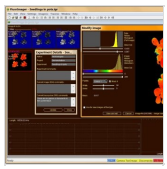

Dec 07, 2020

Fluorescence analysis using CF imager

Forked from Fluorescence analysis using CF imager

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In Development This protocol is published without a DOI.

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ABSTRACT

Measurement of photosynthesis parameters using the Chlorophyll Fluorescence Imager from Technologica http://www.technologica.co.uk/products/cfimager/index.html

PROTOCOL CITATION

Steven J Burgess 2020. Fluorescence analysis using CF imager. **protocols.io** https://protocols.io/view/fluorescence-analysis-using-cf-imager-sbmeak6

FORK NOTE

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ABSTRACT

Measurement of photosynthesis parameters using the Chlorophyll Fluorescence Imager from Technologica http://www.technologica.co.uk/products/cfimager/index.html

Preparing plants

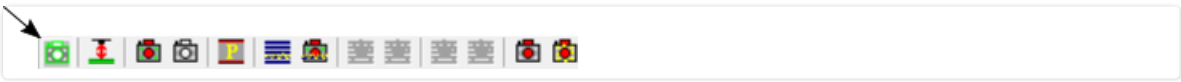
1 Dark adapt plants for at least 20 minutes prior to taking measurements.

This is done to ensure the photosynthetic electron transport chain is fully oxidized and reaction centres are open. In an ideal situation plants are allowed to dark adapt overnight prior to measurement.

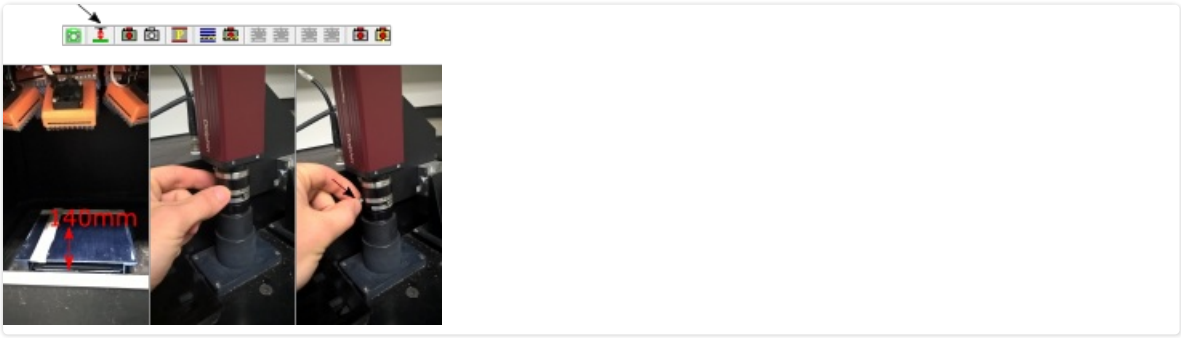
A properlly adapted, healthy plant should give a Fv/Fm value of ~0.8. This has been shown to be highly stable between species. Significant deviation from this (e.g. <0.7) either suggests incomplete adaptation or stressed plant material.

2 Turn on the cf imager and open the FluorImager software.

3 Start the FluorImager software



4 The surface of the leaf should be 140mm from the base of the imaging chamber, and can be adjusted by lowering or raising the plant under analysis. Position plant/leaf in the chamber



