

## **Laboratory 24**

### **Organization of Flowering Plants**

#### **Student Tip Sheet**

This laboratory includes the “nuts and bolts” of introductory botany. Both the external and internal structures of monocots and dicots are covered in some detail. This certainly is a good base for further study. You will be exposed to a basic understanding of the internal and external structures that provide specific means for the plant to grow and reproduce as well as be identified. Clear and concise reference materials are the most important tools for use in this lab. You should be prepared to spend time observing specific microscope slides and identifying particular structures as your instructor assigns. You should be able to match the microscopic image that you observe with the diagram in the lab manual or other reference materials that your instructor may supply, and thus identify the various plant structures. Make careful drawings or notes that will help you to remember these images when you prepare for lab tests.

The external plant features are best demonstrated with live specimens. Examples of comparative root types, twigs to illustrate winter botany, and leaf collections can all be used. Your teacher may assign you to bring in various examples of plant life. Pictures are good and better than no reference material at all, but there is no substitute for the real thing. Take advantage of any opportunities that you may have to be in your native environment. If you are not located in or near an outdoor setting, use any available means such as parks or gardens to observe the structures that are discussed in class. Both your class and your trips outdoors will be much more meaningful.

#### **Collecting Guidelines**

First, if you are with a class you must assume that your teacher has permission to be on the property. Otherwise, problems may arise. Do not take chances on unknown personal property.

Also, special permission and permits are necessary to collect from national parks and other certain areas. Be aware of the rules in your location. Roadsides are generally public property and are usually not protected from collecting. I consider that I am rescuing plants from mowers or chemical sprays.

Bring several collecting bags along. Bread wrappers or zip locks work great. You should put one specimen in each bag with enough specific written information to enable you to complete the label later. Seal this bag and the plant will “breathe” and retain its moisture for a short time until you are ready to press it.

If you are assigned to make a leaf collection, survey your own backyard first. You may be surprised at the diversity. Obviously you cannot collect an entire tree. Collect enough leaf material, however, to make note of patterns and means of attachment to twigs. To preserve your leaves, remove the moisture and flatten the leaves for observation and storage. Professional collections include flower and/or fruit samples pressed in an absorbent paper, newspaper, and cardboard “sandwich” secured in wooden frames wrapped in tightly bound bundles. Place these bundles in a warm place for a week or ten days to assure that the moisture has been completely

removed. Any means of pressing the plants to remove the moisture is acceptable. When the specimens are dry, they need to be glued carefully on specially treated, insect resistant paper and labeled with the correct specific epithet as well as accurate data including details of collection location and date. If you are assigned to add to your school herbarium collection make certain that your identifications and locations are correct and precise. Also include your name as the collector so that if questions arise you can be contacted.