# Light Stress Resistance of the Desiccation-tolerant *Microcoleus* sp.

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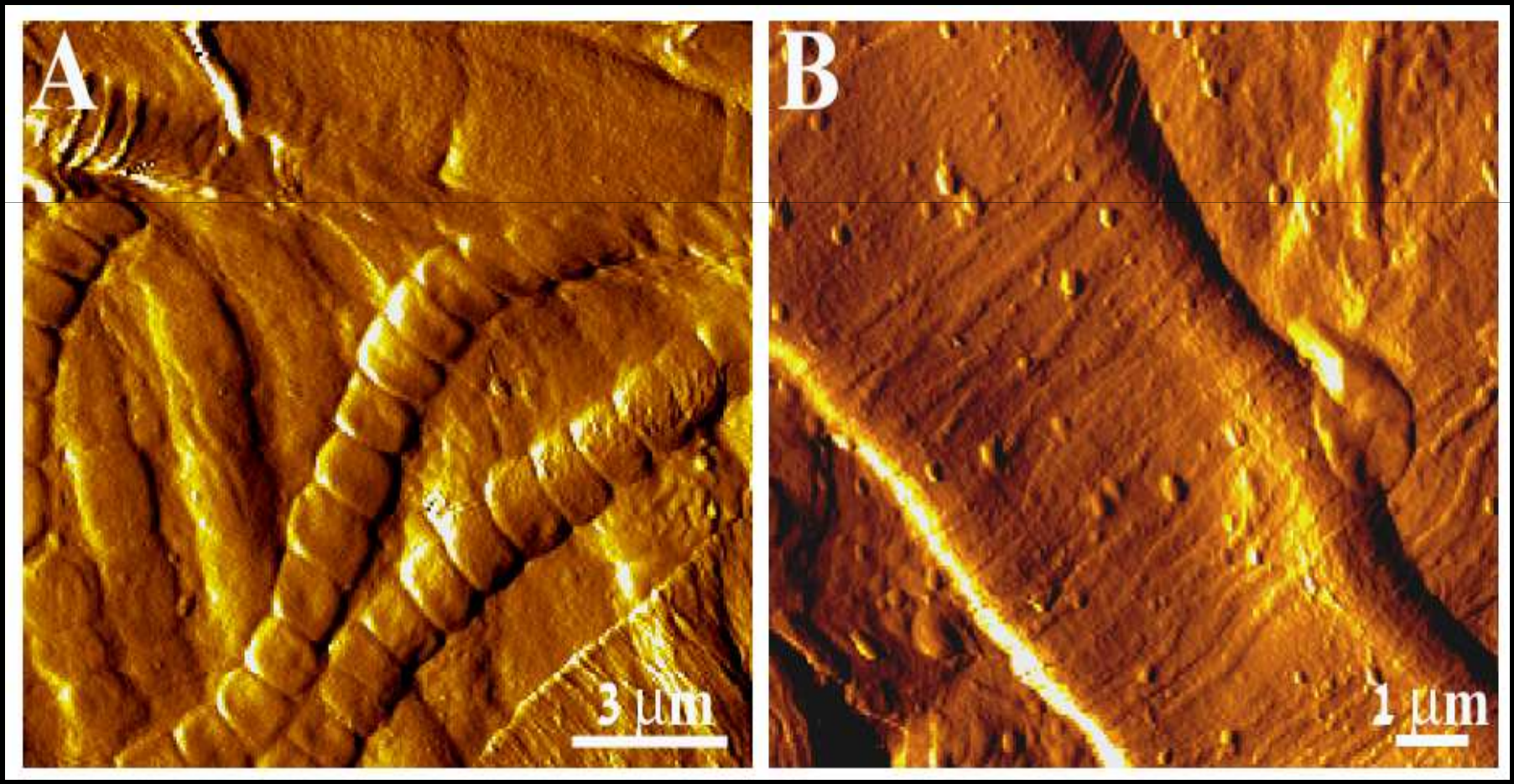
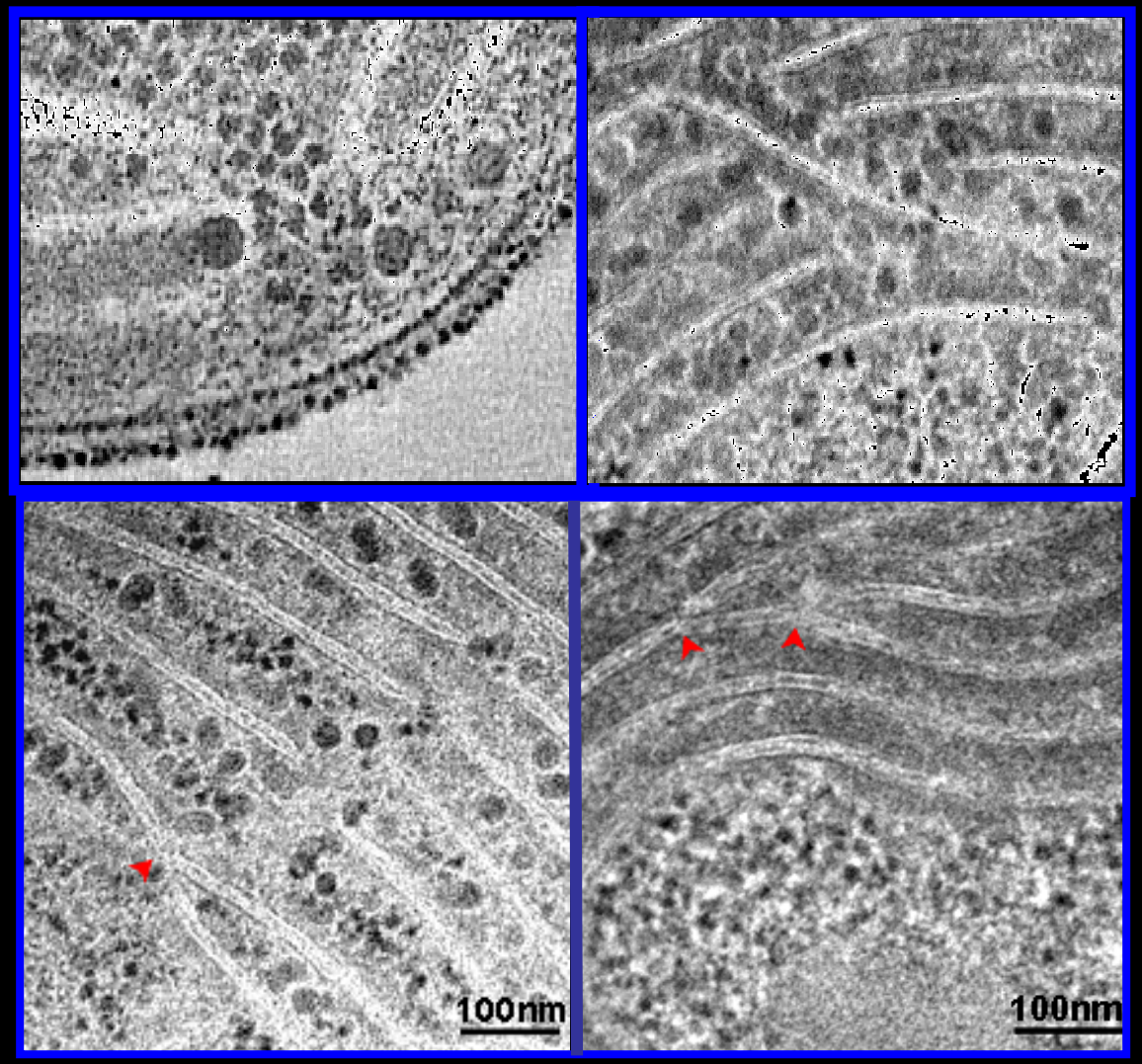
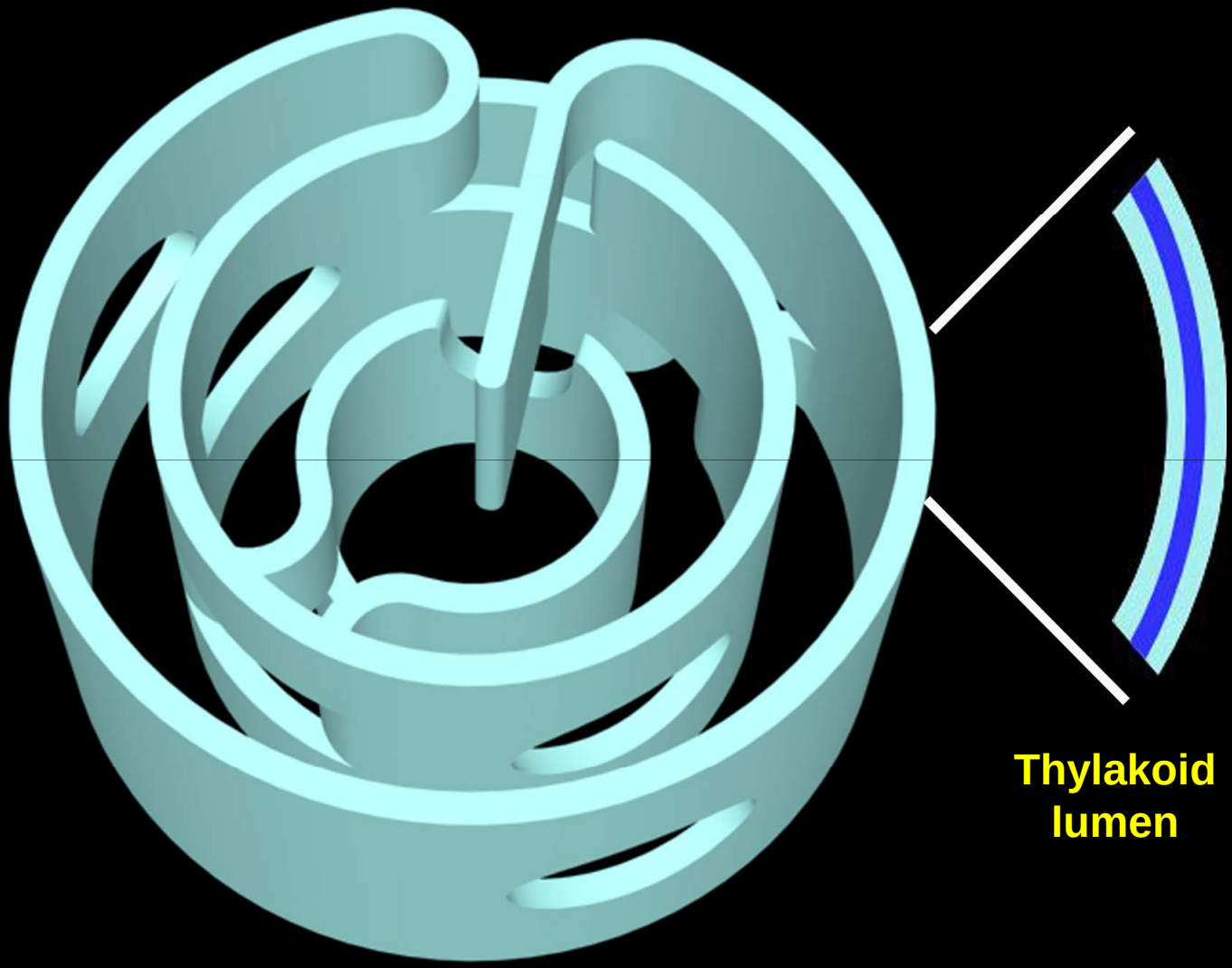


