Reports—Current Topics—Queries

Drosophila Sperm for Cell Physiology

During the summers of 1970 and 1971 I was a research participant in a National Science Foundation program for college teachers in the Department of Biochemistry and Biophysics, Oregon State University. There I became acquainted with some synthetic defined diets for rearing *Drosophila* that may be of interest to a wider audience of biology teachers.

One of these diets was devised by B. W. Geer (1963), of Knox College. Geer (1967) further has described how a substitution of carnitine for the choline in the normal diet leads to sterility in the male *Drosophila,* owing to loss of sperm motility. This sterility is associated with a defect in sperm mitochondrion development, according to Geer and R. W. Newburgh (1970).

The relative ease with which motile sperm preparations can be obtained from the seminal vesicles of *Drosophila* raised on choline-containing diets or one of the standard yeast-and-cornmeal diets is remarkable. It is a simple matter to dissect out the sperm—they are almost 1 mm long—with fine forceps under a dissecting microscope from the male reproductive tract, which occupies most of the abdomen. A suitable medium for dissection is the *Drosophila* Ringer's solution: NaCl 7.5 g, KCl 0.35 g, $CaCl_2$ 0.21 g, and water to make up a liter of solution as described by B. Ephrussi and G. W. Beadle (1936). Satisfactory anatomic drawings to aid dissection are to be found in an article by Albert Miller (1965, p. 508-509).

Cell-physiology classes could profit from an exercise in the technique for isolating these sperm and studying, for example, the ionic and nutritive requirements for sperm motility.

References

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Stream Pollution: a Teaching Model

When teaching water microbiology it is important to emphasize that fecal pollution may be masked in streams. This report outlines a teaching model that illustrates this point.

During a basic microbiology course our students conducted the presumptive test (H. J. Benson, 1969: *Microbiological Applications,* William C. Brown Co., Dubuque, Iowa) with water samples taken from a small woodland stream that receives effluent from a sewage treatment plant. The results indicated that water (clear in appearance) above the effluent inflow contained more coliform bacteria than did water (slightly turbid in appearance) below the effluent inflow.

Seven plate counts, using tripticase glucose extract agar for total counts and violet red bile agar for coliform counts, were then conducted at weekly intervals on water samples taken upstream (point A) and downstream (point B) from the effluent inflow. Specifics relative to these counts included inoculation with 1-ml amounts of undiluted sample, triplicate plating, and incubation at 37 C for 48 hours. Results were analyzed with the t-test.

Statistical analysis of the plate-count data (see

Bacterial density of stream water above and below effluent inflow from a sewage-treatment plant.

	Bacteria per ml/sample	
Week	*A*[a]	*B*[b]
TRIPTICASE GLUCOSE EXTRACT AGAR		
1	181	55
2	—	—
3	372	32
4	294	28
5	244	21
6	697	411
7	305	93
Ave.	349	107
$t = 8.1$ $P = >0.01$		
VIOLET RED BILE AGAR		
1	157	14
2	146	27
3	195	0
4	192	9
5	163	0
6	510	12
7	205	14
Ave.	224	11
$t = 4.4$ $P = >0.01$		

[a] Upstream from effluent inflow
[b] Downstream from effluent inflow