

NOTES ET INFORMATIONS

EVIDENCE FOR POLYGAMY IN *PHLEBOTOMUS PAPATASI* Scopoli.

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The elucidation of the mating strategies of arthropod vectors is of importance in understanding their behavioral ecology and in formulating control strategies. It is now apparent that the receptivity to insemination of females in many mosquito species is renewed each gonotrophic cycle (e.g., Young and Downe, 1982). The sexual behavior of phlebotomine sandflies, the vectors of *Leishmania*, has not been studied in depth. Recently Guilvard *et al.* (1985) observed matings of parous *P. ariasi* females, indicating polygamy in this species. As part of our study of the ecology and behavior of *P. papatasi*, the main vector of cutaneous leishmaniasis in Israel, the parous state and insemination status of wild caught females were studied. Parity was determined according to Polovodovas method (1949), which has been successfully applied to *P. ariasi* (Wilkes and Rioux, 1980) and new world phlebotomines (Ready *et al.*, 1984). Insemination was determined by dissecting the lower abdomen and examining the spermathecae under high powered light microscopy.

Of 89 parous females trapped in a fallow field in the Jordan Valley, 65 (73 %) had empty spermathecae. Conversely, of 34 parous females exiting from a nearby burrow of *Psammomys obesus*, only 8 (24 %) were negative for insemination, while the spermathecae of the rest were teeming with spermia.

In the laboratory, 46 colony reared females were allowed a blood meal and free access to males for 4 days following the blood meal. They were then cloistered in a 4 litre cage containing no males. Prior to oviposition 26 females were sacrificed and their spermathecae examined. Of these 23 (88.4 %) were positive for insemination. The remaining females were dissected after oviposition and 14 (70 %) had no sperm in their spermathecae.

The results of both the field and laboratory study lead us to the conclusion that female *P. papatasi* mobilize all the sperm acquired during their first insemination

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for fertilizing the eggs produced in the first gonotrophic cycle, and thus have to mate again for the successive one. Furthermore, the high insemination rate of parous females exiting from the rodent burrow points to the burrow as a likely place for mating in the flies natural environment.

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