

## A probable hybrid female *Psychodopygus* sp. (Diptera, Psychodidae, Phlebotominae) specimen from Amazonas State, Brazil

### *Un híbrido probable en una hembra Psychodopygus sp. (Diptera, Psychodidae, Phlebotominae) en el estado de Amazonas, Brasil*

Arley Faria José de Oliveira<sup>1,2\*</sup>, Nair Otaviano Aguiar<sup>1</sup> & Felipe Arley Costa Pessoa<sup>2</sup>

#### SUMMARY

Phlebotomine sand flies are vectors of several important etiological agents. Sand fly cibaria and genitalia exhibit morphological characters that are essential for species identification. A morphologically anomalous female sand fly of the subgenus *Psychodopygus* Mangabeira was found in a faunistic survey of a forested area near Manaus, Amazonas State, Brazil. This specimen possesses two pairs of spermathecae and a cibarium with supernumerary rows of teeth. Most morphological anomalies in sand flies occur in the number and arrangement of spines in structures associated with the male genitalia. In females, the number of cibarial teeth is the most common form of anomaly. The specimen described here constitutes a rare anomalous record.

**Key words:** leishmaniasis, morphological abnormalities, sandflies, taxonomy

Phlebotomine sand flies are hematophagous insects which transmit pathogens that cause disease in vertebrates. These insects are identified primarily via characters of the genitalia and characters of the mouth, such as the cibarium. Morphological anomalies are often found in structures of the external genitalia in males, and in the number of cibarial teeth in females; abnormalities are also common in wing-nervures, palpi and antennae (e.g. Sherlock *et al.*, 1958. *Rev. Bras. Biol.* **18**: 433-437; Feliciangeli *et al.*, 1985. *Acta Amazon.* **15**: 157-166; Marcondes, 1999. *Mem. Inst. Oswaldo Cruz.* **94**: 365-366; Ximenes *et al.*, 2002. *Brazil. Entomotrópica.* **17**: 183-184; Andrade Filho *et al.*, 2004. *Rev. Bras. Entomol.* **48**: 583-585;

#### RESUMEN

Los flebotomos son importantes vectores de varios agentes etiológicos. En flebotomos, los caracteres morfológicos del cibario y la genitalia, son esenciales para la correcta identificación de las especies. Una hembra morfológicamente anómala del subgénero *Psychodopygus* Mangabeira, fue encontrada en un levantamiento faunístico en un área de bosque cerca de Manaus, estado de Amazonas, Brasil. Este espécime tiene dos pares de espermatecas y un cibario como hileras de dientes supranumerarios. La mayoría de las anomalías morfológicas en los flebotomos ocurre en el número y disposición de las espinas en las estructuras de la genitalia masculina. En las hembras, el número de dientes del cibario es la forma más común de anomalía. El espécimen aquí descrito constituye un raro registro de anomalía.

**Palabras clave:** leishmaniasis, anomalías morfológicas, flebotomos, taxonomía

Pinto *et al.*, 2010. *Neotrop. Entomol.* **39**: 732-735). Abnormalities may cause insects to be misidentified, and correct identification is important because some species are vectors of leishmaniasis.

An abnormal female sand fly was found during an entomological survey conducted in an Amazonian forest reserve that is part of the UFAM Experimental Farm, Federal University of Amazonas, on Km 38 of BR – 174, between Manaus, Amazonas and Boa Vista, Roraima, Brazil (2° 38' 59.46" S, 60° 3' 16.47" W). The specimen was slide-mounted, photographed and drawn.

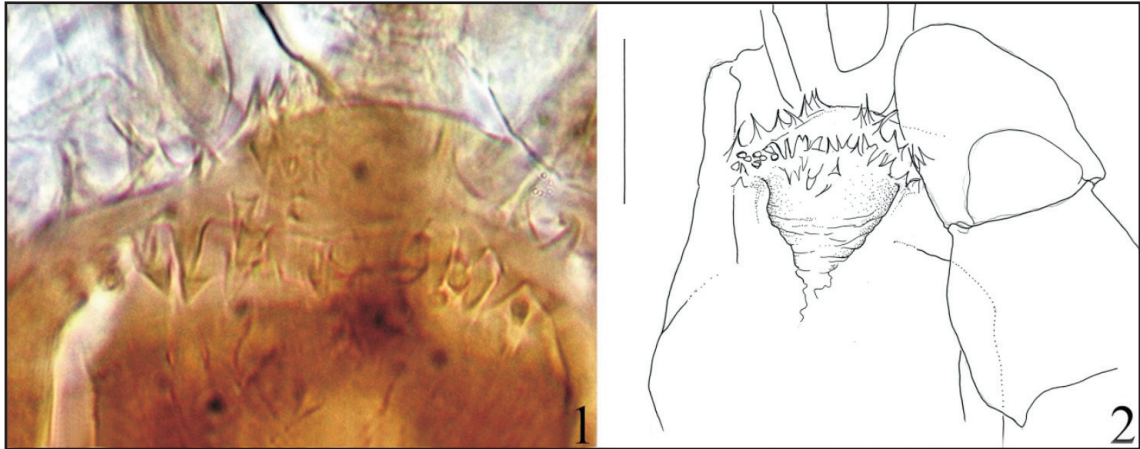
<sup>1</sup> Programa de Pós-Graduação em Diversidade Biológica – ICB, Universidade Federal do Amazonas, Manaus, AM, Brazil.

