Jost, P. and W. Sistrom. University of Oregon, Eugene, Oregon. Effects of humidity on increasing the yield from vial pair matings.

In a series of experiments in which less than 25% of the zygotes were expected to be viable, difficulties were encountered with bacterial contamination and drying of food when pair matings (either in vials or in 1/2 pint bottles) were attempted under the conditions in an ordinary incubator, humidified by evaporation from open pans of water.

Failure of as high as 70% of all pair matings to produce adult progeny was found in several experiments, even though over 90% of the vials contained some larval stages. Addition of extra yeast and a few drops of distilled water to the vials in the first week of egg-laying did not appreciably increase the yield. However, raising the humidity in the vials up to a point at which condensation appeared, markedly increased both the number of vials yielding adults and the adults obtained per vial. In addition, bacterial growth was much less apparent. When these conditions of high humidity were maintained for the first few days after mating, approximately 70 - 85% of the matings gave adult progeny, and the average yield per vial was increased several-fold.

Conditions of high humidity were achieved in an ordinary incubator by using aluminum foil wrapping. Wire trays were lined with foil on which were placed five to six layers of paper towels saturated with a dilute solution of copper sulphate to inhibit growth of mold.

The vials were placed upright in the tray on the wet paper towels, and pieces of foil-wrapped cardboard one inch higher than the vials were placed along the sides of the tray before the foil was closed and sealed. This gave a closed chamber with an inch or so between the top of the vials and the foil cover. After five to six days the foil cover was torn open and the excess humidity allowed to dissipate before the first pupation occurred. Maintenance of conditions of high humidity for as long as ten days delayed pupation and did not give a maximum yield. All experiments were conducted at 25°C, and the medium used was a standard cornmeal, molasses, agar, yeast and propionic acid, but with added antibiotic (Hendrix and Ehrlich, DIS 40:99).

Maintenance of extremely high humidity during the first few days of egg laying may prove to be generally useful in increasing the yield of adults from pair matings where lowered fertility or high zygotic mortality reduces the number of larvae to such an extent that early drying of the food occurs, in spite of the presence of pans of water in the usual cabinet-type incubator.

TEACHING NOTE

Lifschytz, Eliezer & Raphael Falk Hebrew University, Jerusalem, Israel. "Complementation map" in Drosophila.

Beginning students often have difficulties in grasping the method of genetic mapping by means of "deficiencies", as applied e.g., by Benzer for the rII locus of T4.

The system of the X-chromosome lethals covered by $Y.w^+$ described in this issue (Lifschytz, E.) proved to be very useful in clarifying this genetic method. The students were given all combinations of matings between the lethals, as well as the mating between a white (non-lethal) stock and the lethals. The results were plotted in a matrix form, and the students constructed the "complementation map" by themselves.