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A further new species of *Sarcofahrtiopsis* Hall (Diptera: Sarcophagidae) associated with faeces of the disk-winged bat (*Thyroptera* Spix: Chiroptera) in Brazil and the redescription of the female terminalia of *S. cuneata* (Townsend)

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Abstract

The male, female and puparium are described for *Sarcofahrtiopsis cupendipe* **sp. nov.**, whose larvae live in the roosts of disk-winged bats (*Thyroptera* species). *Sarcofahrtiopsis cupendipe* and *S. thyropteronthos* Pape, Dechmann & Vohnhof are both associated with the faeces of the disk-winged bat and are the only species of *Sarcofahrtiopsis* with wing vein R₁ fully setose dorsally and a short parameral apodeme in the male terminalia. In addition, the female terminalia of *S. cuneata* (Townsend) is redescribed.

Key words: Calyptratae, Oestroidea, flesh flies, Neotropical Region

Introduction

Flesh flies (Sarcophagidae) are among the most ecologically diverse calyptrate flies in terms of their breeding habits. The family contains predators and parasitoids of a wide variety of invertebrates (e.g., insects, millipedes, snails, earthworms, etc.); myiasis-producers in amphibians, turtles, lizards, and mammals (including humans); kleptoparasites in nests of solitary Hymenoptera; necrophages; and saprophages (Lopes 1973; Pape 1996; Pape & Dahlem 2010).

Several species from different, unrelated genera have been bred from vertebrate dung. The larvae of some species, such as *Peckia* (*Sarcodexia*) *lambens* (Wiedemann) and some species of *Sarcophaga* Meigen (*s.l.*), are facultatively associated with dung, while larvae of other species (e.g., *Tricharaea* (*Sarcophagula*) Wulp species and some *Oxysarcodexia* Townsend species, such as *O. modesta* Lopes) are strictly coprophagous (Lopes 1973; Bänziger & Pape 2004; Pape & Dahlem 2010).

The biology of the species of *Sarcofahrtiopsis* Hall is poorly known, but some species have been reared from invertebrate carrion (Pape & Méndez 2002, 2004), and *S. thyropteronthos* Pape, Dechmann & Vohnhof (Costa Rica) has been bred only from the faeces accumulated in the roosts (young coiled leaves of *Heliconia* and related banana-like plants) of Spix's disk-winged bat (*Thyroptera tricolor* Spix) (Pape *et al.* 2002).

Sarcofahrtiopsis comprises 12 described species and is predominately Neotropical in distribution, but two species occur as far north as southern United States (Florida and Texas). Most of the species are found in Central America and Antillean islands and only one species, *S. cuneata* (Townsend), has been recorded from Brazil (Pape 1996; Pape & Méndez 2002, 2004).

In this paper we describe the male, female and puparium of a second species of *Sarcofahrtiopsis* associated with the faeces of a species of disk-winged bat from the Brazilian Amazon. In addition, the female of *S. cuneata* is redescribed.

in a deep cavity and the cuticle is covered with pile (Figs. 9, 14). The cuticle of the puparium is bare in *Nephochaetopteryx* spp., *T. (S.) occidua* and *T. (S.) femoralis*, and encircled by the usual bands of intersegmentary spinules (Fig. 16). The cuticular pile is also present in the puparium of *S. thyropteronthos* (Pape *et al.* 2002) and because the puparia of the other species of *Sarcofahrtiopsis* have not been described, it is not possible to assess if the pile is a feature of this genus or is present only in the two species associated with disk-winged bats. The posterior spiracular plate of *T. (S.) occidua* and *T. (S.) femoralis* is not surrounded by triangular processes (Figs. 17, 18), which are present in *S. thyropteronthos*, *S. cupendipe* and *Nephochaetopteryx orbitalis* Curran (Lopes 1936).

Key to the identification *Sarcofahrtiopsis*

Sarcofahrtiopsis cupendipe can be incorporated into the key to species of *Sarcofahrtiopsis* by Pape & Méndez (2004) by replacing couplet 1 with the following:

- | | | |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1 | Vein R ₁ setose along full length. Postgonital apodeme not elongated (Fig. 3) | 2 |
| - | Vein R ₁ setose only proximal to the knob at level of subcostal break. Postgonital apodeme distinctly elongated (Mello-Patiu & Pape 2000, figs. 13, 22) | 3a |
| 2. | Distiphallus laterally without cuticular spines. Postgonite with tip strongly curved. Surstylus without spines on basal half | <i>cupendipe</i> Carvalho-Filho & Esposito |
| - | Distiphallus laterally with minute cuticular spines. Postgonite with tip gently curved. Surstylus with spines on basal half | <i>thyropteronthos</i> Pape, Dechmann & Vohnhof 3a. (Pape & Méndez's couplet 2) |

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