**Preserving Plant Leaf Tissue in Silica Gel for DNA Analysis**

Brief overview

Leaf tissue can be cut into strips and dried in silica gel desiccant to preserve DNA for genetic analysis.

Materials needed

• Silica gel desiccant with indicator.

* Clear beads with a minority of indicator beads that are initially blue when dry and turn pink with use. Or orange beads that turn green with use.
* Silica gel available in craft stores (e.g., Hobby Lobby) for drying flowers works well and is inexpensive. Also good are “Dry & Dry” and “Moisture Boss” brands of orange desiccant available through Amazon.com.

• 4 ml polypropylene scintillation vials with white snap caps.

* Can be purchased in bulk (1000 per case) from Fisher, catalog number 03-337-25.

• Scissors.

• Fine Sharpie pen.

Collecting leaves

Typically, a tree of interest is identified, given an ID number and mapped using GPS. A single relatively young and healthy is selected per tree and the tree ID is written on the leaf using a Sharpie. Leaves should be kept cool (not frozen) and out of the sun until they can be processed. Leaves are typically processed the same day as collected, but they can be stored overnight in a refrigerator (or cooler) and processed the next day.

Processing leaves

1. Cut leaf sample into strips that are ~1 cm shorter than the tubes and ~3/16 wide.
2. Place 6-8 leaf strips from the same tree into a vial (do not mix strips from different trees in the same vial). Fill vial with silica gel (blue indicator), and snap on cap. Do not pack the vial full of leaf strips or there will not be space for sufficient silica gel to dry the sample effectively. *Create two vials for the same plant to ensure a sufficient amount of tissue for successful DNA extraction.*
3. Use a fine Sharpie to label the cap and bottom of each vial with the tree ID. There isn't much area to work with so write small or use a coding system. The Sharpie can be accidently wiped off the plastic material, especially from the side of the vial, so it's important to label the cap AND the indented bottom of the vial where it will be most protected (admittedly, an awkward space to write in).
4. Store vials at room temperature and out of direct sunlight.
5. At ~24 hours, discard the silica gel from each vial (indicator should have changed color) and replace with fresh silica gel. Check again at ~48 hours and if silica gel indicator has not changed color you are finished. Any vial with indicator that has changed color should have its silica gel replaced a third time.
6. Samples should be frozen for long-term preservation. Keep as cool as possible until then.