

RESEARCH NOTE

**Preliminary Survey of  
Phlebotomine Sandflies  
(Diptera: Psychodidae)  
in Northern Nigeria**

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In this paper we report a preliminary survey of the species composition of sandflies in northern Nigeria, particularly in Keana village of Plateau State, an endemic area for leishmaniasis (SM Agwale et al. 1993 *Mem Inst Oswaldo Cruz* 88: 347).

Although data on the sandflies fauna of northern Nigeria has been accumulated (DJ Lewis, B McMillan 1961 *Proc R Entomol Soc Lond Ser B Taxon* 30: 29-37, EJ Asimeng 1985 *Insect Sci Appl* 6: 27-31), this is the first report on the species composition of sandflies in this active focus of leishmaniasis in Nigeria.

A survey of phlebotomine sandflies was carried out in northern Nigeria particularly in Keana village to determine the species composition and their relative abundance. Sandflies from Zaria, Kaduna and Kano were exclusively collected by sticky traps prepared from parchment paper (18 by 24cm) coated on both surfaces with engine oil, whereas both mouth aspiration and sticky traps methods were used to collect sandflies from Katsina and Keana. Single collection was made during October 1993 at Zaria, Kaduna, Kano and Katsina, whereas a monthly collection was made at Keana village (October 1993 to October 1994), but collections were not made from May through

July in this area. Species identification of the sandflies was made using the standard keys (E Abonnec 1972 *Bull Br Mus Nat Hist Ent* 45: 121-209, DJ Lewis 1982 *Bull Br Mus Nat Hist Ent* 45: 121-209).

Eight species of phlebotomine sandflies belonging to the Old World genera namely *Sergentomyia* and *Phlebotomus* were collected. The species of the genus *Sergentomyia* constituted the major proportion of the entire sandflies collected. They consisted of 678 (63.66%) *S. (S.) africana* Newstead, 319 (29.95%) *S. (S.) antennata* Newstead, 16 (1.50%) *S. (S.) clydei* Sinton, 14 (1.32%) *S. (G.) squamipleuris* Newstead, 5 (0.45%) *S. (S.) bedfordi* Newstead and 5 (0.45%) *S. (S.) schwitzi* Adler et al. Only two species of the genus *Phlebotomus* were discovered; they consisted of 23 (2.16%) *P. (P.) duboscqi* Neveu-Lemaire from Katsina and 5 (0.45%) *P. (A.) rhodaini* Parrot from Keana. Of the 23 specimens of *P. duboscqi*, 20 were collected by mouth aspirator on walls indoors and 3 by sticky traps.

Although *S. africana* and *S. antennata* persisted throughout the year, none of the species has been incriminated in the transmission of human leishmaniasis. The highest number of species was recorded in August through October. The study confirmed that the phlebotomine fauna in the leishmaniasis endemic area consists mainly of *Sergentomyia* species.

In northern Nigeria, *P. duboscqi* has been identified in the Sahel and Sudan Savanna bioclimatic zones (Asimeng *loc. cit.*, Lewis *loc. cit.*). It appears from this study that the distribution of this species does not extend into the Guinea Savanna as was also reported (EJ Asimeng 1991 *Insect Sci Appl* 28: 578-580). The only sandfly of the genus *Phlebotomus* collected from the endemic focus (*P. rhodaini*) has not been incriminated in the transmission of human leishmaniasis.

This findings so far may trigger a suspicion and further investigation of the role of sandflies of the genus *Sergentomyia* in the transmission of leishmaniasis. Molecular characterization of *Leishmania* isolates from humans living in the focus (Keana village) is now in progress, and when completed will give new information of this public health significance in Nigeria. Active search of sandflies species composition in this region is still in progress in order to isolate *Leishmania* parasites from infected specimens. Colonization of species of the genus *Sergentomyia* and subsequent experimental infection will also be interesting to complement this study.

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TABLE  
The species composition of sandfly samples collected at different sites in Northern Nigeria

Geographical area	Sandflies species																		
	<i>P. duboscqi</i>		<i>P. rhodaini</i>		<i>S. africana</i>		<i>S. antennata</i>		<i>S. clydei</i>		<i>S. squamipleuris</i>		<i>S. bedfordi</i>		<i>S. schwitzi</i>				
	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f			
No. Gv. Inf.		No. Gv. Inf.		No. Gv. Inf.		No. Gv. Inf.		No. Gv. Inf.		No. Gv. Inf.		No. Gv. Inf.		No. Gv. Inf.		No. Gv. Inf.			
Katsina	16	7	3	3	7	1													
Kano					1														
Zaria					1														
Kaduna					7		4												
Keana			4	1	401	260	166	4	219	96	76	4	12	5	4	1	3	2	2
Total	23			5		678		319		16		14		5					

m: male; f: female; No.: number; Gv.: gravid; Inf.: infected