# Structural details of *Microcoleus* sp. cells as detected by computerized electron tomography




Nevo et al., EMBO J., 2007

# The thylakoids form a continuous system containing multiple perforations allowing traffic of solutes and particles

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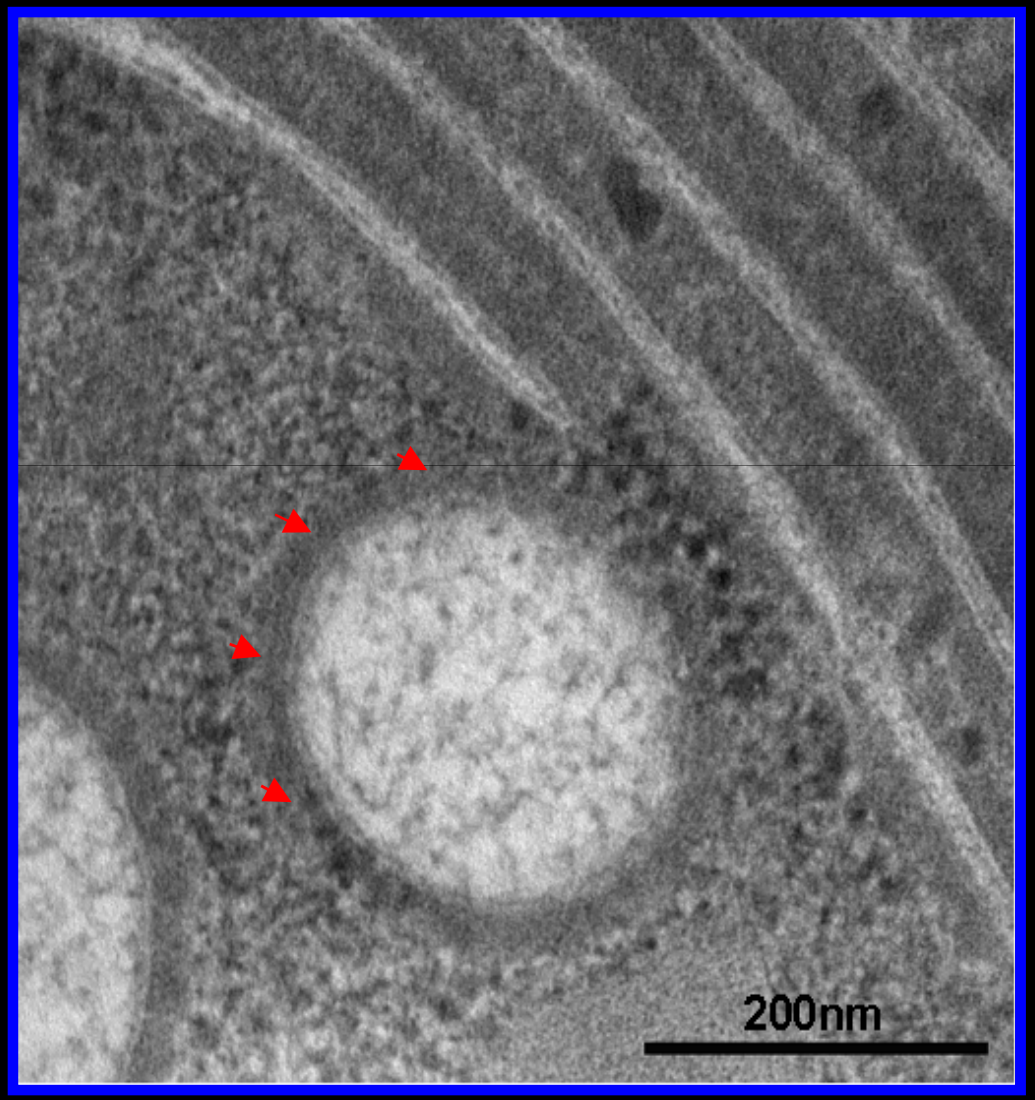
# Membrane-bound vesicles (red arrows) are present in *Microcoleus* sp. cells

