedemann 1830), sendo esta identificada pela primeira vez no país como parasitoide larval de *S. frugiperda*.

PALAVRAS-CHAVE: agroecossistema; controle biológico; lagarta-do-cartucho do milho; parasitoide.

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BUENAVENTURA; PAPE (2013) considered *Peckia* as a senior synonym of *Sarcodexia*, maintained the latter as a valid subgenus and redefined the new generic combination *Peckia* (*Sarcodexia*) *lambens* (Wiedemann, 1830). This species, ranging from the southern United States to Argentina (LOPES; LEITE, 1989), is a nonspecific parasite and has been recorded parasitizing birds (FESSL et al., 2001), mollusks (COUPLAND; BAKER, 2004), scorpions (TOWNSEND, 1893) and insects (HOFFMANN, 1927), being documented as myiasis-causing fly in some species of vertebrates (HAGMAN et al., 2005), including men (FERNANDES et al., 2009). This species has also been recorded as host of other parasitic insects (MARCHIORI et al., 2007).

Spodoptera frugiperda (Smith, 1797) is the major pest of maize crops in Brazil and the Americas. Intense infestation of fall armyworm larvae can cause significant losses in grain production. According to VALICENTE; TUELHER (2009), the management of this pest has been done basically with use of chemical insecticides.

MOLINA-OCHOA et al. (2003) recorded the following species of Sarcophagidae as parasitizing *S. frugiperda*: *Helicobia morionella* Aldrich, 1930 from Honduras and Nicaragua; *Ravinia assidua* (Walker, 1852) and *Bercaea cruentata* (Meigen, 1826) (as *Sarcophaga georgina* Wiedemann, 1830) from the United States; *P. (S.) lambens* from the Lesser Antilles and Honduras (as *Sarcodexia lambens* and *Sarcodexia sternodontis* Townsend, 1892, respectively); and *Sarcophaga* sp. from Venezuela and the United States.

In tropical systems, despite their great biodiversity, there is a lack of basic studies on taxonomy of insect pests and their natural enemies (MOLINA-OCHOA et al., 2003). The identification of the organisms associated

with an agroecosystem is the first step in pest management (PRATISSOLI et al., 2010). Since the biodiversity may vary in different agroecosystems and it can be used to improve pest management (ALTIERI; NICHOLLS, 2004), it justifies the importance of the first record of *P. (S.) lambens* parasitizing *S. frugiperda* in the state of Mato Grosso do Sul, Brazil.

From October 2012 to March 2014, we collected eight larval samples of *S. frugiperda* in maize crops in three localities in the city of Campo Grande, state of Mato Grosso do Sul, Brazil: in the maize research field belonging to “Agência de Desenvolvimento Agrícola e Extensão Rural-AGRAER”, in the Universidade Católica Dom Bosco campus (UCDB), and in a farm near the District of Rochedinho.

Fall armyworm larvae collected in the field were taken to the Entomological Laboratory of the UCDB, where they were separated individually within test tubes (diameter 2.5 cm × 8.5 cm high) and bred with artificial diets, following GREENE et al. (1976). Adult tachinids were identified according to GUIMARÃES (1961) and COELHO et al. (1989), and the single specimen of Sarcophagidae was identified according to BUENAVENTURA; PAPE (2013) and CARVALHO; MELLO-PATIU (2008). Vouchers will be housed in the Zoological Collection of the Universidade Federal de Mato Grosso do Sul (UFMS) and in the Diptera Collection of the Museum of Zoology of the Universidade de São Paulo (MZUSP).

We collected 853 fall armyworm larvae of which eight percent were parasitized by three species of Diptera: two species of Tachinidae, *Archytas incertus* (Macquart, 1851) (61 specimens); *Winthemia trinitatis* Thompson, 1963 (seven specimens); and one species of Sarcophagidae, *P. (S.) lambens* (one specimen).

Archytas incertus and *W. trinitatis* have been recorded parasitizing *S. frugiperda* in maize crops in Brazil (MOLINA-OCHOA et al., 2003). Studies on their biology and their interspecific relationship with *S. frugiperda* can be found in several works (MILWARD-DE-AZEVEDO et al., 1991; ANDRADE et al., 2008; SILVA et al., 2010), suggesting the potential use of these species in the biological control of the fall armyworm larvae in pest management.

Peckia (S.) lambens (Fig. 1) differs from these two species of Tachinidae by having the abdominal sternites exposed and overlapping the tergite margins, notopleuron with more than two setae and subscutellum not well-developed. Since this species shows intraspecific variation in its thoracic and abdominal chaetotaxy, it is important to confirm the identification by examination of the male genitalia.

Peckia (S.) lambens is known as parasitizing many Lepidoptera pest, *Alabama argillaceae* (Hübner, 1823), *Oiketicus kirbyi* (Gulding, 1827), *Mocis latipes* (Guenée, 1852), *Diatrea saccharalis* (Fabricius, 1794) (BLANCHARD, 1963). Although *P. (S.) lambens* is considered a facultative

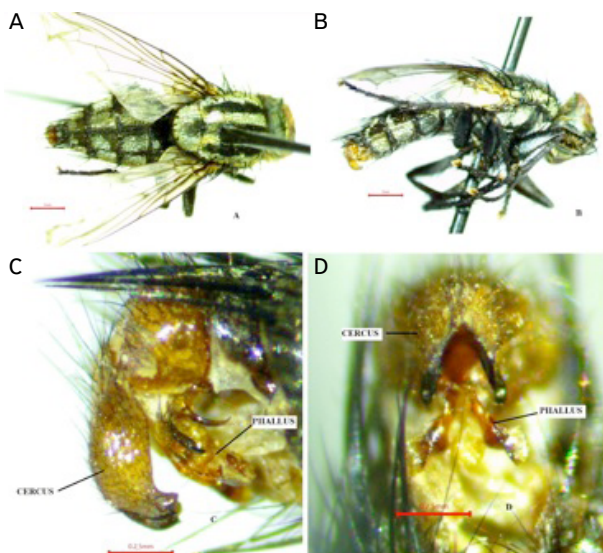


Figure 1. *Peckia (S.) lambens* (A) and (B), male habitus, dorsal and lateral views; (C) terminalia in lateral view; (D) terminalia in ventral view.

parasitoid (COUPLAND; BAKER, 2004), it was one of the main larval and pupal parasitoids of *Hylesia metabus* (Cramer, 1775) in Venezuela (HERNÁNDEZ et al., 2009). *Peckia (S.) lambens* parasitizing *S. frugiperda* have been recorded from the Lesser Antilles (FENNAH, 1947) and Honduras (MAES, 1989; CAVE, 1993), but there is no record of this parasitism from Brazil. The identification of the potential components which may interact in the larval control of *S. frugiperda* is important, and the record of parasitism of *S. frugiperda* by *P. (S.) lambens* in the state of Mato Grosso do Sul adds new information to this regional agroecosystem.

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