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 January – 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 death 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 mension of PCV

Study Area.

Bauchi state, the study areas lies in the North-Eastern zone of Nigeria, West Africa, between approximately 9°30’ – 12°30’ North and 8°45’ – 11°50’ 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

<table>
<thead>
<tr>
<th>Genus</th>
<th>Number collected</th>
<th>Number males (%)</th>
<th>Number females (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Phlebotomus</em></td>
<td>234 (19.55%)</td>
<td>176 (75.21%)</td>
<td>58 (24.79%)</td>
</tr>
<tr>
<td><em>Sergentomyia</em></td>
<td>963 (80.45%)</td>
<td>592 (61.47%)</td>
<td>371 (38.53%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,197</td>
<td>768 (64.16%)</td>
<td>429 (35.54%)</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>-</td>
<td>384</td>
<td>214</td>
</tr>
<tr>
<td><strong>SE +</strong></td>
<td>-</td>
<td>7.87</td>
<td>6.10</td>
</tr>
</tbody>
</table>

SE = Standard Error

**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 Senegal, Gambia, Nigeria and Kenya respectively.

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 it finding might just be the tip of an iceberg.

**ACKNOWLEDGEMENT**

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**REFERENCES**


