

## Review Article

# The Phlebotomine sandfly fauna (Diptera: Psychodidae) of Kenya

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### ABSTRACT

Visceral and cutaneous leishmaniasis are endemic in some parts of Kenya, where they are transmitted by phlebotomine sandflies of genus *Phlebotomus*. This review is a compilation of the currently known distribution of phlebotomine sandflies in the parts of Kenya that have been studied, from the time sandflies were first reported in the country. So far 48 species of sandflies have been identified falling in the genera *Phlebotomus* Rondani & Berte and *Sergentomyia* Franca & Parrot. Genus *Phlebotomus* in Kenya is represented in five subgenera, namely *Phlebotomus*, *Larroussius*, *Synphlebotomus*, *Paraphlebotomus* and *Anaphlebotomus*. Genus *Sergentomyia* has the largest number of sandflies, and is represented in four subgenera, namely *Sergentomyia*, *Sintonius*, *Grassomyia* and *Parvidens*.

**Key words** Distribution; Kenya; *Leishmania*; *Phlebotomus*; *Sergentomyia*

Phlebotomine sandflies were first reported in Mombasa on the Kenya Coast in 1912<sup>1</sup>. Later in 1930 and 1932, Sinton<sup>2</sup> identified and reported the presence of *Sergentomyia schwetzi* Adler, Theodor & Parrot, *S. africana* Newstead, *S. yusafi* Sinton and *S. bedfordi congolensis* Bequaert & Walravens<sup>2,3</sup>. During the succeeding years, knowledge of the sandfly fauna of Kenya has widened as a result of sporadic collections of sandflies through attempts to find vectors of both cutaneous and visceral leishmaniasis<sup>4–19</sup>.

Until 1982, 40 species of sandflies and subspecies had been reported to occur in Kenya<sup>20</sup>. Following continuous collections in different parts of the country, so far 48 species of sandflies have been identified, belonging to the genera *Phlebotomus* Rondani & Berte and *Sergentomyia* Franca & Parrot. Sandflies of the genus *Phlebotomus* are important vectors of the leishmaniasis whereas those in *Sergentomyia* are not known to transmit any disease but can be a biting nuisance<sup>21</sup>. Genus *Phlebotomus* in Kenya is represented in five subgenera, namely *Phlebotomus*, *Larroussius*, *Synphlebotomus*, *Paraphlebotomus* and *Anaphlebotomus*. Genus *Sergentomyia* has the largest number of sandflies, and is represented in four subgenera, namely *Sergentomyia*, *Sintonius*, *Grassomyia* and *Parvidens*. The sandfly species presented here are not exhaustive and it is possible to have more species reported from Kenya.

### The genus *Phlebotomus* Rondani & Berte

The genus *Phlebotomus* can be easily identified when sandflies are mounted using Chloral hydrate gum on a slide. The ciborium usually has no teeth (also known as armatures) and can have only tiny spicules. The pigment patch is always absent. Hind ends of abdominal tergites 2–6 always have erect hair. Pleural setae are absent.

### Subgenus *Phlebotomus* Rondani

In Kenya, this genus is represented by only one species, *Phlebotomus (Phlebotomus) duboscqi* Neveu-Lemaire. The male of this sandfly usually has 2 terminal and 3 subterminal spines, and 3 of which are arranged in a row. The paramere is trilobed. Females have spermathecae with 8 segments and a pharynx with a network of scales. It is the only known vector for human cutaneous leishmaniasis caused by *Leishmania (Leishmania) major* Yarkimoff & Schokhor<sup>22</sup>.

*Phlebotomus duboscqi* has a limited distribution and it is found in a small focus in Baringo district, Rift Valley province. It is closely related to *P. (Phlebotomus) papatasi* Scopoli which is found in the neighbouring Republic of Sudan. *Phlebotomus duboscqi* is known to rest, breed and feed in rodent burrows<sup>23</sup>. Rodents such as *Arvicanthis niloticus* Geoffrey, *Aethomys kaiseri* Noak, *Taterillus*