

Vinegar Eels

These harmless, non-parasitic roundworms are variously called *Anguilla acetic* or *Turbatrix aceti*. They occur, usually in profusion, in bulk cider vinegar and feed upon the fungus “mother of vinegar” which forms in the bottom of the barrel. Bottled vinegar is pasteurized to prevent growth of these worms. Vinegar eels are small, transparent worms about 1.5 to 2 mm long, the females being larger. They can just be seen with the naked eye if viewed with a bright light against a dark background, but a strong magnifying glass or hand lens makes viewing easier. To see anatomical details a microscope is necessary. They move continuously with rapid powerful movements.

Culturing

In addition to a beginning supply of worms, the following items are necessary: bulk vinegar, apple, or “vinegar eel medium” (the latter available from biological supply houses); and unadulterated cider vinegar, which has no chemical preservatives added (from grocery stores).

Use finger bowls or other appropriately sized glass or plastic containers. Place worms in 200 ml of unadulterated cider vinegar or “vinegar eel medium”. A 2.5 cube of raw peeled apple can be used in place of the bulk vinegar. Cover the culture loosely, to admit some air yet retard evaporation, and keep cultures away from strong lights and contaminants. Wide variations in temperature are tolerated by vinegar eels. No further care is needed except to subculture about every three months by adding some of the old culture to fresh cider vinegar. The life span for individual worms is ten months or more, but with normal reproduction the cultures will continue indefinitely.

Experiments With Vinegar Eels

1. Compare the survival rates of vinegar eels over a range of pH values. Set up a series of small jars containing vinegar, and add HCl to some of the jars to lower the pH, and NaOH to others to raise the pH. Transfer an equal number of vinegar eels to each jar and determine their survival rates. Make a graph of the results by plotting the pH on the horizontal axis and the number of surviving worms on the vertical axis.
2. Determine the optimal temperature for the culture of vinegar eels. Keep the cultures in a variety of situations out-of-doors, in a basement, in the classroom, under electric light bulbs of different wattage, or in incubators-to provide different environmental temperatures.