

Is *Phlebotomus argentipes* Annandale and Brunetti (Diptera: Psychodidae) autogenous?

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Phlebotomus argentipes is an established vector of visceral leishmaniasis in India and other countries of the sub-continent^{1,2}. *Phlebotomus argentipes* is primarily zoophilic as it prefers animal bait seven times more than the human bait in similar situation³. However, the blood meal analysis proves that it is anthrophilic as well as zoophilic in nature⁴. Female *P. argentipes* takes blood from host for egg-laying. The emergence of adults after completing its life-cycle, takes approximately one month under favourable environmental conditions⁵. In nature most species of insects are gonotropically concordant, taking one blood meal to each batch of eggs maturation. However, autogeny (the ability to lay eggs without blood meal) has been reported in other species of sandflies but not in *P. argentipes* so far.

In the present study single line sandfly colonization was initiated with wild caught, fully blood-fed/gravid female *P. argentipes*. These were confined singly inside microcentrifuge tube (n = 101) prepared for egg-laying purposes by making minute holes on cap and sidewalls for proper aeration. A small piece of filter paper wetted with water/20% glucose solution was used for providing egg-laying surface. The eggs were washed in larger rearing Hilton pots. The larval food was added after hatching and proper care was made for maintenance of all developmental stages. The rearing pots were kept inside the insectariums at controlled temperature (30 ± 2°C) and humidity (75 ±

5%). After reaching the pupal stage 250 pupae were kept in microcentrifuge tube individually. On Day 4 onwards emergence was started and continued till Day 7. Abdomen of each newly emerged female was examined under compound stereo microscope (Carl Zeiss) for the presence/absence of eggs inside the abdomen without providing any blood meal. Out of 250 pupae kept for adult emergence only 69 female *P. argentipes* emerged out. The abdomen of two newly emerged *P. argentipes* was found full of eggs of which only one (1.44%) laid the eggs (n = 10) after Day 4 of emergence. The vial was plugged with 20% glucose soaked solution for feeding of newly emerged sandflies. The eggs could not hatch. In further extensive study this can be elaborated with more observations including complete life-cycle if the eggs can hatch. If it is established it would prove an important bearing in the transmission of kala-azar, where they can survive without blood meal and can maintain the generations.

Autogeny was observed in different species of sandflies with different ratio. It was reported 8% in female *P. paptasi* (Scopoli) in Turkey⁶. During observation of the ovarian development and blood feeding of *P. bergeroti* using laboratory colony derived from Egyptian sandflies 89% of the females in the colony were autogenous. The fecundity was found significantly higher for the blood-fed females than for those autogenous fed on sugar solution. The autogenous

female oviposited between 7 and 67 eggs where as blood-fed females laid 89–121 eggs⁷. The adult female *P. bergeroti* of Djibouti strain was found with high degree of autogeny in Egypt⁸. However, more data are required to arrive at a conclusion.

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