<sup>1</sup> Instituto de Biologia – ICB, Universidade Federal do Amazonas, Manaus, AM, Brazil.

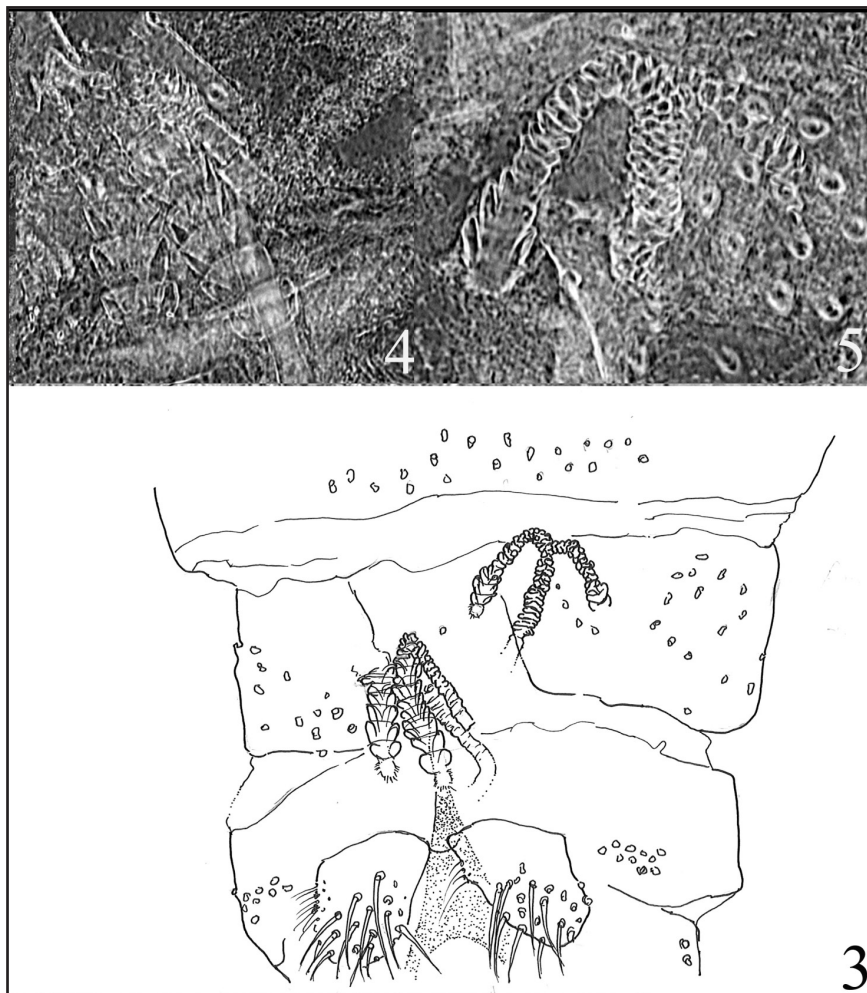
<sup>2</sup> Laboratório de Ecologia de Doenças Transmissíveis na Amazônia – Centro de Pesquisas Leônidas e Maria Deane, Fundação Oswaldo Cruz, Manaus, AM, Brazil.

\*Autor de correspondencia: afariajosedoliveira@gmail.com

Figures 1-2. Photomicrographs and drawing of cibarium showing three rows of irregular horizontal teeth.



Figures 3-5. Photomicrographs and drawing showing two pairs of spermathecae. One pair of spermathecae possesses two complete bodies other pair of spermathecae possesses one complete body and one body without the head.



The specimen exhibits a cibarium with three rows of irregular horizontal teeth (Figs. 1 and 2), and two pairs of spermathecae. One pair of spermatheca possesses two complete bodies, with individual ducts and a visible common duct ending in the genital furca. The other pair of spermathecae possesses one complete body and one body without the head, and only the distal third of the common and individual ducts is visible (Figs. 3-5).

Normally, female sandflies possess a single pair of spermathecae (McAlpine, 1981. Canada: *Res. Branch Agric.* **1**: 9-63). Ogusuku & Pérez, 1994 (*Acta Amazon.* **24**: 317-320) found a supernumerary spermathecae in a specimen of *Psychodopygus carrerai* Barretto, and the absence of spermathecae in a specimen of *P. amazonensis* Root. The abnormal female described here exhibits anomalies in both the cibarium and the spermathecae. According to the keys proposed by Young & Duncan, 1994 (*Mem. Am. Entomol. Inst.* **54**: 1-881), the arrangement of cibarial teeth is similar to that of *P. arthuri* Fonseca, 1936; additionally, the strong pigmentation of the thorax and pleura, and the characteristics of one pair

of spermathecae could cause this specimen to be misidentified as *P. ayrozai* Barretto & Coutinho. This may be the first record of combined cibarium and spermathecae teratologies present in a single female sand fly. Due to these abnormalities, the specimen could not be identified at species level.

#### ACKNOWLEDGEMENTS

To my technical illustrator Mr. Artêmio Coelho da Silva and Raúl Bismarck Pinedo Garcia Graduate in Biological Sciences the translation of the abstract in Spanish.

#### *Conflict of interest*

The authors report no conflicts of interest with this study.

Recibido el 20/01/2016  
Aceptado el 10/04/2016