

SCIENTIFIC NOTE

Phlebotomine Sand Flies (Diptera: Psychodidae: Phlebotominae) of Alagoas State, Northeast of Brazil

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Flebotomíneos (Diptera: Psychodidae: Phlebotominae) de Alagoas, Nordeste do Brasil

RESUMO - A fauna flebotomínica do Alagoas é uma das menos conhecida, sem registro de informações há mais de 40 anos. O presente trabalho registra *Psathyromyia brasiliensis* (Costa Lima), *Micropygomyia quinquefer* (Dyar) e *Evandromyia termitophila* (Martins, Falcão & Silva) pela primeira vez em Alagoas. Aumenta, assim, para nove o número de espécies conhecidas no estado, incluindo-se *Lutzomyia longipalpis* (Lutz & Neiva), *Migonemyia migonei* (França), *Nyssomyia whitmani* (Antunes & Coutinho) e *Nyssomyia intermedia* (Lutz & Neiva), importantes vetores de *Leishmania* no Brasil.

PALAVRAS-CHAVE: Leishmaniose, *Migonemyia migonei*, *Psathyromyia brasiliensis*, *Micropygomyia quinquefer*, *Evandromyia termitophila*

ABSTRACT - The phlebotomine sandflies of the state of Alagoas are poorly known, with more than 40 years since the last report on sandflies in the state. In here, *Psathyromyia brasiliensis* (Costa Lima), *Micropygomyia quinquefer* (Dyar.) and *Evandromyia termitophila* (Martins, Falcão & Silva) are registered for the first time in Alagoas. This report increases to nine the number of species collected in the state, including *Lutzomyia longipalpis* (Lutz & Neiva), *Migonemyia migonei* (França), *Nyssomyia whitmani* (Antunes & Coutinho) and *Nyssomyia intermedia* (Lutz & Neiva), all vectors of *Leishmania* in Brazil.

KEY WORDS: Leishmaniasis, *Migonemyia migonei*, *Psathyromyia brasiliensis*, *Micropygomyia quinquefer*, *Evandromyia termitophila*

Leishmaniasis is reported to be endemic in several countries. In the Americas, Brazil accounts for most of the prevalent cases. However, some regions in Brazil remain little surveyed regarding several aspects of the epidemiology of leishmaniasis, including the vectors, phlebotomine sand flies.

The Neotropical fauna of Phlebotominae comprises approximately 480 species (Galati 2003), most of which occur in Brazil. In the state of Alagoas, 1709 cutaneous leishmaniasis cases and 2310 visceral leishmaniasis were reported between 1990 and 2005 (SVS 2007); however, the sand fly fauna is not well known and only six species are registered from this region: *Evandromyia evandroi* (Costa Lima & Antunes), *Evandromyia lenti* (Mangabeira), *Lutzomyia longipalpis* (Lutz & Neiva), *Migonemyia migonei* (França), *Nyssomyia whitmani* (Antunes & Coutinho) and *Nyssomyia intermedia* (Lutz

& Neiva) (Lucena 1960, Martins *et al* 1978). Such low diversity might be due to few investigations developed in the state.

The present study aimed at reporting the phlebotomine sand flies fauna and their distribution in the state of Alagoas, Brazil, in order to provide information on ecological aspects of species collected in the agreste region of the State.

The state of Alagoas has an absolute area of 27,767,661 km² and a population of approximately 3,015,912 inhabitants distributed among 102 municipalities. The low altitudes predominate in the state with an average of 605 m and maximum altitude of 882 m above sea level. The state is divided into three zones: the coastal zone, the strip closer to the coast called the “sertão”, in the western most zone; and a transition zone, called “agreste”, in between both regions.

The predominant climate is tropical, but close to the coast the climate is hot (average 24°C), with rain period concentrated from March to August. In the “sertão”, the climate is semi-arid with higher temperatures (yearly variation between 17°C and 33°C) and predominance of long dry seasons. Two areas were sampled, Palmeira dos Índios and Craíbas. Palmeira dos Índios (9° 24' S; 36° 36' W) is located in the countryside of the state, in the agreste region, at 136 km from the capital, Maceió. At 290 m altitude, the municipality is located in the shadow of the hills called Palmeira dos Índios crossed by the rivers Coruripe and Traipu. An estimated population of 69,719 inhabitants was recorded in 2006 in an absolute area of 462.5 km². The economy is heavily based on the primary sector (agriculture and livestock), mainly producing cotton, sugarcane, beans and rice. Craíbas (9° 37' S; 36° 46' W) is located in the same region, has a smaller area (275 km²) and a population of 22,986 inhabitants, but the environment and economic activities are very similar to Palmeira dos Índios.