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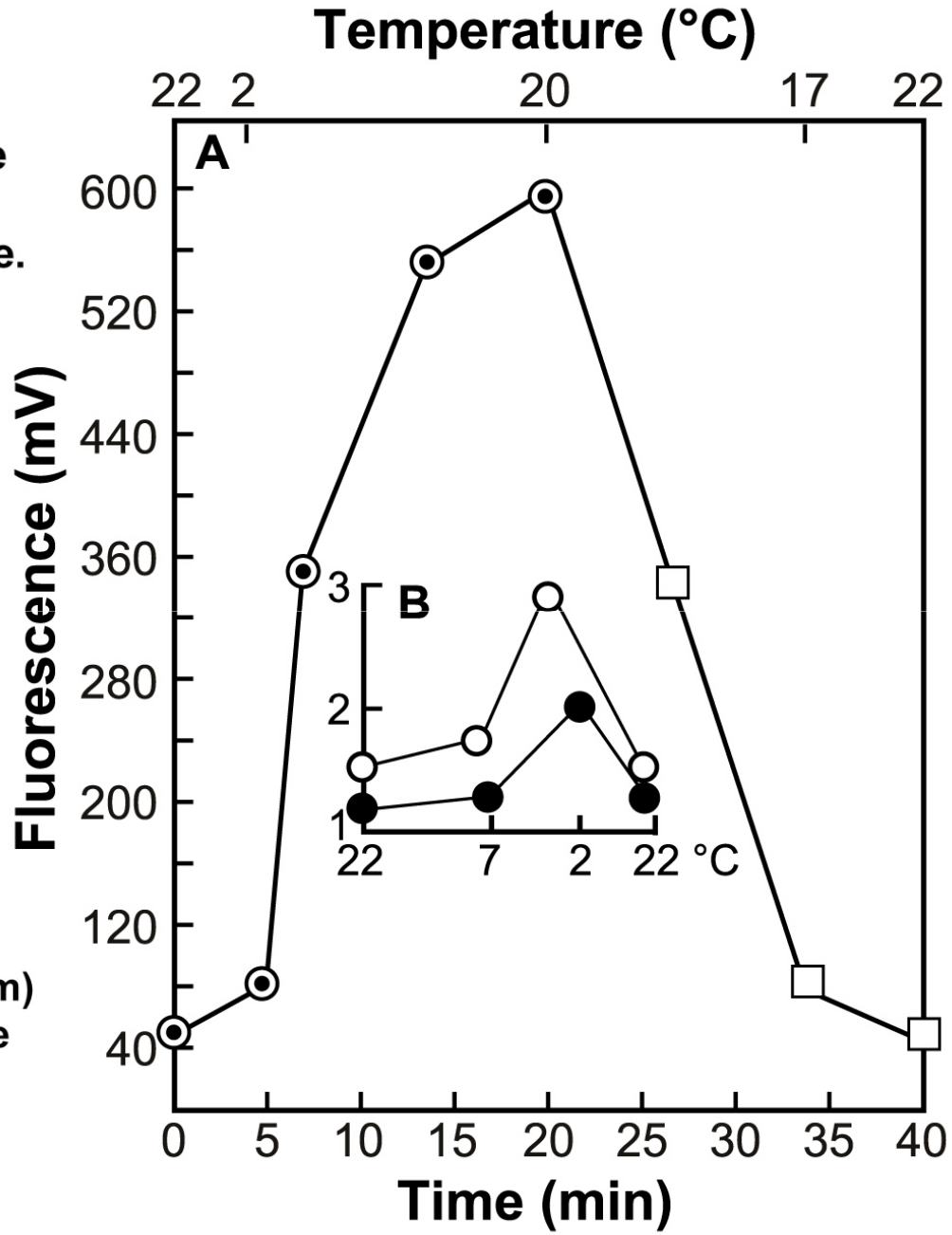
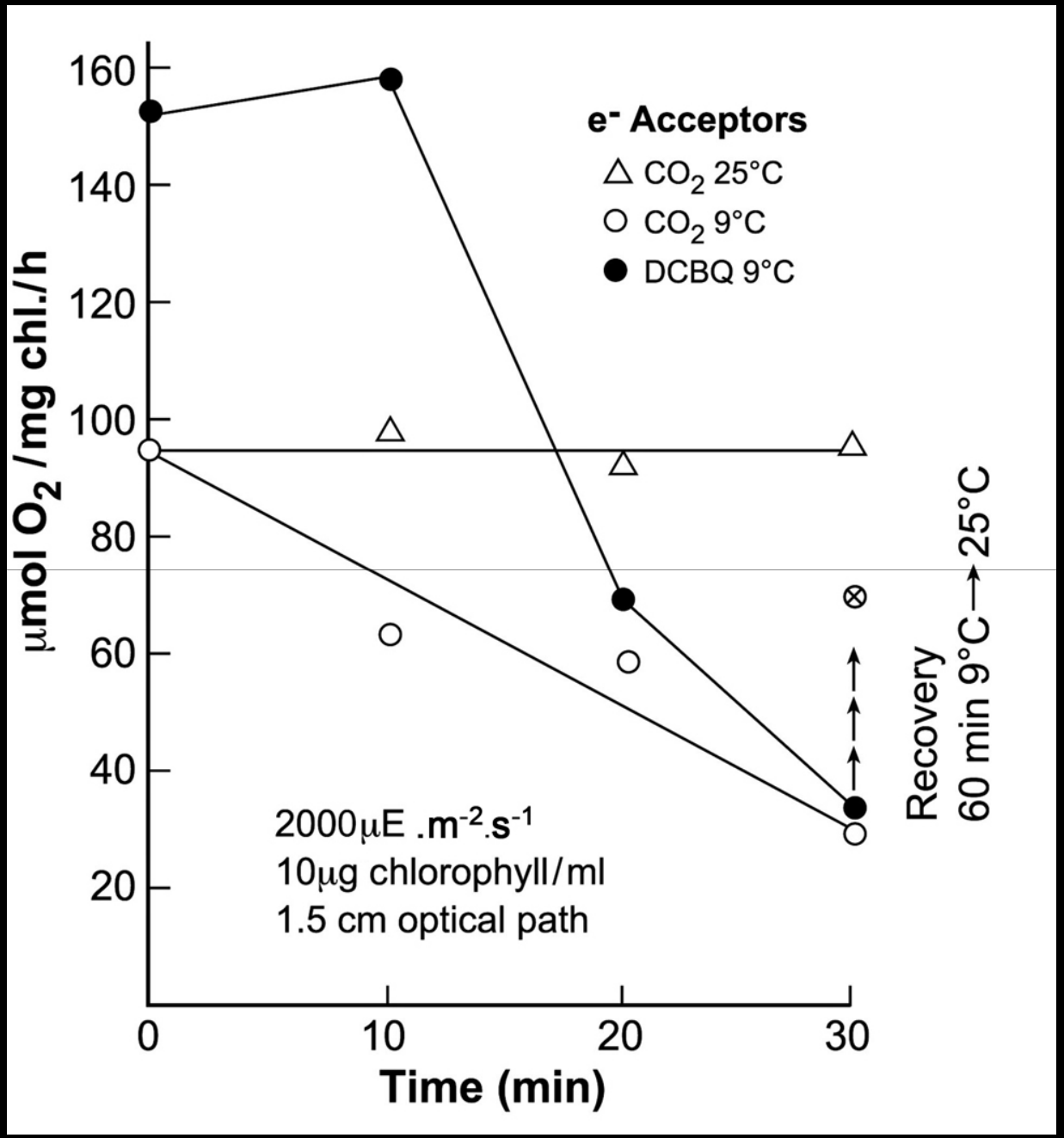
**A.** Changes in Fo fluorescence emission with decreasing (⊙) and increasing (□) temperature.

