# Rapid Hormetic Responses of Photosystem II Photochemistry of Clary Sage to Cadmium Exposure

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**Table S1.** Definitions of the five main chlorophyll fluorescence parameters measured by the *Imaging PAM M-Series* system (*Heinz Walz Instruments*, Effeltrich, Germany)

| Parameter | Definition | Measured |
|---|---|---|
| Fo | Minimum chlorophyll a fluorescence in the dark-adapted leaf, when the primary acceptor of PSII quinone A (QA) is maximally oxidized (PSII centers open) | Obtained by modulated measuring light of 0.5 μmol photons $m^{-2}$ $s^{-1}$ |
| Fm | Maximum chlorophyll a fluorescence in the dark-adapted leaf, when the primary acceptor of PSII quinone A (QA) is maximally reduced (PSII centers closed) | Obtained with a saturating pulse (SP) of 6000 μmol photons $m^{-2}$ $s^{-1}$ |
| Fs | Steady-state photosynthesis | Measured after 5 min illumination time before switching off the actinic light (AL) of 220 μmol photons $m^{-2}$ $s^{-1}$ or 900 μmol photons $m^{-2}$ $s^{-1}$ |
| Fo' | Maximum chlorophyll a fluorescence in the light-adapted leaf | It was computed by the Imaging Win software (Heinz Walz GmbH, Effeltrich, Germany) using the approximation of Oxborough and Baker (1997) Fo' =Fo/(Fv/Fm + Fo/Fm') |
| Fm' | Maximum chlorophyll a fluorescence in the light-adapted leaf | Measured with saturating pulses (SPs) every 20 s for 5 min after application of the actinic light (AL) of 220 μmol photons $m^{-2}$ $s^{-1}$ or 900 μmol photons $m^{-2}$ $s^{-1}$ |

