

Supplementary Materials: The Binding Ability of Mercury (Hg) to Photosystem I and II Explained the Difference in Its Toxicity on the Two Photosystems of *Chlorella pyrenoidosa*

Shuzhi Wang, Jia Duo, Rehemanjiang Wufuer, Wenfeng Li and Xiangliang Pan

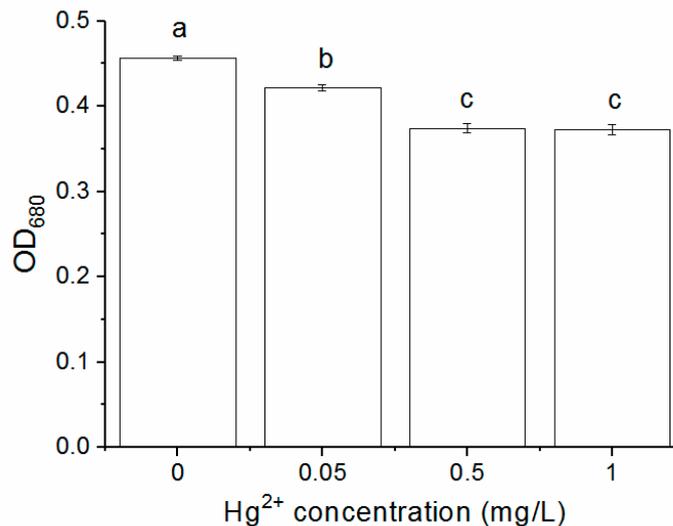


Figure S1. Cell growth of *Chlorella pyrenoidosa* at various Hg concentrations expressed as the optical density at 680 nm (OD₆₈₀). Cells were cultured in BG-11 medium with various concentrations of Hg²⁺ for 24 h. Data are means ± S.E. (n = 3). Significant differences between different treatments were shown as different letters ($p < 0.05$, ANOVA, Duncan's test).

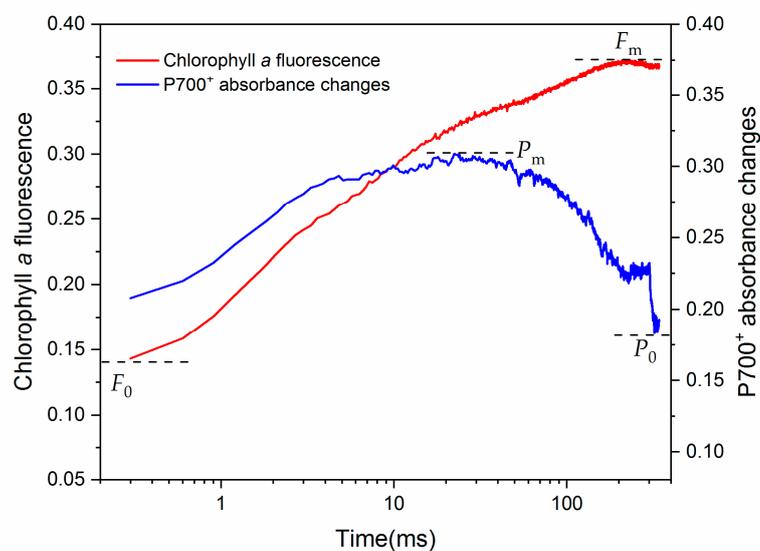


Figure S2. A typical experimental result obtained with Dual-PAM-100. The sample was dark-adapted for 5 min before measurement. P700⁺ absorbance changes and chlorophyll *a* fluorescence were detected through the application of saturation pulse. The minimal fluorescence after dark-adaptation (F_0), the maximum fluorescence (F_m), and the maximal change in P700⁺ signal (P_m) were determined through application of saturation pulse. The P700⁺ absorbance changes were detected by the application saturation pulse after far-red pre-illumination to determine P_m . After the saturation pulse the minimal P700⁺ signal (P_0) was measured.