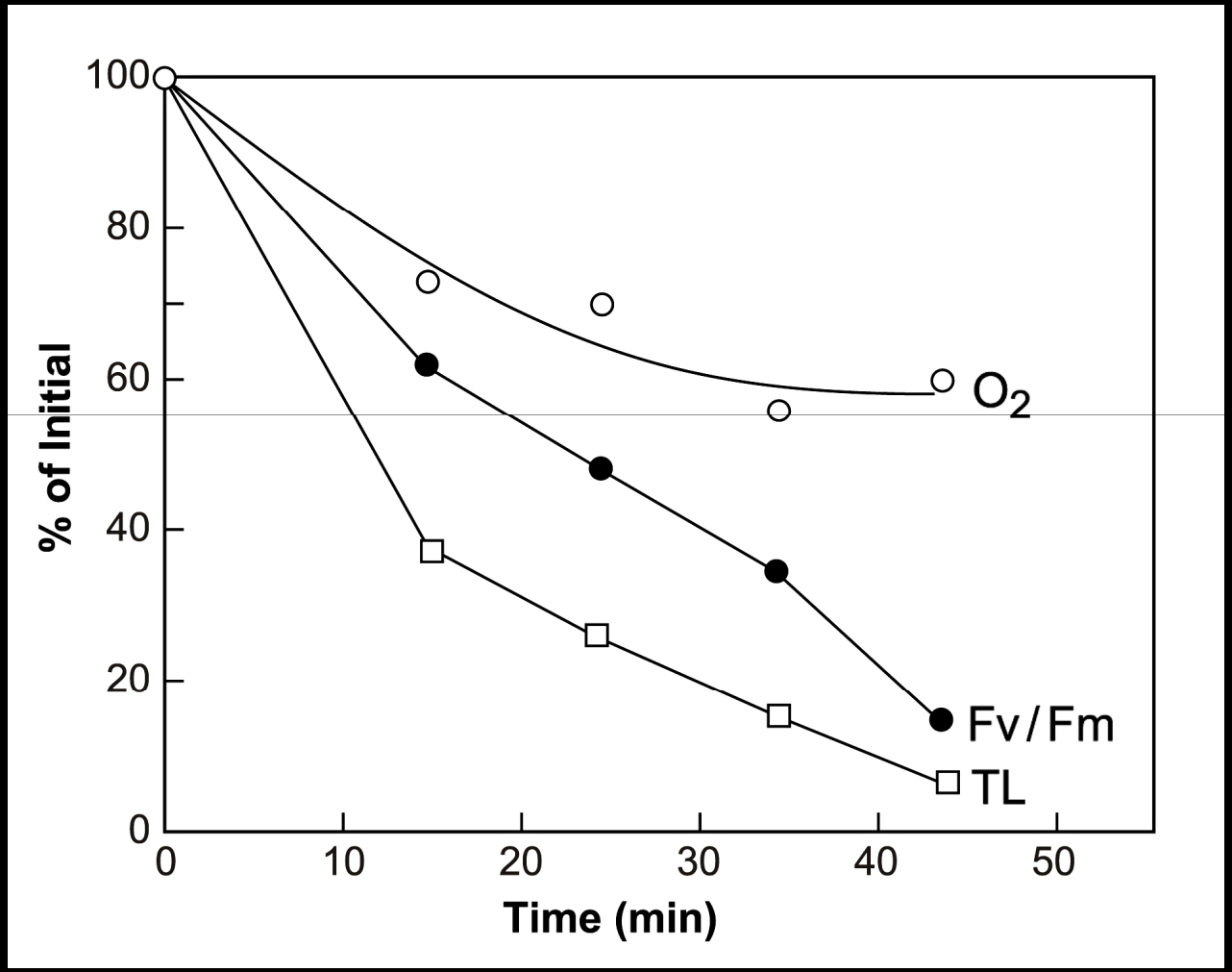



**B.** Increase in 77K PBS (650 nm) fluorescence emission relative to PSII (○) and PSI (●), excitation at 620 nm.

**The potential activity of PSII exceeds the *Microcoleus* carbon