Insect captures were undertaken at the farm Macacos in the municipality of Palmeiras dos Índios on July during three consecutive days. Every night, two CDC light traps were placed into a hen's house and in an agricultural area from 5 pm to 8 am, and a Shannon trap was placed between the hen's house and a forest area, maintained between 6 pm to 10 pm. Moreover, manual collections were also carried out in a house for two hours (7 pm to 9 pm), where sand flies were collected on the inside and outside walls. In the locality of Lagoa Nova, municipality of Craíbas, 20 km far from Palmeiras dos Índios, captures were performed using CDC light traps and manual collector in a cattle pen and warehouse as above.

The collected phlebotomine sand flies were maintained in 70% ethanol and taken to the laboratory for slide preparation using Berlese liquid for females and Canada balsam for males. The classification used is in accordance with that proposed by Galati (2003). Specimens were deposited in the Phlebotominae Collection of National and International Reference at the Instituto de Pesquisas René Rachou/FIOCRUZ, Belo Horizonte, Brazil, labeled from 75,629 to 76,191.

A total of 563 phlebotomine sand flies belonging to seven species were captured (Table 1). *Migonemyia migonei* was the predominant species in most ecotopes under study,

except for the cattle pen, where only *L. longipalpis* was captured. Except for *Micropygomyia quinquefer* (Dyar), all phlebotomines recorded were found in the hen's house. In the dwelling house, where five members of the family were previously diagnosed with cutaneous leishmaniasis, *M. migonei* was the predominant species. Such phlebotomine species is characterized as highly anthropophilic, biting man even in the presence of other hosts (Forattini 1973), well adapted to human environment (Brazil *et al* 1991, Andrade Filho *et al* 1997, Teodoro *et al* 1999) and it is incriminated as vector of *Leishmania (Viannia) braziliensis* in different regions of Brazil (Queiroz *et al* 1994, Pita-Pereira *et al* 2005). Other sand fly species captured in this ecotope include *N. intermedia* and *M. quinquefer*; the former is believed to be endophagic and also suspected to transmit leishmaniasis in southeast Brazil (Casanova *et al* 1995, Campbell-Lendrum *et al* 1999, Andrade Filho *et al* 2007), and the latter feeds on cold-blooded animals (Deane & Deane 1957, Andrade Filho *et al* 1998).

The main vector of visceral leishmaniasis in Brazil, *L. longipalpis*, was reported in low density in the ecotopes studied (hen house and cattle pen), although it is the most common in other regions of Alagoas State.

Other phlebotomines were also collected in the agreste region such as *E. lenti*, which has no medical importance despite being frequently found in anthropic environments in several Brazilian regions (Brazil *et al* 1997, 2006, Saraiva *et al* 2006). Both *Psathyromyia brasiliensis* (Costa Lima) and *Evandromyia termitophila* (Martins, Falcão & Silva) are not vectors of *Leishmania* in Brazil, and are frequently captured in armadillo burrows and termite mounds (Martins *et al* 1964).

Psathyromyia brasiliensis, *Micropygomyia quinquefer* (Dyar) and *E. termitophila* are first recorded in Alagoas, increasing to nine the number of phlebotomine species recognized in the state. However, the species in here reported do not reflect the phlebotomine diversity of this state, and new studies are urgently needed.

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Table 1 Phlebotomine sandflies collected in Palmeira dos Índios and Craíbas in July 1999.

Species	Cattle pen	Secondary forest	Dwelling	Hen house	Total
<i>Migonemyia migonei</i> (França)		24	21	377	422
<i>Nyssomyia intermedia</i> (Lutz & Neiva)		2	4	51	57
<i>Lutzomyia longipalpis</i> (Lutz & Neiva)	37			1	38
<i>Evandromyia lenti</i> (Mangabeira)		5		23	28
<i>Psathyromyia brasiliensis</i> (Costa Lima)		4		5	9
<i>Micropygomyia quinquefer</i> (Dyar)		1	3		4
<i>Evandromyia termitophila</i> (Martins, Falcão & Silva)				3	3
Total	37	36	28	460	561

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