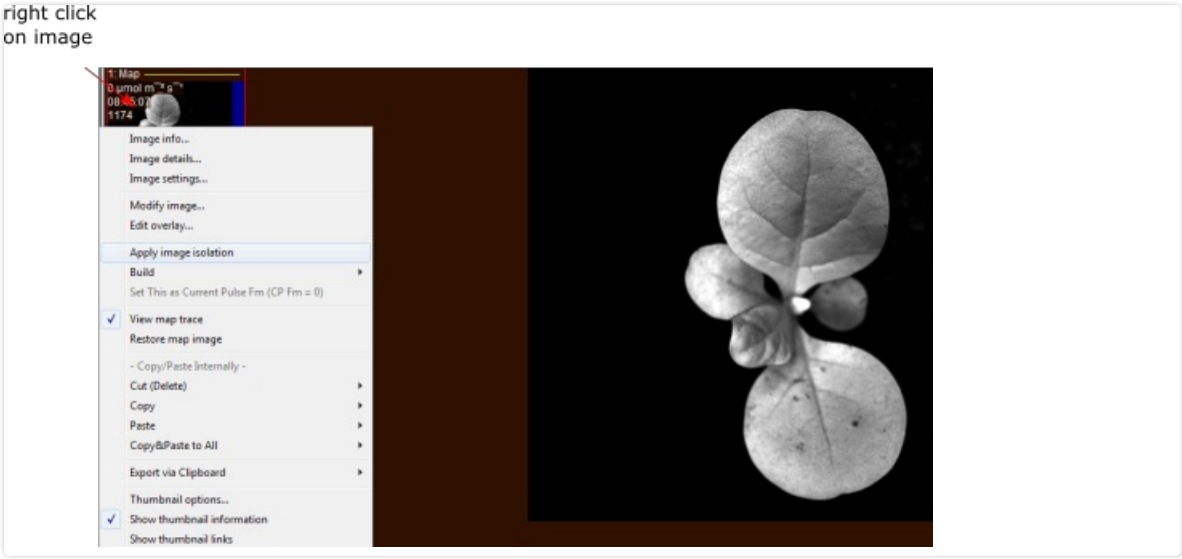
Set focus

5 Set the focus by adjusting the dial above the chamber, and lock in position by turning the screw on the side.

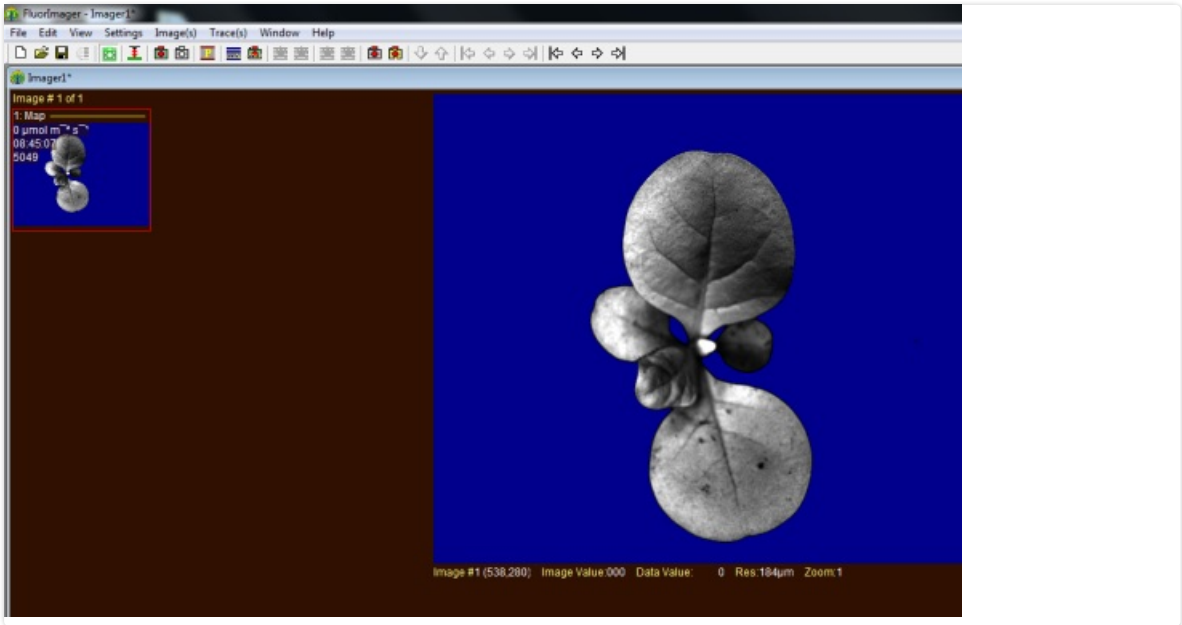
Set exposure

6 Maually adjust the apeture as shown on the right to allow and optimal amount of light into the imager so as not to overexpose measurements

