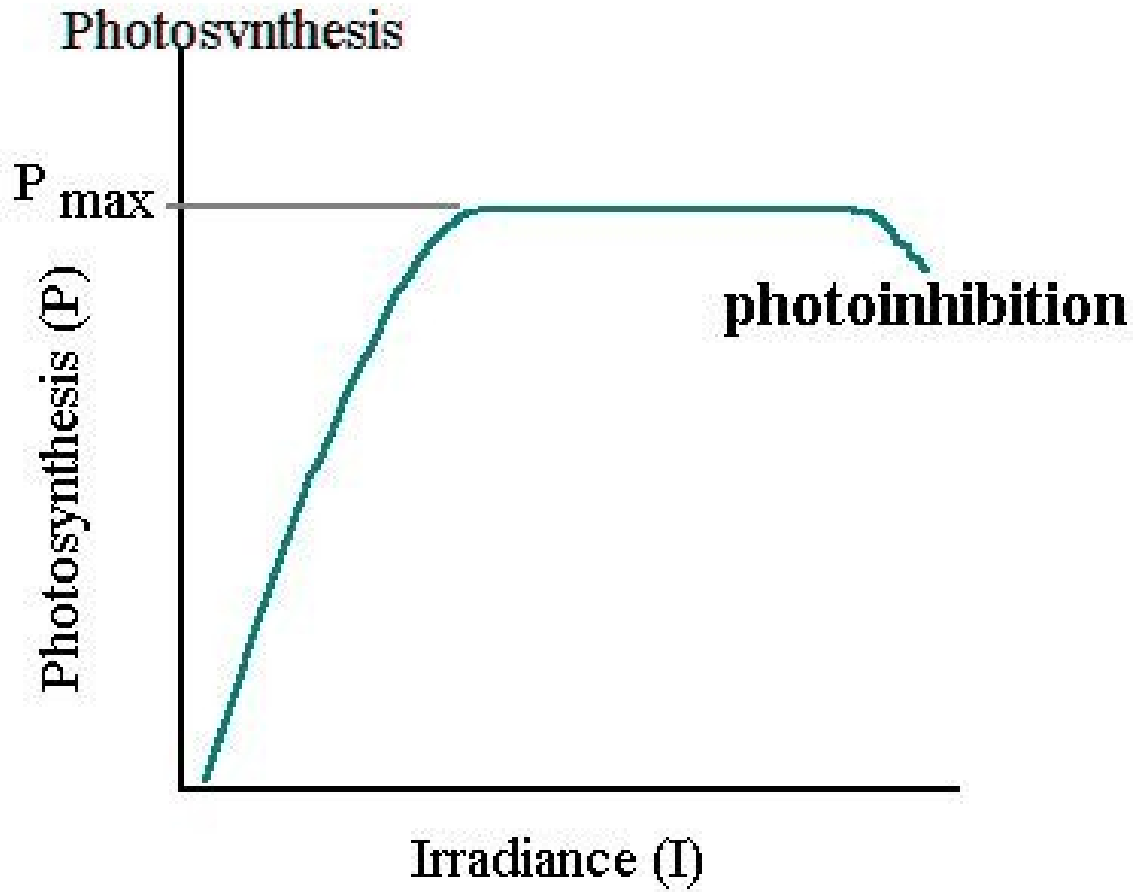
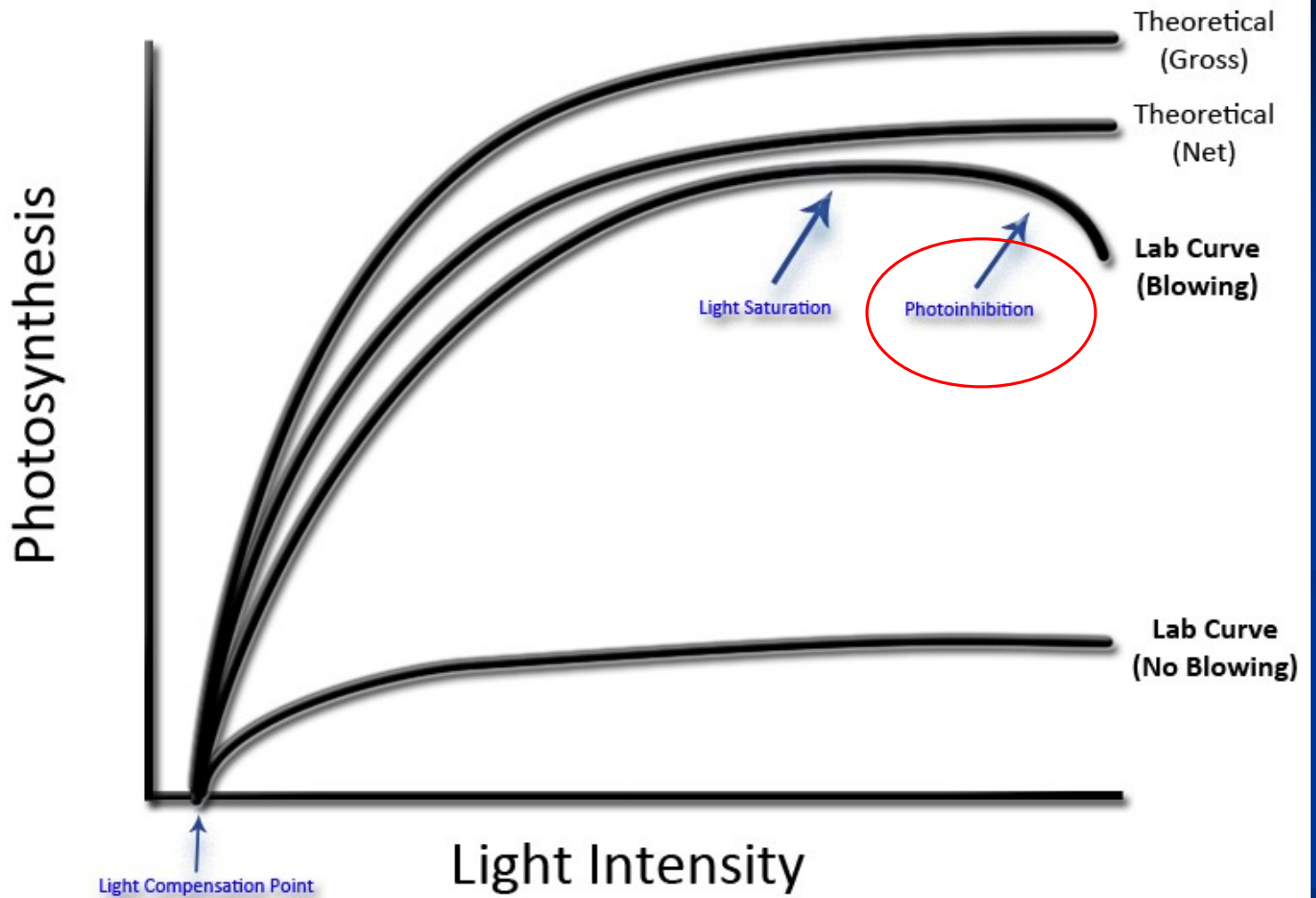