fixation capacity**

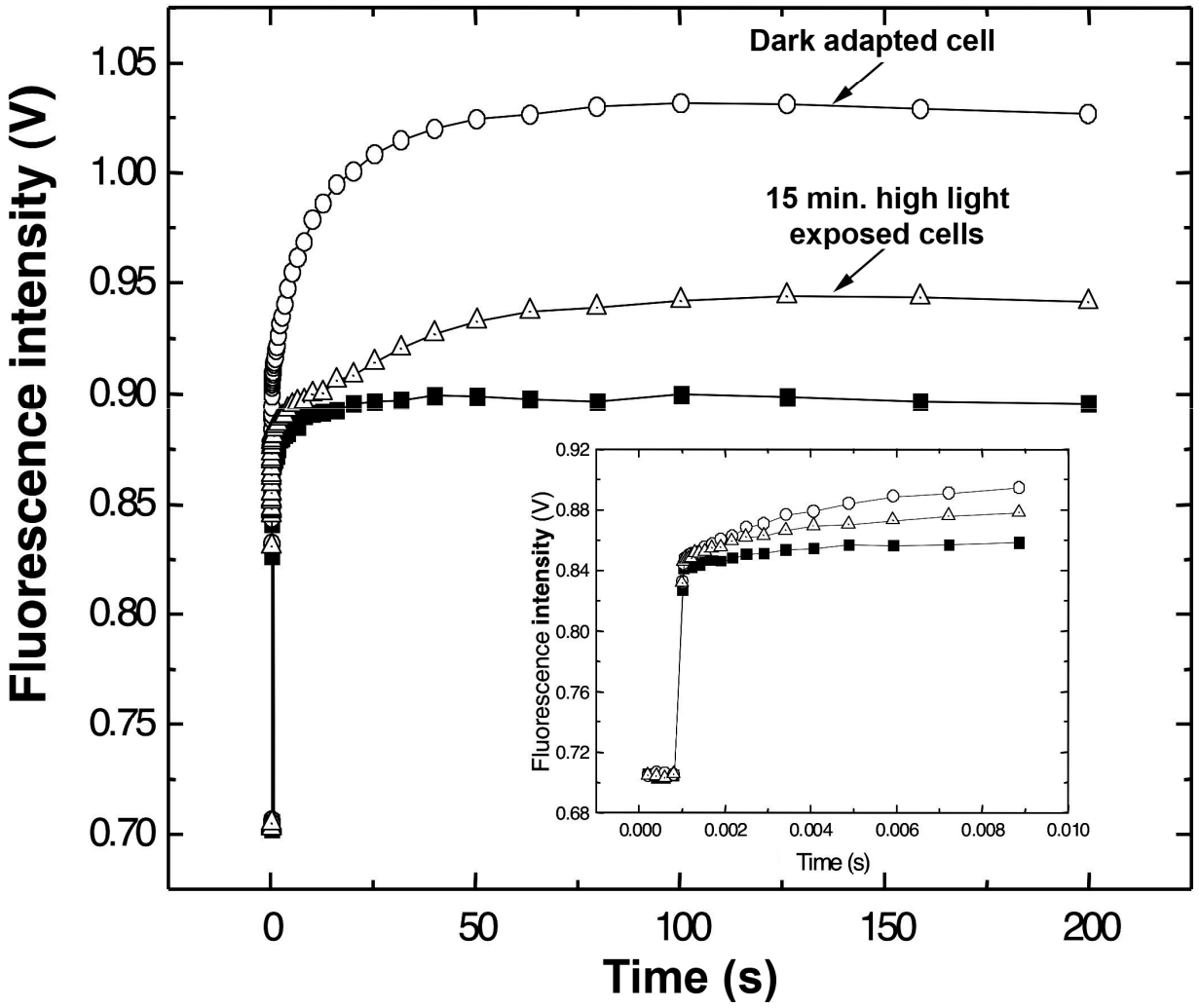


# Loss of variable fluorescence and thermoluminescence emission of cells exposed to 2000 μE $m^{-2}$ $s^{-1}$ exceedes by far the loss of oxygen evolution



