



## Sample submission instructions – Farquhar Stable Isotope Laboratory

April 2014

### How to send us samples

This depends greatly on what you want to send us! Sample preparation is your responsibility although we are happy to offer advice. You need to consider the size of sample which will be analysed and what kind of analysis is needed. Note that all samples

for analysis of percentages must be carefully dried before being sent to us, although we will dry them again before weighing. The following are examples of materials we handle and how they should be prepared.

Leaf for  $\delta^{13}\text{C}$ : we will run about 1.5 mg for each analysis. Make sure that samples are dry, and ground finely enough that 1.5 mg will provide a representative sample. Note that fibrous material may well separate from more homogeneous tissue (with different isotopic values) during handling and that extra care must be taken to grind them together. We prefer to receive powder in glass vessels (or Eppendorfs) so that material is not lost due to static charges.

Leaf for  $\delta^{15}\text{N}$ : Samples should be prepared much as for carbon, except that typically we run 4 to 6 mg to get a good nitrogen peak and correspondingly more material is required.

The above guidance applies to samples for %N and %C (elemental) analysis as well, except that a smaller N peak will still yield precise percentages.

Leaf for  $\delta^{18}\text{O}$ : we typically use about 2 mg of dried material for  $^{18}\text{O}$  analysis. The composition of dried plant material can be quite variable on a small scale. Samples must be completely dry before  $\delta^{18}\text{O}$  pyrolysis.

Water for  $\delta^{18}\text{O}$  and  $\delta^2\text{H}$ : Each sample is analysed 5 times with about 5 microlitres required for each analysis – 1 microlitre for analysis and 4 for washes etc. In practice approximately 100 microlitres is a suitable amount to permit handling without excess fractionation due to evaporative losses. A number of tubes are satisfactory for this purpose and we are happy to give guidance.

## Shipping and handling

Samples should be sent to the address below (which can be printed, cut out and used as a label!) :

Hilary Stuart-Williams  
Stable Isotope Laboratory  
Research School of Biology  
R.N. Robertson Building (46)  
The Australian National University  
Canberra  
ACT 0200  
Australia

Please label samples with some consideration for us. We have to type the names into the run table when we analyse them and names like “North Caspian summer 2011 8 metres phytoplankton N15 dredge 13:25 rep 7” will not be well received. Please note, though, that there are dangers in calling samples simply Sample 1 to Sample 40 if you may use those numbers again in another batch! Similarly mixing experiments with similar numbers may cause unexpected results if you do not draw to our attention that the shipment contains experiments: 123a, samples 1.14 to 1.701 and 123b, samples 1.12 to 1.519 ...

Organic materials from overseas, including most natural waters, cannot be imported into Australia without being quarantined or treated. We have an import license that requires that all foreign samples must be gamma irradiated before being delivered to us. There is a charge of a few hundred dollars typically associated with this and a delay of about 1 month. Please contact us before sending us overseas material so that we can discuss this and arrange the paperwork. It's not complicated but we have to do it properly.



Author: Hilary Stuart-Williams – April 2014