Fotoinhibice fotosyntézy

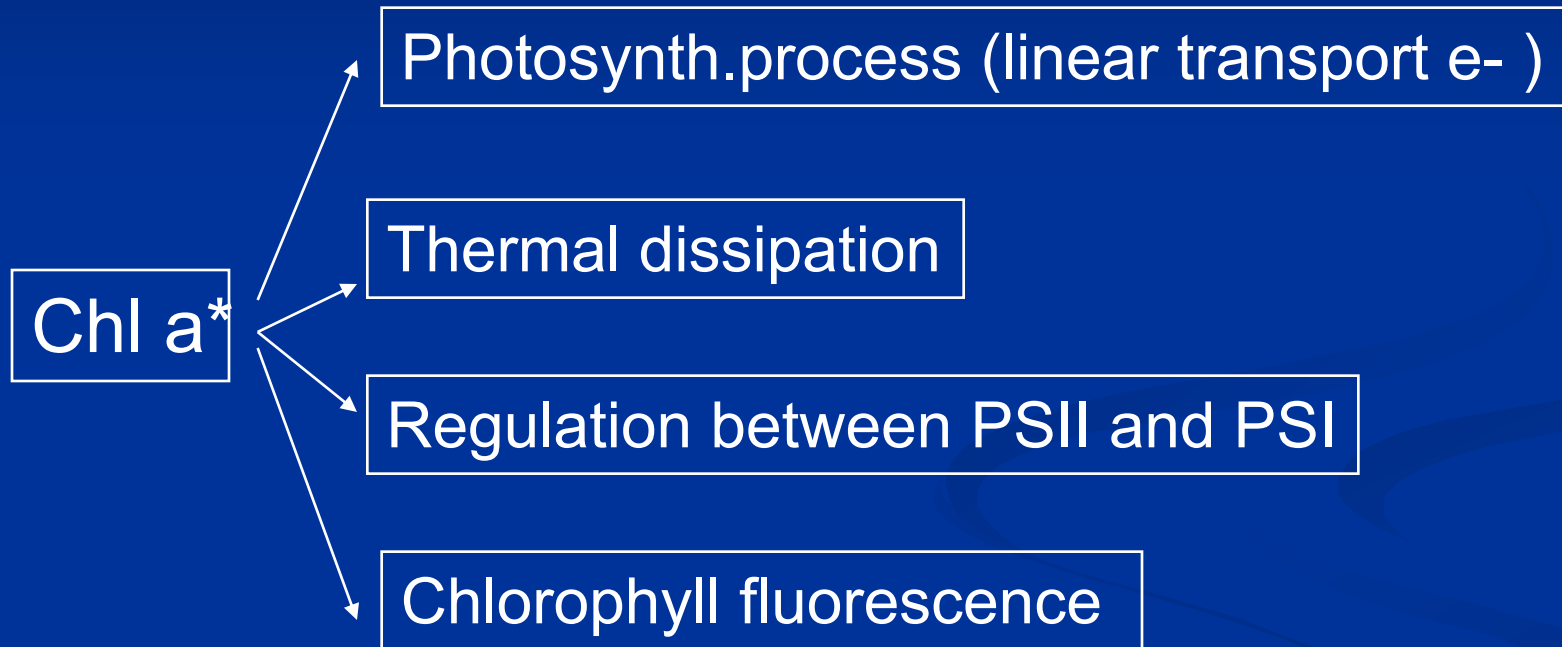
fluorometrické metody stanovení

