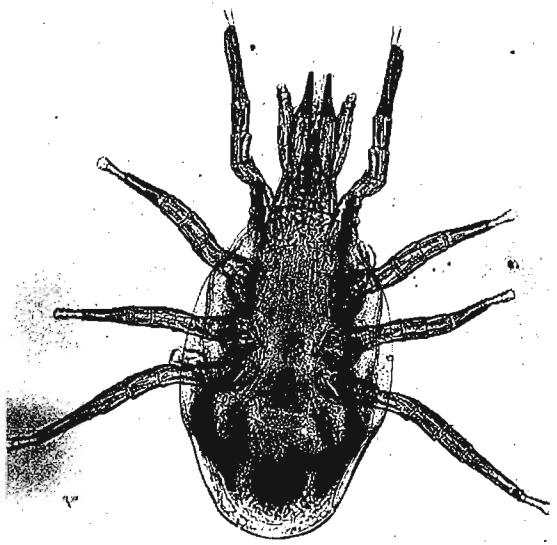


Félix, R., J. Guzmán, M.E. de la Rosa and O. Olvera. Control of mites in Drosophila cultures.

Mites are introduced into laboratories when collections of wild flies are being made, or when Drosophila cultures received from other laboratories are not carefully examined before new cultures are started from such flies.



Histiostoma sp.

The mites were introduced with samples of wild flies regularly collected at several trapping sites in Mexico City. All the infested cultures were submitted to the treatment detailed below, in order to eliminate all the mites from the cultures. Contaminated bottles and instruments were heated in a furnace before washing. The instruments used to manipulate flies, as well as the surface of the microscope, the outer surface of bottles, and upper surface of tables were continuously washed with a solution of benzyl-benzoate (20%) in 96° ethanol.

To start new cultures, flies were examined under the microscope, to use only adults that were apparently free from mites. As it is difficult to avoid contamination of the new medium, the adults were allowed to lay eggs on it, only during a period of 24 hours. When a few of the small hypopus nymphs from contaminated flies, or from other cultures were found in the new medium, it was necessary to cover its surface with a solution of benzyl-benzoate (20%) in 96° ethanol. This treatment kills the nymphs, without producing any noticeable effect in Drosophila larvae, which develop to the adult stage without hinderance from predatory mites. Newly emerged flies were transferred each day to new cultures, to avoid the attachment of mites which survived after the treatment.

In heavily infested cultures all of the flies died, and there was found to be a crowding of mite nymphs among Drosophila larvae. In such a case, it was necessary to apply another treatment, thoroughly washing the larvae by immersion in a solution of benzyl-benzoate (20%) in ethanol. After 2-4 minutes in the benzyl-benzoate solution larvae were washed with Ringer solution and transferred to fresh vials. Following the above steps, the pest was effectively controlled after three weeks.

*Histiostoma* sp. is the most serious pest found in *Drosophila* cultures, as the control of infestation with this predatory mite has proved to be more difficult than the well known contaminations with either molds or bacteria.

*Histiostoma* sp. has a hypopus stage which attaches itself to *Drosophila*, as well as to other insects. It differs from other less dangerous mites mainly by its absence of long hairs. Besides, the predatory mite has a squatting body build in contrast with the long and thinner non-parasitic mites. As female adults produce both male and female progeny by parthenogenesis, a laboratory might become infected from a single introduced mite in the hypopus stage.

The newly eclosed smallest nymphs thrive on the culture medium. After a week or so, they metamorphose into the migratory (hypopus) state. These hypopi, that develop in large numbers in old, infested cultures, are extremely active. They crawl up out of the culture medium and, as they penetrate tiny crevices, they may infest other cultures, unless very tightly stoppered. The migratory nymphs attach to any insect they may come into contact with, sucking the mouth parts into the insect. After ten days of attachment, they leave the host and grow to the adult stage on the surface of the medium, where they reproduce.

A heavy infestation which extended to stock cultures occurred last year at this laboratory.