

RESEARCH NOTE

**Natural Infection of
Lutzomyia rangeliana
(Ortiz, 1952) (Diptera:
Psychodidae) with
Leishmania in Barquisimeto,
Lara State, Venezuela**

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Cutaneous leishmaniasis caused by *Leishmania venezuelensis* (Bonfante-Garrido, 1980) is endemic in dry urban areas in the central part of western Venezuela (R Bonfante-Garrido et al. 1992 *Trans R Soc Trop Med Hyg* 86: 141-148). This disease has been also found in cats (R Bonfante-Garrido et al. 1996 *Rev Cient Fac Cienc Veter Univ Zulia Venezuela* 3: 187-190). *Lutzomyia olmeca bicolor* (Fairchild & Theodor, 1971) formerly suspected as a vector of *L. venezuelensis* could not be found in dry urban areas where most of the cases of cutaneous leishmaniasis occurs. *Lu. trinidadensis* (Newstead, 1922) had been found infected with promastigotes, but isolates could not be maintained in culture media and into hamsters and, therefore, were not characterized (R Bonfante-Garrido et al. 1990 *Mem Inst Oswaldo Cruz* 85: 477). In October 1997, *L. venezuelensis* was isolated from two patients, father and son, with ulcerous lesions on the skin, one of them on the right shoulder and the other, on the left arm and chest. They lived at El Tostao, a peripheral sector

of Barquisimeto city, in a house made of blocks, with a yard of about 800 m², with several trees and bushes. An entomological study was started in this house, on 12 November 1997. To date, 31 captures have been made, between 19 and 22 hr, using Shannon and CDC light traps, in the yard and in the bedrooms. We collected and examined for natural infection with flagellates 1,001 female sand flies. All of them were identified by examining their genitalia. Five species were found: *Lu. cayennensis* (Floch & Abonnenc, 1945) 337, *Lu. rangeliana* (Ortiz, 1952) 293, *Lu. atroclavata* (Knab, 1913) 278, *Lu. trinidadensis* 184 and *Lu. dubitans* (Sherlock, 1962) 9. Except for *Lu. rangeliana*, which is moderately anthropophilic, all are considered to feed preferentially on rodents and reptiles (I Ortiz 1968 *Derm Venez* 7: 530-538). Females were individually dissected following the PT Johnson et al. technique (1963 *Exp Parasitol* 14: 107-122); when infected with promastigotes, the intestinal tract was examined to observe their location, then it was picked up from the slide and carefully disrupted in 0.5 ml of steril 0.9% sodium chloride solution. 0.1 ml of the suspension was inoculated into the footpad of hamsters. These animals were weekly examined for lesions. We found 23 (7.8%) *Lu. rangeliana* positive for flagellates. In 9 of these specimens fastly moving promastigotes were found in the midgut; in 2 they were in the foregut, midgut and pylorus; in 8, in the midgut and pylorus; in 1, only in the pylorus; in 1, in the midgut, pylorus and the rectal ampullae; and in 2, in the foregut, pylorus, rectal ampullae and Malpighian tubules. In 1 (0.3%) *Lu. cayennensis* flagellates were found in the pylorus, but the parasite has not yet been isolated. In hamsters, 17 isolates from *Lu. rangeliana* caused a tumor-like inflammation at the inoculation site, with histiocytes containing large number of amastigotes; after two months metastases were observed on limbs, nose, ears and tail. Other 12 hamsters inoculated with 6 of these isolates are still in observation. The strains isolated are morphologically and biologically very similar to *L. venezuelensis*. The source of these infection is probably a common rodent. Species identification of parasites isolated from *Lu. rangeliana*, by molecular techniques, is already in progress.

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