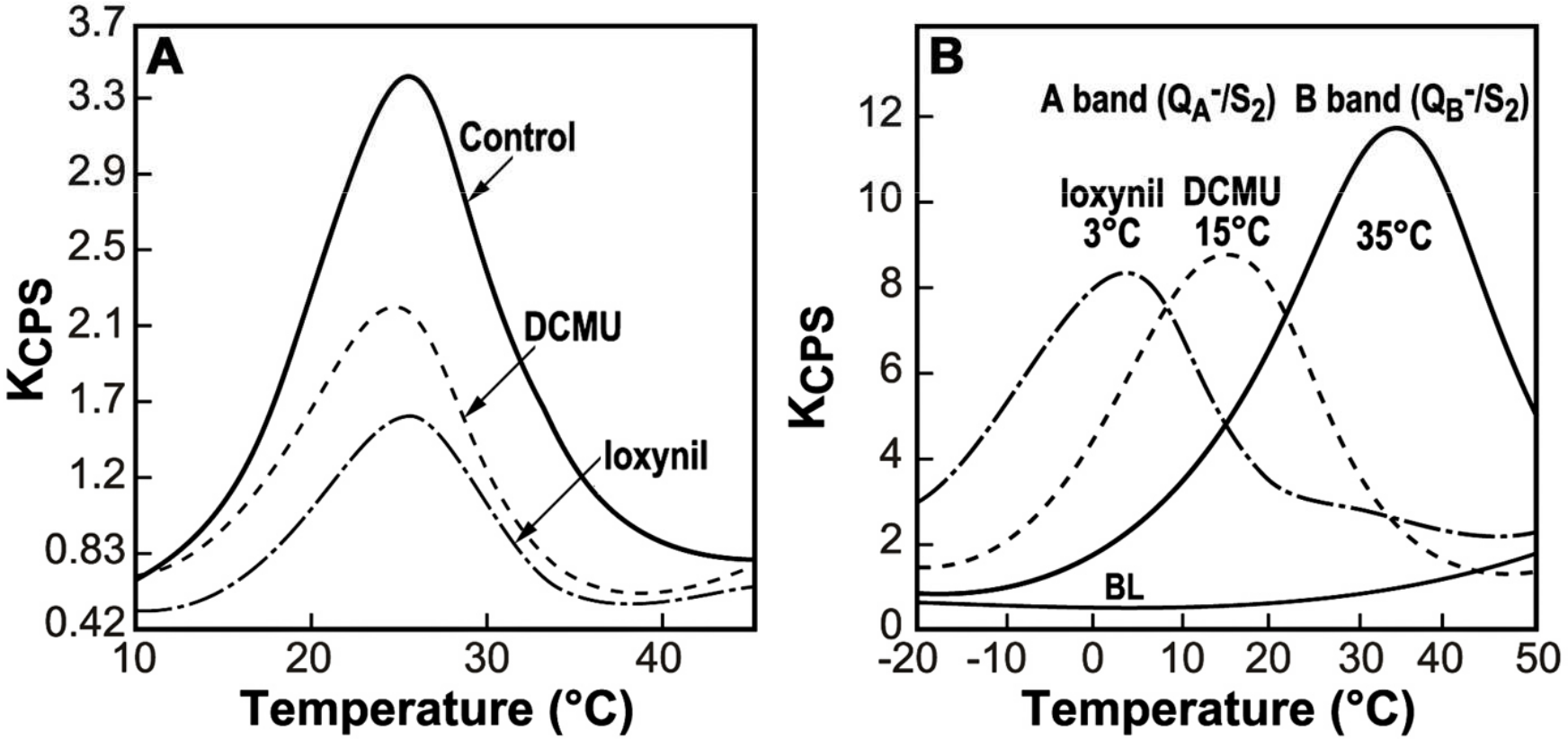

**100% values: 180 μmol $O_2$/mg chl/h; Fv/Fm = 0.45; TL= 12,000 cps**

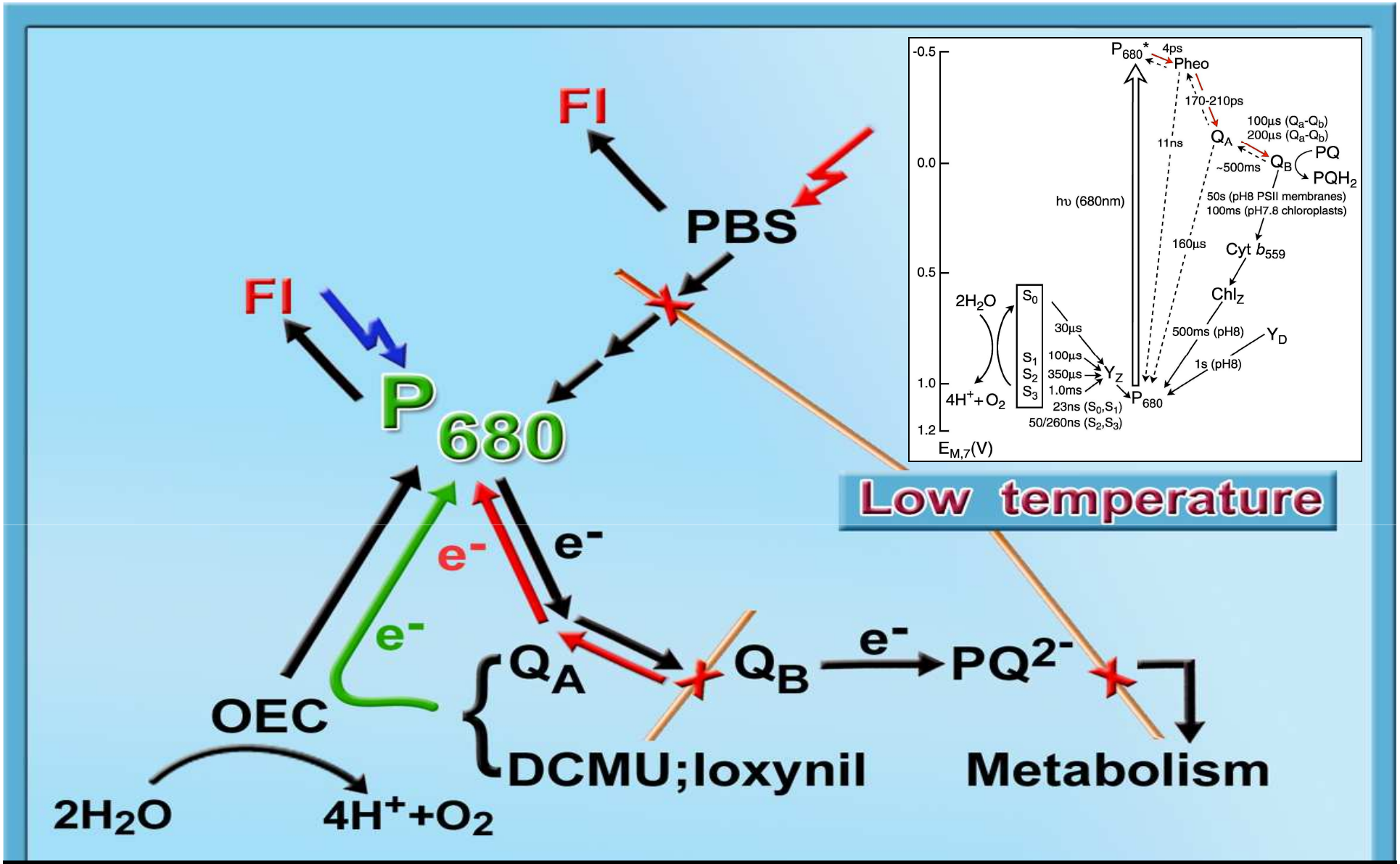
**Fluorescence induction kinetics in absence (△) or presence of DCMU ( ○ , ■ )**




**Excitation by blue and orange light, 800 μE; optical path 5 mm.**

**Temperature dependence of back electron-flow, charge recombination and thermoluminescence emission is related to the redox potential of PSII $Q_B$:$Q_A$ sites.**






PSII cyclic electron flow dissipates absorbed light energy as heat, lowering fluorescence, thermoluminescence and $^1O_2$ generation thus, alleviating photoinactivation