



Microarthropod Collection and Examination



Introduction

This activity allows students to gain experience extracting microarthropods from leaf litter using a Berlese Funnel. Students will use Internet search engines to learn how Berlese funnels work and perform extractions using either homemade or commercial funnels. Upon extraction, students will examine specimens and classify several of their specimens using class resources.

Activity Instructions

A. Internet Search Component

Begin by learning about Berlese funnel construction and function using phrases such "Berlese funnel" or "Berlese funnel construction" as your search phrases. Briefly list the URL and a short description of several of the sites you find to be most informative and interesting. From these sites, be able to sketch a model of a Berlese funnel and discuss its operation in either oral or written form.

B. Construction Activity (Optional)

Compare the Berlese funnel construction requirements you've found with those of your classmates. As a group determine which construction plan seems most reasonable using your school's resources as well as items from home. Develop a list of required materials. Construct a Berlese funnel for your classroom if you do not have any available at the start of this activity.

C. Berlese Sample Collection and Extraction

Follow these general instructions once you have your Berlese funnel ready for use:

Sample Collection

1. Using a trowel or shovel, collect your sample from a slightly moist leaf litter or a slightly moist area in a compost pile or vegetable garden. The best diversity will be found in samples that include leaf litter as well as some of the soil at the level where the two meet.
2. Put your sample into a plastic garbage bag and tie it shut. The garbage bag may temporarily be kept in a cool location such as a cool garage or refrigerator for up to 24 hours before extraction.

Extraction of Microarthropods

Berlese funnels should be set up in a location where they will not be bumped or disturbed. Excessive

vibration or agitation will cause soil to loosen, fall into the alcohol, and cloud the final solution. Be certain that the heat source is situated a minimum of six inches above the sample to be extracted. Your teacher should check this before you leave at the end of the class period. 95% ethanol is the collecting substance of choice in that it is inexpensive, readily available and will preserve your specimens indefinitely. Your sample should be fully extracted and ready for observation the following day.

D. Observation of Specimens

Upon your return to the classroom you will find specimens at the bottom of your collection jar, as well as a number of small light colored specimens at the surface of the ethanol. Pour a small amount of 95% ethanol into a petri dish, filling it to about 2/3 its height. Place the dish on the stage of a binocular microscope for examination. After initial examination you may want to place different colored construction paper between the petri dish and the microscope stage since light colored organisms show up best against a dark background while darker organisms show up best against a white background. Sketch and try identifying several specimens using your own knowledge and additional resources provided by your teacher. Label characteristics used in your identification and/or briefly explain how you went about identifying your selected organisms.

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