1. Introduction

Among medically important insects Phlebotomid sandflies (Diptera: Phlebotomidae) occupy the position next to mosquitoes in the transmission of vector-borne diseases. The role of these insects in the dissemination of diseases is well known since the year 1691 (Gordon and Lavoipierre, 1962). The diseases transmitted by sandflies are leishmaniasis, phlebotomine fever and bartonellosis.

Leishmaniasis is not a single entity but comprises a variety of syndromes, due to a variety of parasites affecting different populations and each related to characteristic vectors and animal reservoirs. Cutaneous, muco cutaneous and visceral leishmaniasis are the major types of leishmaniasis. The cutaneous type causes lesion in the skin and muco cutaneous leishmaniasis results in the destruction of muco cutaneous region; while the visceral leishmaniasis, commonly known as kala-azar begins insidiously and in the absence of specific therapy usually terminates in death.

Until recently, leishmaniasis was thought to be an important problem only in India, China, the Middle East, Southern Europe and parts of South America. Now it is recognized as major public health problem in all continents except Australia and Antarctica.
The disease leishmaniasis is caused by the protozoan parasite of the genus Leishmania. The genus Leishmania consists of several species, of which the species Leishmania donovani and L. tropica are the important parasites causing cutaneous leishmaniasis (oriental sore) and visceral leishmaniasis (kala-azar) respectively in India.

Phlebotomus papatasi is the major vector of oriental sore and P. argentipes is responsible for kala-azar as far as India is concerned. In Malta P. papatasi was reported to transmit kala-azar by Cachia and French (1964) and in Iraq the involvement of P. papatasi in the transmission of infantile kala-azar was reported by Sukkar (1982). Natural infection with leptomonad forms of Leishmania parasite was observed in P. papatasi by Modi et al. (1979), when they dissected sandflies obtained from kala-azar endemic area of Muzaffarpur, Bihar, India.

The disease once ravaged many parts of India showed a transient disappearance with the advent of National Malaria Eradication Programme (NMEP) during 1940s (Chowdhury, 1983). Currently the withdrawal of spraying of residual insecticide under NMEP resulted in the resurgence of leishmaniasis in many parts of India. The disease is also reported to be spreading to hitherto non endemic areas (Chowdhury, 1983). Reports of focal out breaks of leishmaniasis in various parts of Coromandel coast (Shanmugam et al., 1977) and suspected involvement of P. papatasi in the transmission of kala-azar
makes it necessary for an in-depth understanding of the biology and ecology of this sandfly species. Hence a detailed investigation on various aspects of *P. papatasi* under laboratory as well as field conditions was undertaken in Pondicherry.

**Objectives of the study**

1. To establish a cyclic colony of *P. papatasi*.

2. To study the biology of *P. papatasi* under laboratory conditions.

3. To investigate the occurrence, distribution and relative importance of various breeding habitats of sandflies.

4. To study the species composition of sandflies in Pondicherry.

5. To study the resting behaviour of *P. papatasi*.

6. To probe into the age structure and survival of *P. papatasi* during different seasons.

7. To delve into the biting behaviour and man/vector contact of *P. papatasi*.

8. To understand the population dynamics of *P. papatasi*.