LABORATORY 10: KEYING UNKNOWN LICHENS

This lab, you will be identifying several unknown lichens. To do so you will use a dichotomous key. This key is formed by a variety of numbered couplets which contain contrasting statements. To start, you should begin with couplet one, and choose which statement best represents the material you are looking at. Then after choosing which statement most agrees with your lichen, look to the number on the right side of the page, this will tell you which couplet you should look at next. You then continue this until you reach the name of a lichen genus.

You will likely run across several terms you are unfamiliar with while using this key. At the end of this handout, you'll find a glossary of terms which you can use to help you.

Before you try to key the lichen, it's helpful to make notes about the lichen's morphology. Then, as you key, it's good to note which couplets you follow, so if you take a wrong turn, you can back track and not start from the beginning. For example, if I was keying out *Myelochroa* I would take the following notes:

Thallus not gelatinous ..... 1 -> 3
Thallus foliose ..... 3 -> 17
With rhizines ..... 17 -> 20
Without 'veins' on lower surface ..... 20 -> 21
Color blue/grey ..... 21 -> 37
Upper cortex K+ yellow (atranorin) ..... 37 -> 54
Thallus foliose ..... 54 -> 57
Lobes narrow ..... 57 -> 63
Lower cortex dark ..... 63 -> 64
Thallus not hollow ..... 64 -> 67
Has a lower cortex ..... 67 -> 68
Medulla yellow ..... 68 -> 69
Lobes without pruina ..... 69 -> *Myelochroa*

Chemical Spot Tests

The use of this key will require some chemical tests. We will explore this topic in greater detail next week for lab 11. For this lab, you may reach various points where you are asked to do various chemical 'spot tests'. Pay close attention to where the key asks you to make the spot test (e.g., medulla vs cortex)!

Do not do spot tests in the center of the lichen thallus, remove a small part of the lichen and test this piece. All lichen fragments for spot tests should be discarded. If the test is supposed to performed on the medulla, use your razor blade to cut away a small portion of the upper cortex exposing the medulla. To perform the spot test, use a capillary tube to suck up a small amount of chemical and place some of the chemical on the lichen cortex or medulla under a dissecting microscope. Note a change in color, but be patient as it may take 30-45 seconds for a color change.

The chemical solutions are denoted by three letters, **K**, **C**, & **P**. **K** is a 20% solution of Potassium Hydroxide – this is a strong base, so make sure you are careful. **C** is just household bleach. **P** is a ~1% solution of para-phenylenediamine in ethanol. ***The P solution will stain anything it comes into contact with***, so be careful.

Unknown lichen #1

Unknown lichen #2

Unknown lichen #3

Unknown lichen #4

Unknown lichen #5 - Once you have keyed this lichen to genus, use Macrolichens of New England to key this lichen to species.

Unknown lichen #6

Unknown lichen #7

Unknown lichen #8 ***Note: when fresh, this lichen is green when wet***

Unknown lichen #9 - Once you have keyed this lichen to genus, use Macrolichens of New England to key this lichen to species.

Unknown lichen #10

Unknown lichen #11

Unknown lichen #12