Protocol 5.1: Collecting Environmental Samples

Objective: To obtain an environmental sample containing bacteriophage

Rationale: By collecting soil, compost, water, or other samples rich in bacteria, you will aim to collect a bacteriophage that can infect those bacteria. To increase your chances of gathering a variety of phages that can infect your specific host bacteria, you should consider environments where your host bacteria thrive. Therefore, collecting 3 samples from a variety of environments is ideal. For the phage discovery workshop, recommend bringing in solid soil samples.

Supplies:

- Plastic sandwich bags for collecting soil samples and a tool for digging
- Clean plastic bottle for liquid samples
- Labeling pen
- Smart phone or tablet with GPS capabilities or computer

Procedure:

A. Collect the specified number of samples as directed by your instructor. For each sample perform the following steps:
    1. For solid samples, turn a clean plastic sandwich bag inside out and insert your hand into the bag as if it were a glove. Grab a handful of soil, keeping the plastic bag between your hand and the sample. Remove your hand, inverting the bag with the soil to the inside, and seal the bag.
    2. For *liquid* samples rinse the plastic bottle with your sample water by filling it one-third full, capping it, shaking it vigorously, and then dumping the sample water back out. After doing this three times, fill the bottle with your sample and cap the bottle.

B. Label the sample bag or bottle appropriately (e.g., initials, location) so you can identify where the sample was collected.

C. Record important aspects of the sample and collection site.
    1. Name the sample something that will identify the location where it was collected.
    2. Record the GPS coordinates of your sample collection site.
        - If you have a smartphone or tablet during sample collection, determine the GPS coordinates and record this information.

    - If you do not have a smartphone or tablet during sample collection, determine the GPS coordinates when you have access to a computer. Record this information.
3. Record the physical characteristics of your sample.
    - For soil samples: Was the soil wet or dry? Was it sandy or full of organic matter? Approximately how far below the surface was the soil collected?
    - What was the ambient temperature?
4. Repeat steps 1 - 3 for each sample collected.

Helpful Tips:

- While soil samples can be collected several days ahead of processing, it is best to use the freshest samples possible.
- If you collect soil samples ahead of time, store the soil samples in a cool place and do not let them dry out.

Environmental Sample Collection Information

Once completed, cut out and tape into your notebook

	#1	#2	#3
Collected By:			
Date Collected:			
Sample Type (e.g., soil, etc.):			
Approximate Ambient Temp:			
General Location:			
GPS Reading:			
Sample Site Descriptors:			