



### Figure 4. ECS action spectra

**(A)** ECS kinetics induced by 680 nm and 710 nm continuous light excitation.

**(B)** Light intensity (stronger at 710 nm than 680 nm) was adjusted to give the same initial rise.

**(C)** Steady-state electron flow is much slower under 710 nm light excitation specific to PSI.

**(D)** Photosynthesis action spectra: red drop in  $O_2$  quantum yield (reproduced from [Emerson et al., 1957](#)) and transmission coefficient calculated from ECS ( $J / I$ ). Under 710 nm illumination  $\text{P}_{700}^+$  is accumulated and PSI centers are closed.