

PPEA / LC



Description



Continuous excitation fluorescence systems like Pocket PEA, Handy PEA+ and M-PEA rely on the use of a suitable leafclip system with 2 functions. Firstly, the leafclip shields the fluorescence detector from ambient light which would otherwise “blind” the sensor due to the comparatively high levels of red/infrared light within the same waveband as the fluorescence itself. Secondly, the leafclip pre-conditions or dark adapts a section of the sample prior to the measurement.

Any measurement of the maximum photochemical efficiency of Photosystem II () requires the sample to be fully dark adapted prior to measurement. During dark adaptation, all reaction centers within the sample are fully oxidised making them available for photochemistry and any latent chlorophyll fluorescence yield is quenched. This process takes a variable amount of time and depends upon plant species, light history prior to the dark transition and whether or not the plant is stressed. Typically, 15 – 20 minutes may be required to dark adapt effectively.

Dark adaptation leafclips are constructed from plastic making them small and lightweight. The locating ring (which interfaces with the fluorimeter sensor) is positioned over the required area of the sample and has a central 4mm diameter hole which is covered using a shutter-plate. During measurement, this shutter slides back to expose the dark adapted sample to the focused LEDs and fluorescence detector. Pocket PEA leafclips have a black-coloured locating ring whereas Handy PEA+ and M-PEA leafclips have a white locating ring with a silvered underside which reflects incident light and minimises the build-up of heat on the sample. This ensures that the measurement is unaffected when measuring in high ambient light conditions.