

HINTS, TIPS AND GADGETS

CULTURE OF DROSOPHILA (Fruit-flies)

by C.J.SMITH.

One of the best sources of food for small captive spiders, particularly the smaller Linyphiids, is the fruit fly. They breed freely, they are cheap to keep and they are easy to obtain.

Except in winter, fruit-flies can readily be obtained by leaving some over-ripe or slightly rotten fruit (apples, banana skins, plums, etc.) exposed. Placed in a jam-jar, covered with paper in which a few small holes have been perforated, the fruit attracts these flies in considerable numbers.

Since Drosophila is used for studies in heredity, stocks are kept at all universities, technical colleges, training colleges, and at most grammar schools. Surplus stocks are frequently available at the end of breeding experiments.

To maintain a continuous culture, it should be noted that the eggs of the fruit-fly give rise to small maggots, which feed on yeast before pupating. One-third-pint milk bottles can be used. A culture medium that gives excellent results consists of: 180 gm. fine oatmeal soaked in 300 cc. water; stir and leave for 6-24 hours. Then add 15 gm. powdered agar to 1000 cc. water; soak for 15 mins., then dissolve by bringing to the boil. Next mix 80 gm. black treacle in 100 cc. hot water. Add the three mixtures together and add 15 cc. of 10% nipagin solution. Bring to the boil and stir constantly for 12 mins. This provides enough to fill 25 one-third-pint milk bottles to a depth of an inch. Agar forms a jelly and nipagin inhibits fungal growth. Both are obtainable from chemists, biology dealers or geneticists.

Sterilize the culture bottles (in a pressure cooker for 15 mins. at 15 pounds pressure) containing the culture medium and stoppered with a plug of cotton wool. After sterilization, allow the medium to cool and then add three drops of live yeast suspension to each bottle. It is best to allow a day or two for the yeast to get established before adding the flies. Each bottle should also contain a small roll of blotting paper for the larvae to climb up for pupation - the paper should be inserted after sterilisation. Unwanted sterilized bottles containing culture medium will keep for a considerable time in a refrigerator.

Drosophila breed best at 25°C. They become sterile if kept above 28°C for any length of time. A warm room or an airing cupboard are suitable, and under these conditions the life cycle of the fly is about a fortnight. Ten assorted flies will normally produce several hundred offspring in three weeks.

There is a mutant fly readily available from most biological dealers having vestigial wings. This is unable to fly and therefore is most suited to both spiders and arachnologists.

Should any member of the Society wish to have a culture sent by post, please write to me at 7 Malton Way, Clifton, York, and I will try to send a small breeding stock within a fortnight. Please enclose 2/- to defray postage, packing, etc.