7 Isolate the plant or leaf of interest

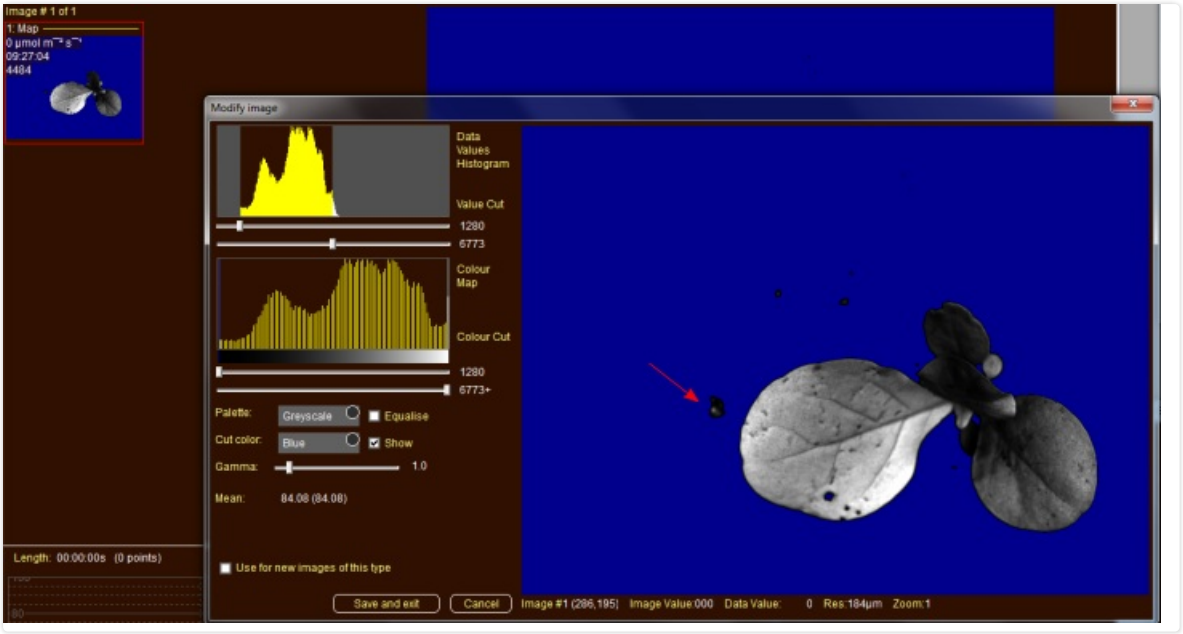


After applying isolation background areas will be masked out in blue as shown below.

