Electronic Supplementary Material (ESI) for Photochemical & Photobiological Sciences

PsbS-Specific Zeaxanthin-Independent Changes in Fluorescence Emission Spectrum As a Signature of Energy-Dependent Non-Photochemical Quenching in Higher Plants

Electronic Supplementary Information

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EXPERIMENTAL DATA

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(see Figure 1.)

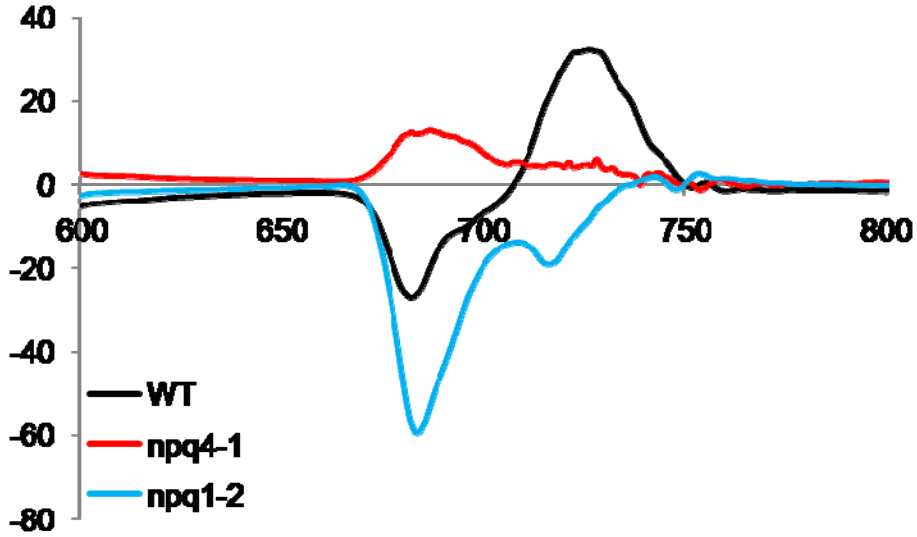

Figure 1. The 77 K difference fluorescence emission spectra (quenched state minus unquenched state) of *Arabidopsis* leaves. The samples were excited at 440 nm and the spectra were normalized to the fluorescence intensity at 750 nm. Both the excitation and emission slits were set at 5 nm.

(see Figure 2.)

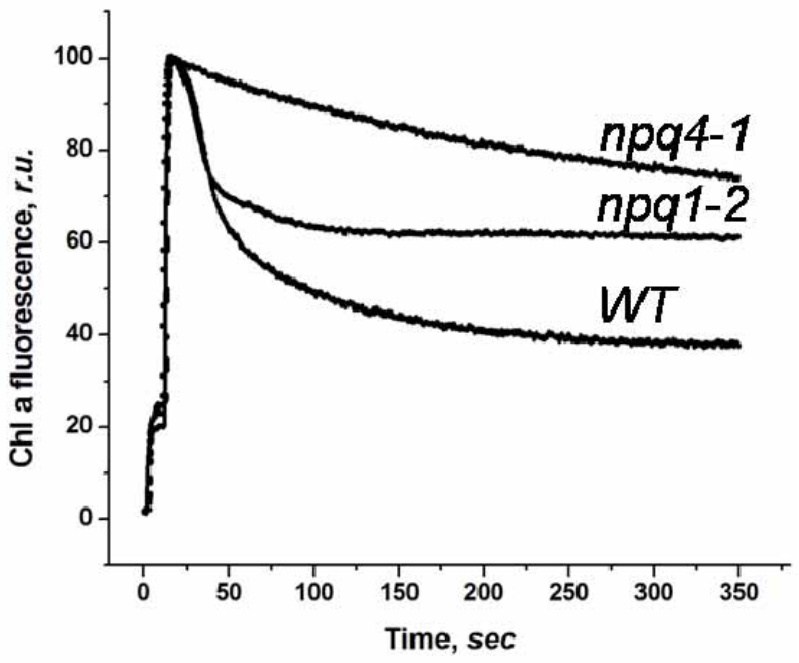

Figure 2. The slow chlorophyll fluorescence induction curves of the leaves of *Arabidopsis thaliana* wild type, *npq4-1* and *npq1-2* mutant plants.

(see Figure 3.)

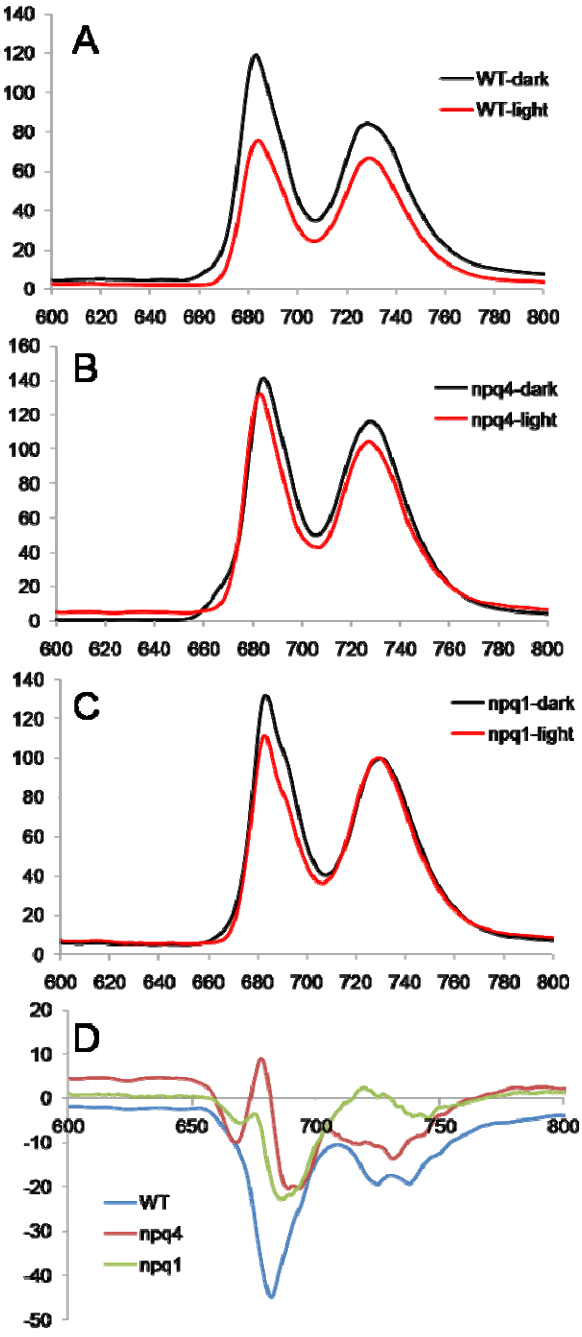

Figure 3. The 77 K un-normalized fluorescence emission (A; B) and difference (C) spectra (quenched state minus unquenched state) for the light-induced qE generation in isolated thylakoids of *Arabidopsis thaliana* plants. A, - wild-type; B, - *npq4-1* mutant; C, - *npq1-2* mutant; D, - Difference spectrum (quenched minus unquenched). The samples were excited at 440 nm. Both the excitation and emission slits were set at 5 nm.