

BRIEF REPORT
GONOTROPHIC NATURE OF *Phlebotomus argentipes*
(DIPTERA: PSYCHODIDAE) IN THE LABORATORY

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Phlebotominae sandflies, the haematophagous insects, are dependent on blood for their follicular development and subsequently laying of eggs to maintain their progeny except a few who are autogenous in nature (KILLICK-KENDRICK, 1978). Blood feeding habit of *Phlebotomus argentipes* Annandale and Brunetti has already been studied in the laboratory (SMITH, 1959; GHOSH & BHATTACHARYA, 1989). Few authors have reported multiple feeding in *P. argentipes* and *P. papatasi* in nature (PANDYA, 1980; DHANDA & GILL, 1982). The field result may not be enough to indicate the either insects as gonotrophically concordant or discordant as two positive bands for the meal may appear when the fly takes two meals (the first one may be incomplete i.e., partial feeding) in a short time on two different host animals. It may also appear due to undegraded immunoglobulin of the former meal (TESH *et. al.*, 1988). On the contrary, two meals may indicate as one when the source of blood meal is a single host species. The laboratory observation on this aspect will strengthen the idea of the possible gonotrophic nature of an insect. Most laboratory bred species are gonotrophically concordant and will not take a second blood meal before egg laying (KILLICK-KENDRICK, 1987). However, adverse reports are available against *P. papatasi* and *P. longipes* (KILLICK-KENDRICK, 1983). The deviation of the nature of *P. argentipes* in relation to gonotrophic nature is reported here on the basis of laboratory observation.

The females of the laboratory bred sandflies, maintained following the method of GHOSH & BHATTACHARYA (1989), were exposed to human blood source. The bloodfed flies were kept through glucose for 2 days, without allowing a damp basement, to prevent oviposition. On the third day of feeding the gravid flies were allowed to refeed on the human source. A batch of unfed females were included too beside the gravid flies to engorge. During feeding the room temperature was brought down to 25°-26°C and the feeding cage was made dark.

A total of 87 flies were exposed to human source as 2 batches (36 + 51) of which 41 (17+24) took blood meal. Later, 31 (13+18) of the bloodfed (not oviposited) and 84 (36+48) unfed flies were exposed to human source and found 3 (1+2) and 39 (16+23) females took blood meal respectively. This indicated that 9.6% of the bloodfed flies took second blood meal before oviposition which amounted to 3.4% of the flies exposed for feeding. It was found that the volume of blood meal taken by the gravid females in the second time was small in comparison to the first meal and it occupied the anterior portion of the gut.

The result indicates that *P. argentipes* may also exhibit gonotrophic discordance, although as very low percentage, disagreeing with the previous concordance conception. Ingestion of smaller amount of blood during second feeding is probably due to the developing eggs preventing the accommodation of more fluid in the gut. Multiple feeding index of *P. papatasi* is higher than that of *P. argentipes* in nature (PANDYA, 1980; DHANDA & GILL, 1982). In our trial also we have met discordance with the former as common (unpublished observation) and with the latter as a rare phenomenon in the laboratory. Our observation on *P. papatasi* supports the earlier observation of KILLICK-KENDRICK (1983). The multiple feeding in a short time has meaning on the potential transmission of leishmaniasis, considering that this phenomenon will increase the vector potential of the flies (BUESCHER *et al.*, 1984; KILLICK-KENDRICK *et al.*, 1977; DHANDA & GILL, 1982). But KALRA & BANG (1986) have considered *P. argentipes* a more competent vector than *P. papatasi* which is not gonotrophic discordant.

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