Comunicação Científica

Biology of Lutzomyia lenti (Mangabeira) (Diptera:Psychodidae)

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RESUMO - Foi iniciada uma colônia de Lutzomyia lenti (Mangabeira) com fêmeas capturadas em galinheiro, em Betim, MG, utilizando-se armadilha luminosa. A colônia apresentou um ciclo médio de 40,2 dias de ovo a adulto a 26° - 28°C e a UR 80 ± 5%. As fêmeas alimentaram-se avidamente em hamster [Mesocrisetus auratus (Waterhouse)], com uma postura média de 36,1 ovos / fêmea, sendo relativamente fácil de manter em laboratório. Estudos preliminares de susceptibilidade sugerem que esta espécie é refratária à infecção por Leishmania.

PALAVRAS-CHAVE: Insecta, flebotomineos, biologia.

The establishment of closed colonies of Lutzomyia spp. is fundamental to the development of research related to biology, molecular and cellular studies of Leishmania. Several species of neotropical sandflies have been colonized successfully (Killick-Kendrick et al. 1991), but for a large number of sandfly species their life cycles remain unknown.

Lutzomyia lenti (Mangabeira) is a sandfly well distributed in Brazil and although it is not presumably a Leishmania vector it is found of ten in areas of cutaneous and visceral leishmaniasis and there is no laboratory trials on Leishmania transmission by this species of sandfly (Young & Duncan 1994). In the present paper accounts are given to establishment of L. lenti colony, developmental time of the 1st six generations, as well as susceptibility to Leishmania infection.

The colony of L. lenti was established with eggs from females collected in a chicken coop in a rural area of Betim, MG, using a CDC (Center for Disease Control) light trap. The method for establishing and maintaining the colony were based on Killick-Kendrick et al. (1917) and Modi & Tesh (1983). Females were fed on anesthetized hamsters [Mesocrisetus auratus (Waterhouse)] and 48 h after feeding engorged flies were tubed individually in plaster-lined plastic vials. Vials were kept in snap-top plastic box with a damp piece of sponge in the bottom to maintain humidity. After oviposition females were removed, identified and the eggs of L. lenti counted and transferred to a larger container for mass rearing. Larval food for immature stages was a mixture of rabbit faeces, vegetal and mineral soil, dehydrated lettuce in equal proportion
Table 1. Mean (±SD) developmental time (in days) of three species of laboratory reared Lutzomyia (n= 6 generations).

<table>
<thead>
<tr>
<th>Species</th>
<th>Po</th>
<th>Egg/L1</th>
<th>L1/L2</th>
<th>L2/L3</th>
<th>L3/L4</th>
<th>L4/Pupa</th>
<th>Pupa/Adult</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>L. lenti</td>
<td>6.6±2.2</td>
<td>5.2±1.6</td>
<td>5.8±0.7</td>
<td>6.6±0.8</td>
<td>6.4±0.4</td>
<td>8.2±0.7</td>
<td>8.0±0.6</td>
<td>40.2±0.8</td>
</tr>
<tr>
<td>L. longipalpis</td>
<td>6.4±0.8</td>
<td>2.8±0.4</td>
<td>5.0±0.6</td>
<td>5.1±0.4</td>
<td>4.5±0.6</td>
<td>5.7±0.4</td>
<td>6.4±0.4</td>
<td>29.5±0.4</td>
</tr>
<tr>
<td>L. intermedia</td>
<td>7.4±0.8</td>
<td>5.6±0.4</td>
<td>5.8±0.7</td>
<td>5.8±0.7</td>
<td>5.4±1.0</td>
<td>5.0±0.6</td>
<td>5.2±0.7</td>
<td>32.8±0.6</td>
</tr>
</tbody>
</table>

Po = Preoviposition, L = Larvae, LI-L4 = Instar 1 to instar 4.

"Females collected in Gruta da Lapinha, MG.

"Females collected in Viana, ES.

plus 2% fish food (Vitormonio). When flies emerged they were released into a net cage and a 50% honey solution was provided on cotton wool in the top of the cages. During the oviposition period honey was provided ad libitum on the top of the pots. Cages and pots were kept in the insectary at 26-28°C and 80-85% RH.

Attempts to infect L. lenti with Leishmania amazonensis Lainson & Shaw were tried on several occasions. Flies were allowed to feed directly on skin lesions of the nose or feet of experimentally infected hamsters. Engorged females were kept in plaster-lined pots for 8 days in the insectary and then dissected to observe the infection rate. Although not all species of sandfly are easily maintained in laboratory, L. lenti appears to be suitable for long-term colonization with the methods of rearing sandflies used in the laboratory. Females of Z. lentii readily feed on hamsters. The mean time of the preoviposition period was 6.6 days (range 5-11) with a mean hatching period for eggs of 5.2 days (range 4-8)(Table 1). Larvae developed in 27.0 days (range 26-41) and pupae 8 days (range 6-11). The total cycle from egg to adult was 40.2 days and was longer when compared with L. longipalpis (Lutz & Neiva) and L. intermédia (Luiz & Neiva) reared in similar conditions.

No Leishmania infection was observed in 45 females of L. lenti dissected although this parasite infects L. longipalpis with some facility. It appears that L. lenti is refractory to infection with Leishmania and thus appears to share this characteristic with L. carmelinoi Ryan, Fraiha, Lainson & Shaw, a sandfly of the same group of L. lenti, as observed by Ryan et al.(1986).

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Literature Cited


(Diptera: Psychodidae) in the laboratory.


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