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MAINTENANCE TECHNIQUES FOR *LUTZOMYIA LONGIPALPIS* REARING IN AN INSECTARY AT GONÇALO MONIZ INSTITUTE, FIOCRUZ-BAHIA

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Abstract

Lutzomyia longipalpis (Diptera: Phlebotominae) is the primary vector of *Leishmania* parasites, the causative agents of visceral leishmaniasis. These insects are holometabolous, as their larval stages occur in soil rich in organic matter. Females are obligate hematophages, requiring blood meals from vertebrate hosts to support oogenesis, a critical factor in disease transmission. Given their medical and epidemiological importance, maintaining laboratory colonies is essential for research on parasite-vector interactions and developing innovative control strategies. This study details rearing techniques applied at the only *L. longipalpis* insectary in Northeast Brazil, located at Fiocruz-Bahia, during the year of 2024. Colony maintenance follows the species' natural life cycle. Eggs are surface-sterilized using 1% hypochlorite and 70% alcohol, then transferred to dental plaster-lined pots and incubated under controlled humidity, temperature, and photoperiod conditions. Upon hatching, larvae receive a specialized diet formulated by the insectary team, with feeding protocols adjusted according to density and developmental stage. Following pupation, adults are released in entomological cages and provided continuous access to a 70% sucrose solution. After an acclimation period of 4–5 days, females undergo blood-feeding on an anesthetized hamster. Engorged females are subsequently separated, quantified, and placed in oviposition pots lined with plaster, initiating a new reproductive cycle. These optimized rearing methods enable the production of over 20,000 female sand flies per month, sustaining a colony exceeding 100,000 individuals annually. This robust system supports experimental studies involving more than 1,000 sand flies weekly without compromising production capacity. By ensuring a continuous and reliable supply of vector specimens, these methodologies significantly contribute to research on visceral leishmaniasis pathogenesis and the advancement of vector control strategies.

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