

FLAGELLATES IN THE MALPIGHIAN TUBULES OF LABORATORY-BRED  
*LUTZOMYIA LONGIPALPIS* FED ON A HAMSTER EXPERIMENTALLY  
INFECTED WITH *LEISHMANIA MEXICANA AMAZONENSIS*

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*As a preparatory stage for a study aiming at identifying the species and subspecies of local Leishmania in naturally infected sandflies through immunoradiometric assay with monoclonal antibodies, we tried to obtain experimental infections of phlebotomines with well characterized stocks of parasites, in order to test the effectiveness of the method.*

We used strain MHOM/BR/77/LTB0016 of *Leishmania mexicana amazonensis* from a human case of cutaneous leishmaniasis from Três Braços, state of Bahia, Brazil, cryopreserved at the Reference Center for Leishmaniasis at the Instituto Oswaldo Cruz. As the species of phlebotomine vector of this leishmania in Três Braços is still unknown, we used *Lutzomyia longipalpis*, a confirmed vector of visceral leishmaniasis (although not of cutaneous leishmaniasis) in the New World, because it was the species easily available, at the moment, from our well established laboratory colony.

On May 30th, 1985, we fed 142 females of *Lu. longipalpis* five days old on the snout of a hamster experimentally infected with the mentioned strain of *L. mexicana amazonensis*. Five, six and seven days later we dissected the insects to search for the presence and location of flagellates. On the 5th day, among 37 specimens dissected 3, or 8.1%, harboured promastigotes in the midgut and also in the proximal part of the Malpighian tubules. On the 6th day, 16 sandflies out of 26, or 61.5%, revealed the flagellates in the same locations, being more numerous in the Malpighian tubules than on the previous day. On the 7th day, 15 sandflies were examined and 13, or 86.7%, contained promastigotes even more abundant and extending to the distal portion of the Malpighian tubules.

Promastigotes in the Malpighian tubules of sandflies have been detected before. Lainson & Shaw (1968) refer to the presence of occasional flagellates in the Malpighian tubules of *Lutzomyia flaviscutellata* naturally infected with *Leishmania* in the Utinga Forest, Belém, state of Pará, Brazil, stating that "the presence of small numbers of flagellates in the reargut and Malpighian tubules of some insects is thought to be due to a peristaltic back-wash from the midgut". And in his revision of the biology of *Leishmania* in phlebotomines Killick-Kendrick (1979) mentions the parasitism of the tubules detected by Rioux, himself and others (1978) in five specimens of *Sergentomyia minuta* captured in drainage holes on stone walls inhabited by geckos, in Southern France; in two of the sandflies the flagellates were restricted to the Malpighian tubules. More recently Añez, Nieves & Scorza (1985), studying the comparative experimental development of *L. garnhami* in its natural vector, *Lu. townsendi* and in *Lu. longipalpis*, and the development of *L. mexicana* and *L. braziliensis* in *Lu. longipalpis*, verified that *L. garnhami* would differ from both the "*mexicana*" and "*braziliensis*" complexes by multiplying in every region of the intestinal tract and in the Malpighian tubules.

In view of the species of vector, it is probable that Lainson & Shaw (1968) were dealing with *L. mexicana amazonensis*, the same subspecies responsible for the infections of *Lu. longipalpis* in our experiments. In these, however, the infection of the tubules was not occasional, being present in all sandflies with flagellates in the digestive tract and intensely increasing from the 5th to the 7th day after the infective blood meal, a trend similar to that observed by Añez, Nieves & Scorza (1985) in their experiments with *L. garnhami* in *Lu. townsendi* and *Lu. longipalpis*. The authors' results prevent us from regarding the location of the parasites in our experiments as due to the fact that it occurred in a abnormal host, since *Lu. longipalpis* is not a natural vector of cutaneous leishmaniasis.

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## RESUMO

Encontramos abundantes promastigotas nos tubos de Malpighi, além do tubo digestivo, em elevada proporção de fêmeas de *Lutzomyia longipalpis* experimentalmente infectadas em hamster inoculado com *Leishmania mexicana amazonensis*.

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