



Short Communication

The Occurrence of Phlebotomine Sand Flies in some Parts of Southern Bauchi State, Nigeria.

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ABSTRACT

A study of the occurrence of phlebotomine sand flies was made in Bauchi state, Nigeria between Januarys – December, 2006. A total of 1,197 flies were collected using sticky traps and oil traps placed in the various biotope types. Two sand fly genera *Phlebotomus* and *Sergentomyia* were encountered. It was also observed, that males (64.16%) were significantly more abundant than females (35.84%). This study confirmed the occurrence of phlebotomine in the area. And further established the existence of cutaneous leishmaniasis in the area. but will also be important for the characterization of epidemiological behaviour of the disease in the area. This would facilitate their control by source reduction.

Key words: Occurrence, Phlebotomine, Sand fly, Bauchi State.

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INTRODUCTION

Phlebotomine Sand flies (Diptera: Psychodidae) are tiny insects of 2 to 3mm long. Of the 500 known species, some 50 species and subspecies have been identified as vectors of leishmaniasis (WHO, 1995). These

vectors belong to the genus *Lutzomyia* and *Phlebotomus*.

Only the female phlebotomine sand fly transmits the Leishmaniasis. It becomes infected with *Leishmania* parasites through the blood it sucks from the vertebrate host in order to obtain the protein necessary to

develop its eggs (Fazaeli *et al.*,2008). For a period of 4 to 25 days the parasite continues its development inside the sand fly where it undergoes major transformations. When the now infected female fly feeds on a fresh source of blood, its painful sting inoculates its new victim with the parasite (Azizi *et al.*,2008; Oshaghi *et al.*,2010).

There is a dearth of published information on the potential vectors of leishmaniasis especially so of its status and extent in Bauchi state, Nigeria. The present study was undertaken so as to provide an insight into sand fly biology, thus, providing a tool for optimizing an effective control strategy for leishmaniasis infection in the study area.

MATERIALS AND METHODS

Breakdown into sub-titles like study area, sample collection and sample analysis also no mention of PCV Study Area.

Bauchi state, the study areas lies in the North-Eastern zone of Nigeria, West Africa, between approximately 9⁰30 – 12⁰30 North and 8⁰45 – 11⁰50 East and falls within the Northern Guinea Savanna regions. The state has predominantly (over 75%) rural dwellers (Idachaba, 1985).

The study was conducted in the six Local Government Areas (LGAs) of the Bauchi South Senatorial district (figure 1). An average of two prospective visits per month was made to each of the LGAs.

Sample Collection

The trapping techniques used was sticky paper traps (Daoud *et al.*, 1989). Traps were pieces of parchment paper (16 x 22cm) coated

on both surfaces with engine oil. Some traps were set around human dwellings and others in the bush. In open areas, traps were stapled on a suitable wooden supports at a height of 35cm from the ground. For insertion into ventilation shaft of termite hills and tree holes, traps were rolled into cylindrical shapes (Mutinga, 1981). Traps were set between 6:00 and 6:30am and collected the following day between 5:30 – 6:30pm.

Flies were removed from sticky traps with a small brush, washed in 1% saline solution and rinsed in distilled water. They were then kept in Berlese's medium for further laboratory investigations.

They were later dissected and preserved by slide mounting in Berlese's medium for microscopic examination. The microscopic identification of Sand fly specimens was based on morphological and morphometric criterion using standard keys of Quate (1964), Abonnene (1972), Abonnene and Leger (1976).

RESULT

A total of 1,197 specimens comprising of 2 genera 234 (19.55%) *Phlebotomus* and 963 (80.45%) *Sergentomyia*, were encountered. Apparently, males were significantly more abundant ($P > 0.05$) than females of both genera. These are set out in table 1. It was also noted that sand flies of genus *Sergentomyia* were relatively more abundant in the study area although the difference was statistically insignificant ($P > 0.05$).

Table 1:
Occurrence of sand fly genera encountered in southern Bauchi state

Genus	Number collected	Number males (%)	Number females (%)
<i>Phlebotomus</i>	234 (19.55%)	176 (75.21%)	58 (24.79%)
<i>Sergentomyia</i>	963 (80.45%)	592 (61.47%)	371 (38.53%)
Total	1,197	768 (64.16%)	429 (35.54%)
Mean	-	384	214
SE±	-	7.87	6.10

SE = Standard Error

Senegal, Gambia, Nigeria and Kenya respectively.

DISCUSSION

This report is probably the first on the vector of Cutaneous Leishmaniasis (CL) in Bauchi state and remarkably suggests that transmission of leishmaniasis may be going on in these areas. Overwhelming preponderance of males in this study is also noteworthy and is similar to an earlier report elsewhere in northern Nigeria (Agwale *et al*; 1995). While it is unclear why in this study more males than females were encountered, Chaniatis *et al* (1971) reported that such a disparity may be associated to differential sex mortality wherein some females die after completing few genotrophic cycles. Such an assertion may partly explain the case in this study. However, this merits further elucidation.

The sand flies of genus *Sergentomyia* were relatively more abundant in the study area. This is in conformity with the records of Dedet *et al* (1980), Desjeux *et al* (1983), Asimeg (1985, 1988) and Basimiki *et al* (1992) in

A general conclusion to be drawn from the findings of this study is that there is the need for future studies on isolation and characterization of the *Leishmania* parasite(s) from infected fly specimens in the area will ascertain the vector role. This work its finding might just be the tip of an iceberg.

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