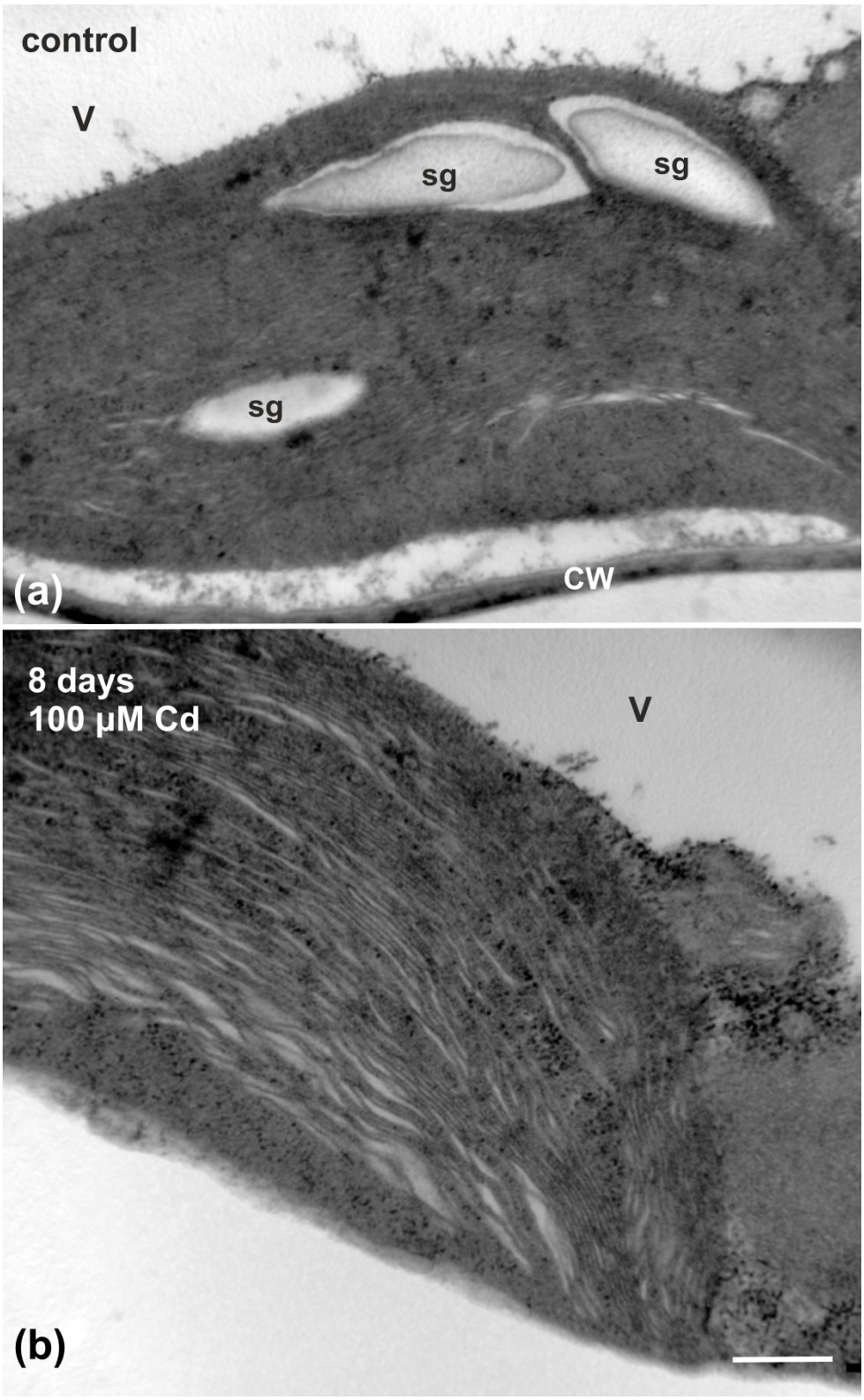


**Figure S1.** Transmission Electron Microscopy (TEM) images of control (untreated) chloroplasts (**a**) and 8-days Cd-treated **(b)** *Salvia sclarea* leaves. Chloroplasts appear electronically dense and upon Cd treatment with swollen thylakoids. **cw**: cell wall; **sg**: starch grain; **v**: vacuole. Scale bar: 500 nm.

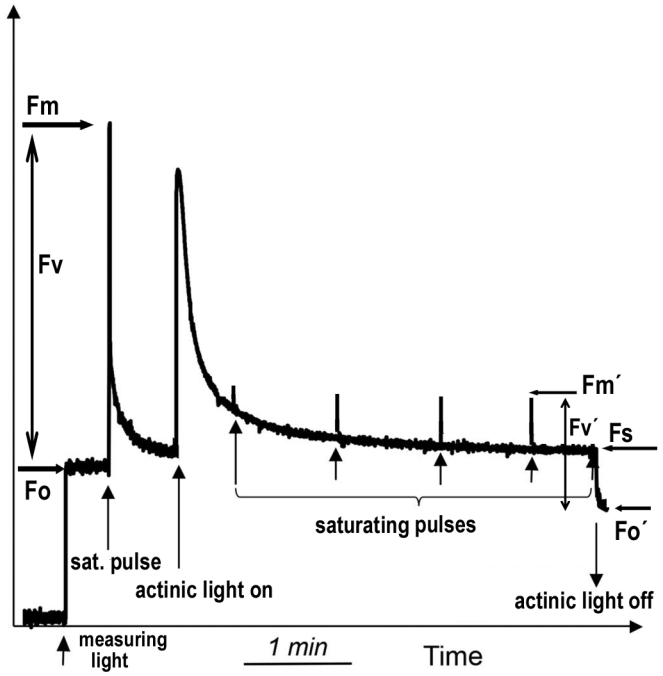


**Figure S2.** A typical modulated fluorescence trace of a dark-adapted leaf with F*o*, F*m*, F*o*', F*m*' and F*s* measurements. In the dark-adapted state a low intensity "measuring light" is switched on to elicit the minimal level of chlorophyll fluorescence, termed F*o*. A brief saturating pulse of light outcomes in the formation of the maximum yield of fluorescence, F*m*. The difference between F*m* and F*o* is the variable fluorescence, F*v*. The ratio F*v*/F*m* is the maximum quantum yield of PSII photochemistry. The application of saturating pulses under actinic light illumination closes all the reaction centers and provides the maximum fluorescence in the light-adapted state, termed F*m*'. The steady-state level of fluorescence in the light is termed, F*s* and is measured immediately before switching off the actinic light (Adopted from Moustakas et al. [*Plants* **2020,** 9, 962]).