

Moss Lab: Structure and Life Cycle

Purpose:

To study and observe the structure of moss and their life cycle and to compare it to the structure and life cycle of algae.

Procedure: Use the textbooks as a reference. M & L p. 452 -454 & Nelson p. 257 - 59

1. Obtain a stalk of moss gametophyte. Observe it under the dissecting microscope. The leaf-like structures are not true leaves because they lack vascular tissue.
 - a. How are these structures arranged on the stalk (alternating or opposite)?
 - b. What advantage would this type of arrangement give to the moss?
 - c. Remove one of the leaf-like structures, called a leaflet, and make a wet mount. Observe it under the compound microscope.
 - i. What is the function of the leaf-like structures?
 - ii. How many cells thick is it?
2. Examine the root-like structures, called rhizoids, on the other end of the stalk. Again, they are not true roots because they lack vascular tissue. What is the function of the rhizoids?
3. What is the function of the archegonium? Antheridium?
4. Obtain a gametophyte that has a sporophyte attached to it. The sporophyte is attached to the gametophyte by the foot. Therefore, the sporophyte is said to be parasitic on the gametophyte.
 - a. Is the attachment strong or weak?
 - b. At the top of the sporophyte is a capsule, called the sporangium, which produces spores. What is the function of the spores? What process must occur in the sporangium for haploid spores to be produced?
5. Cut open the sporangium to see the spores. What do the spores look like?
6. Draw a diagram of the life cycle of moss. Label the following parts:
 - a. Gametophyte, antheridium, archegonium, sporophyte, sporangium, spore, protonema, and rhizoids.
7. Explain the life cycle you just drew in 3-4 sentences.
8. In moss, the gametophyte is said to be the dominant generation. What does this mean?
9. For sexual reproduction to occur in moss, what conditions are needed? (environment)
10. Mosses are relatively small plants. Why would they not grow as large as shrubs or trees?

Observations:

Diagrams and answers to the questions in the procedure.

Conclusion:

Discuss the purpose by creating a table (t-chart) of similarities and differences of moss and algae.