

Evidence for the existence of a sex pheromone in the Oriental Fruit Fly, *Bactrocera dosalis* (Hendel)

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The Oriental Fruit Fly, *Bactrocera dorsalis* is one of the main pests causing serious damage to a great variety of tropical fruits. In recent years, pheromones have proven to be important tools in managing these pests. Before the possibility of using behaviour-modifying chemicals of an insect to man's advantage arises, it is most important to investigate the evidence for the existence of sex pheromones of that insect and the effects of the pheromones on their behavioural responses. The responses of mature oriental fruit fly to different combinations and rectal glands were therefore tested using a dual-choice olfactometer. Flies moved into the catch chamber of the olfactometer (responding to the odour source) were counted after each observation period.

The mating activity of the males and females were restricted to the 'dusk' period. Wing vibration was observed only in males. They vibrated their wings by drawing them backwards and forwards over a pair of combs formed of large bristles situated on the abdomen, producing short bursts of high-pitched buzzing sound. This was to stimulate male activity and increase female responsiveness. In cages with male oriental fruit fly during dusk, a musky odour was detected which was suspected to be the male pheromone or a substance associated with its release.

Results obtained from testing different combinations of live flies showed that the females are attracted to males and not vice versa. Also, when females were tested against male rectal glands, significantly high responses of the females were observed. It is evident from the results that the male oriental fruit fly releases the sex pheromone which attracts the female. Furthermore, the results allow the conclusion to be drawn that the source of production or storage of the sex pheromone in the oriental fruit fly males is the rectal gland.

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