Rapid Hormetic Responses of Photosystem II Photochemistry 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)

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| **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.** 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]).



**Figure S2.** Representative chlorophyll fluorescence images of the maximum efficiency of PSII photochemistry (F*v*/F*m*) and the effective quantum yieldof PSII photochemistry (Φ*PSΙΙ*) of *S. sclarea* leaves from control and 8-days Cd treated plants. The color code depicted at the right-side ranges from values 0.0 to 1.0. The fourteen circles in each image are the areas of interest (AOI) complemented by red labels with the values of the fluorescence parameter. The average value of each photosynthetic parameter of the whole leaf is presented.