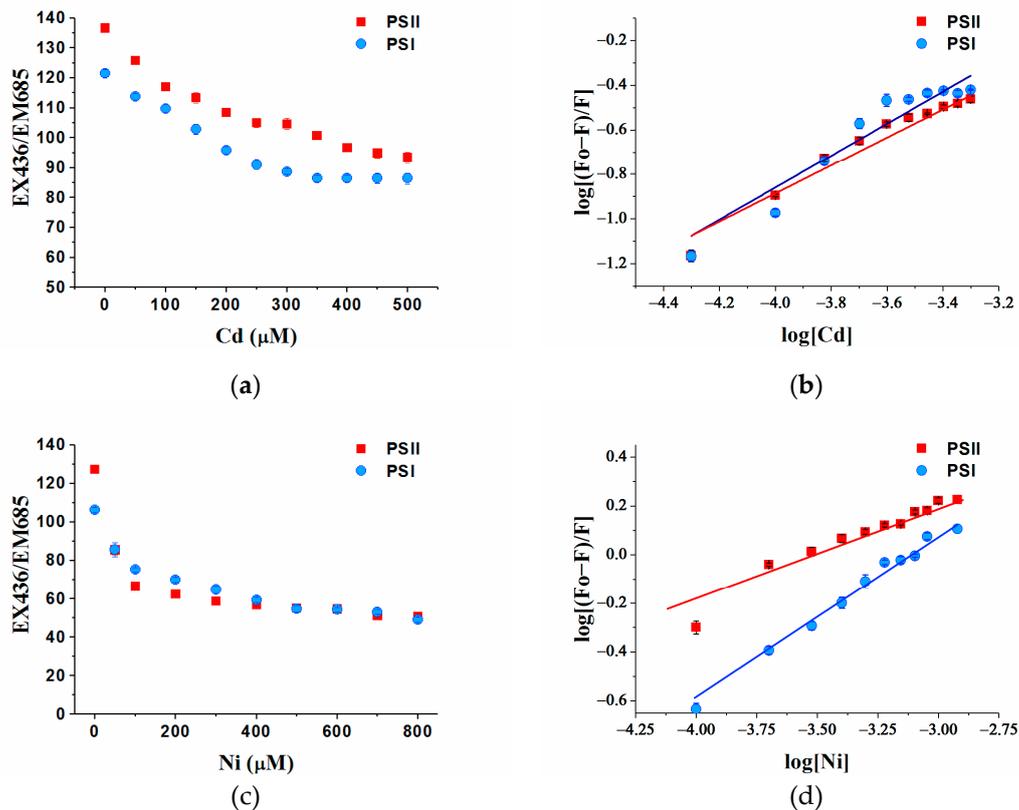


Figure S3. Quenching effects of Cd and Ni on fluorescence of photosystems particles isolated from *C. pyrenoidosa*. (a and c) The fluorescence intensity of photosystems at EX436/EM685 and the quenching of the fluorescence with Cd or Ni ions. (b and d) The equilibrium characteristics of binding process by fitting of the fluorescence curves. Data are means \pm S.E. (n = 3).

Table S1. Fitting parameters of quenching curves of the fluorescence of photosystems particles by titration of heavy metals.

Heavy metal	PSI particles		PSII particles	
	Ka ($\times 10^4 \text{ M}^{-1}$)	n	Ka ($\times 10^4 \text{ M}^{-1}$)	n
Hg	2.68 \pm 0.19	0.69 \pm 0.09	2.72 \pm 0.12	0.79 \pm 0.07
Cd	2.12 \pm 0.16	0.57 \pm 0.08	1.97 \pm 0.07	0.78 \pm 0.05
Ni	2.09 \pm 0.13	0.46 \pm 0.06	1.26 \pm 0.09	0.37 \pm 0.04

Note: Data are means \pm S.E. (n = 3).