



Fig. S1 Exponential decay of initially formed  $Q_A^-Q_B$  over time by the example of ML acclimated *C. debilis* cells grown under Fe-enriched (A) or control (B) conditions. The decay constants with values of 1.73 (A) and 2.42  $\text{ms}^{-1}$  (B) were derived from the time-dependent solutions of the fraction of photosystem II being in state  $Q_A^-Q_B$  using the model of Kroon and Thoms (2006) and the model parameters shown in Table S2. Hence, we obtained  $\tau_{Q_a}$  values of 578 and 413  $\mu\text{s}$  for the decay constants of 1.73 (A) and 2.42  $\text{ms}^{-1}$  (B), respectively. The  $\tau_{Q_a}$  values are also shown in Fig. 4B.