ALGAE - BOTANY 330

GENERAL LABORATORY PROCEDURES

As you come to lab, check the board for the day's agenda, and instructions. There will generally be a list of samples to study, or class exercises and demonstrations. Sometimes there may be short field expeditions. When these are finished, the time remaining is available for individual projects. Instructors will be present during scheduled lab time to assist you with projects. You are welcome to work in the lab outside of regularly scheduled classtime, but except for scheduled appointments, your instructors may not be available to help you during unscheduled times.

Studying microalgal samples: Algal samples may be provided as unialgal cultures (no other algae present), or as mixtures. In the latter case, we will put images of the target alga on the TV screen so that you know which form you are supposed to find and study. Unialgal cultures may occur in liquid media or on the surface of agar in tubes (instructions for sampling these are given below). First, make a slide of one of the specimens; organisms can be observed in any order. Then look it up in the text to read about salient features. Observe the features mentioned in the text and draw the algae for inclusion in lab notebooks. Drawing helps to focus attention upon distinguishing features, and can be a useful aid in studying for the mid-term lab exam. Feel free to ask for instructor help in adjusting microscopes, finding algae, or finding distinguishing characteristics of algal taxa.

Second, pretend that you do not know the name of the organism at hand, then try to key it out using the Prescott key, and see if you get the right answer! If not, backtrack from the correct genus in the key to see where you made the wrong choice(s). Feel free to request instructor assistance after you have given it a good try, but before frustration sets in. In this way you will gradually learn to use the identification key for unknown forms. For each organism presented in lab, indicate the list of key choices made in your lab notebook. The lab exams will test your ability to identify unknowns.

In order to avoid mass confusion, make special efforts to avoid mixing algae from separate cultures. Do not use the same pipette for more than one sample.

If samples are in liquid, use a pipette to remove just a little algae to a slide, and cover with a cover slip. Remove excess liquid with a tissue, so that the cover slip is not floating. If cultures are on agar, heat a loop to glowing cherry red in the flame of an alcohol lamp. Let the loop cool, then retrieve a little algal material and place in a drop of water on a slide, adding cover slip. You may need to tease masses of algae apart with dissecting needles or forceps before adding the cover slip to avoid making preparations that are too thick to see through. Reagents such as ink, nickel sulfate or iodine are usually added before putting the cover slip on, though they may be drawn through a preparation by using a tissue applied to the side of the cover slip opposite to the point at which reagent was added.

Reuse slides--wash with water and dry with a tissue before storing in your drawer. But don't reuse cover slips--they are difficult to clean sufficiently, and may break, causing injury. Dispose of cover slips, pipettes, and other disposable glass in the "glass trash box," not the regular trash.

Preparing for lab exams: A list of genera for which you will be responsible will be provided at least one week prior to the lab exams. In the meantime, assume that you are responsible for all of the genera presented in lab. Images of the algae seen in class are available on the lab computer for review. It is not advisable to rely upon web images to study for the lab exam because these are often different species and sometimes misidentified. You are welcome to come to lab outside of regularly scheduled class hours (no other class uses the room). You will be informed of the location of a key to the lab (but be careful to return the key, and to lock up the room before you leave the lab).

Things to remember:

1) Bring your copies of Graham, Graham, Wilcox and Cook, and Prescott to lab each time, or leave them in your cabinet.

2) Treat microscopes well. Rotate microscope objectives to low power before removing slides!!! When changing objectives, turn the turret, not the lens barrels!! Use fine adjustment with high power objective lenses!!! Learn to adjust microscopes for best images at differing magnifications--it makes a lot of difference! Clean lenses with lens tissue (not lab tissues) at frequent intervals.

3) Make an effort to avoid mixing samples. Fresh pipettes are cheaper than isolated cultures!