

Zimmerman, W. F. Amherst College, Amherst, Massachusetts. A technique for mass rearing and collection of *Drosophila* pupae and adults.

Studies of the circadian rhythm of eclosion in *Drosophila pseudoobscura* necessitated the development of a technique for mass rearing and collection of pupae and adults. The technique may be of interest to researchers faced with similar problems

in the same or other insects.

Drosophila pseudoobscura were reared at 20°C in plastic refrigerator boxes (27 cm x 19 cm x 9 cm) whose tops had been cut out with a jig saw (leaving the frame) and replaced with nylon curtain material glued to the edge of the top with methylene chloride. A 1 cm hole was drilled in the top, so that flies could be dropped via a funnel into the box.

Four hundred to six hundred parent flies 1 to 3 days old were placed in such a box containing 13 to 20 mm of fly food medium and patches of live Brewer's yeast in water suspension. Two to three "valleys" were made lengthwise in the food, since crowded females lay eggs more readily in creviced areas.

The flies were allowed to lay eggs 3 to 5 days and were then removed by inverting the box and anaesthetizing them with CO₂. After the unconscious flies fell onto the detachable top of the box, they were either discarded or transferred to fresh food. To prevent the future escape of larvae, masking tape was used to seal the edges of the box.

Seven to nine days later, the boxes were opened and larvae on the sides of the box returned to the moist food below. If the food supply was seriously depleted, live yeast in a suspension of cream consistency were added. Then, 10 to 12 large sheets of plastic were crumpled, twisted, and placed lengthwise in the box. The plastic sheets were obtained by cutting off the 2 edges of large refrigerator bags (Baggies) on a cutting board. Almost all of the larvae pupated on these plastic sheets.

Pupae were collected 8 to 9 days later by submersing and agitating the plastic sheets in a 15-gallon aquarium filled with water at 20°C. The plastic sheets were then removed; pupae floated to the surface, while the food and larvae sank. Pupae were collected from the surface with sieves made of cylindrical refrigerator containers, the bottoms of which had been replaced with nylon curtain material.

The sieves containing pupae were placed for a few minutes on paper towels to remove excess water and were then placed in a stream of air to complete the drying. Once dry, the pupae were knocked out of the sieves into a plastic box where they were brushed and shaken to separate clumps. From a rearing box of the size described, about 10 to 15 thousand pupae can be collected.

Large numbers of freshly eclosed flies can be easily collected by gluing the pupae to the inside of an empty plastic box. The bottom and side of the box is smeared with Elmer's Glue-All, slightly thinned with water. Then the pupae are shaken inside, until all are stuck. In *Drosophila pseudoobscura*, almost all flies emerge within several hours after dawn of a 12 hours light/12 hours dark cycle. The freshly emerged adults can be collected by inverting the box and anaesthetizing the flies with CO₂. Several such collections can be made on successive days.

The mortality resulting from the washing, drying, and gluing is less than 5%. Death is most frequently due to blockage of the emerging adult because the operculum happens to hit the glue first.

Although the technique was developed for *Drosophila pseudoobscura*, it could be used and modified for other insects as well.

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Mr. E. Pauming made several good suggestions during the development of this technique.

Strömnaes, Öistein. University of Oslo, Blindern, Norway. Insecticides.

We use *Drosophila* in laboratory class work in genetics and the regular cornmeal molasse agar-agar medium. For two weeks all experiments failed, also the extra cultures made up by the teaching staff. At that time the cornmeal was suspected to be poisoned. The firm delivering the cornmeal told that it was stored in large containers. To avoid hatching of *Ephestia* they had sprayed the top layer with an insecticide. When our order came they sent us a sack of cornmeal taken from the top layer, believing they made us a great service.

Our conclusion is that from now on we have to order insecticide-free cornmeal.