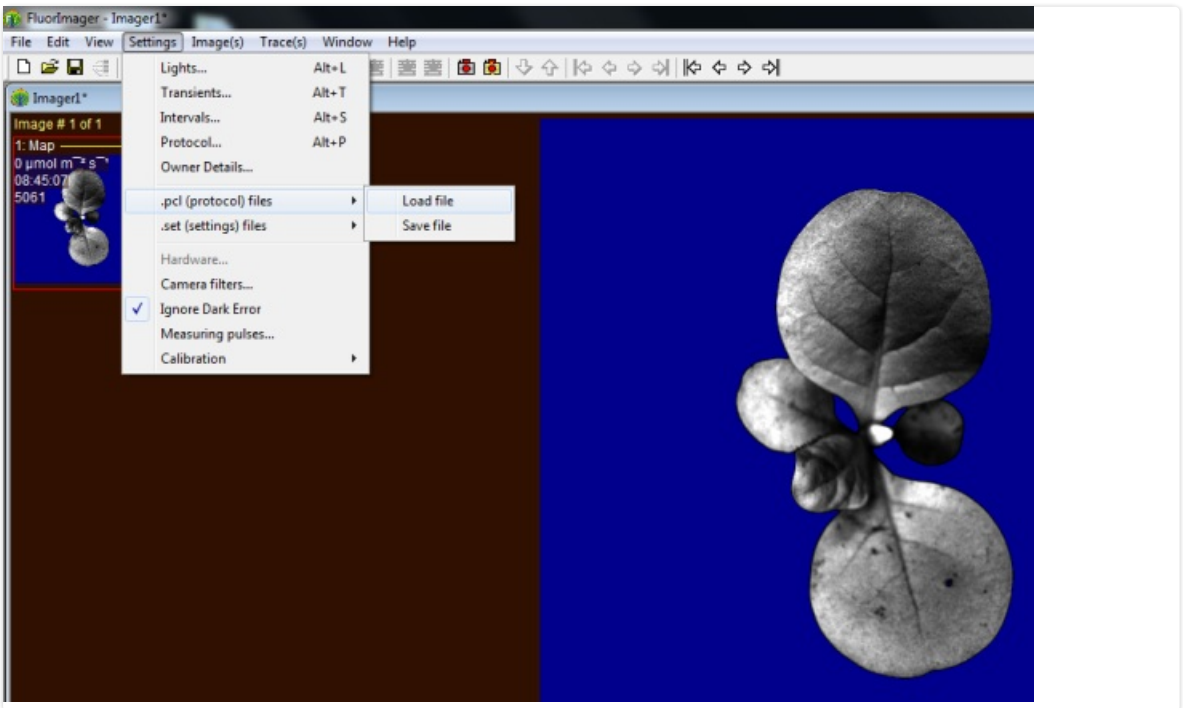


8 Remove residual noise from image

Sometimes the software picks up background noise as real signals, shown below as black dots on the blue background. It is advisable to mask these, otherwise they will be counted as a separate 'colony' during analysis and measurements will be recorded for each of these spots in the final data sheet. Noise can be masked by moving the cursor over the dot, pressing CTRL+left click simultaneously.

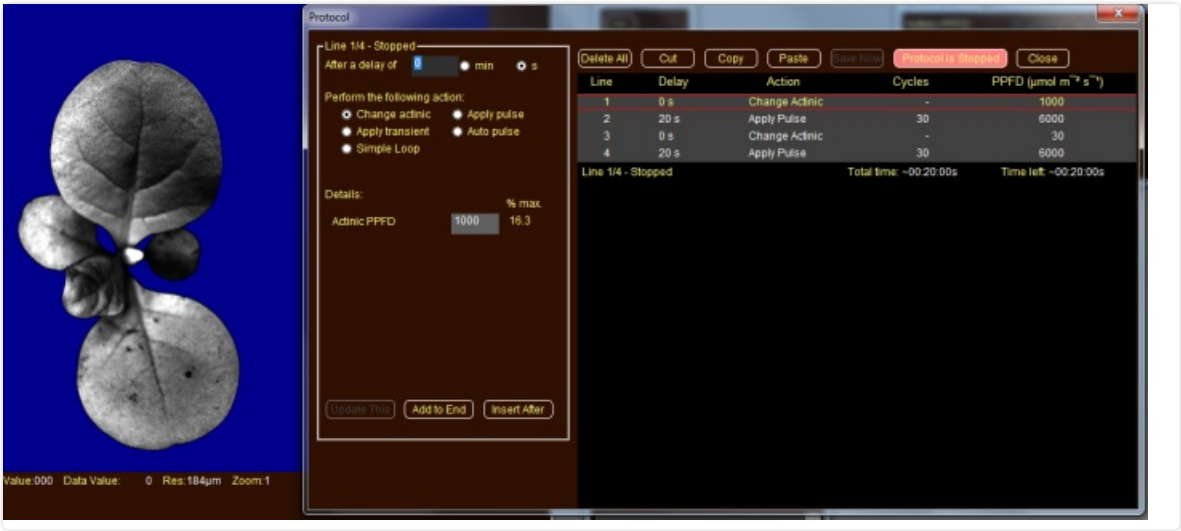


9 Load protocol

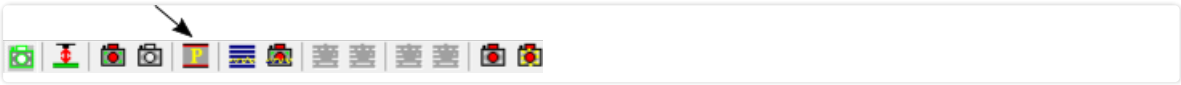


10

11



12 Once you are happy with the scheduled program click on the protocol icon in the toolbar (black arrow below) to start the run



13 Export data