M. Barták

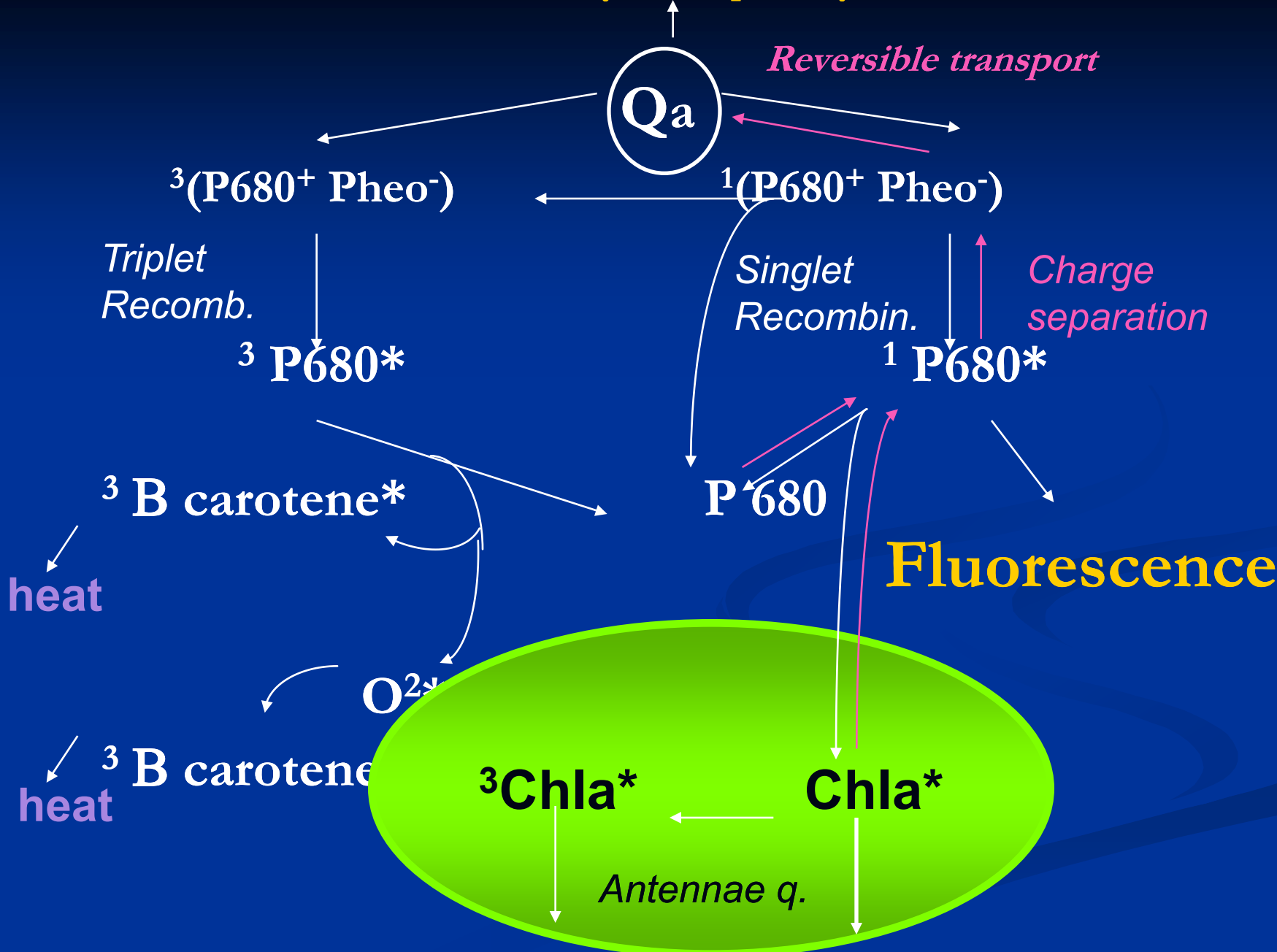




Basic de-excitation mechanisms of Chl a



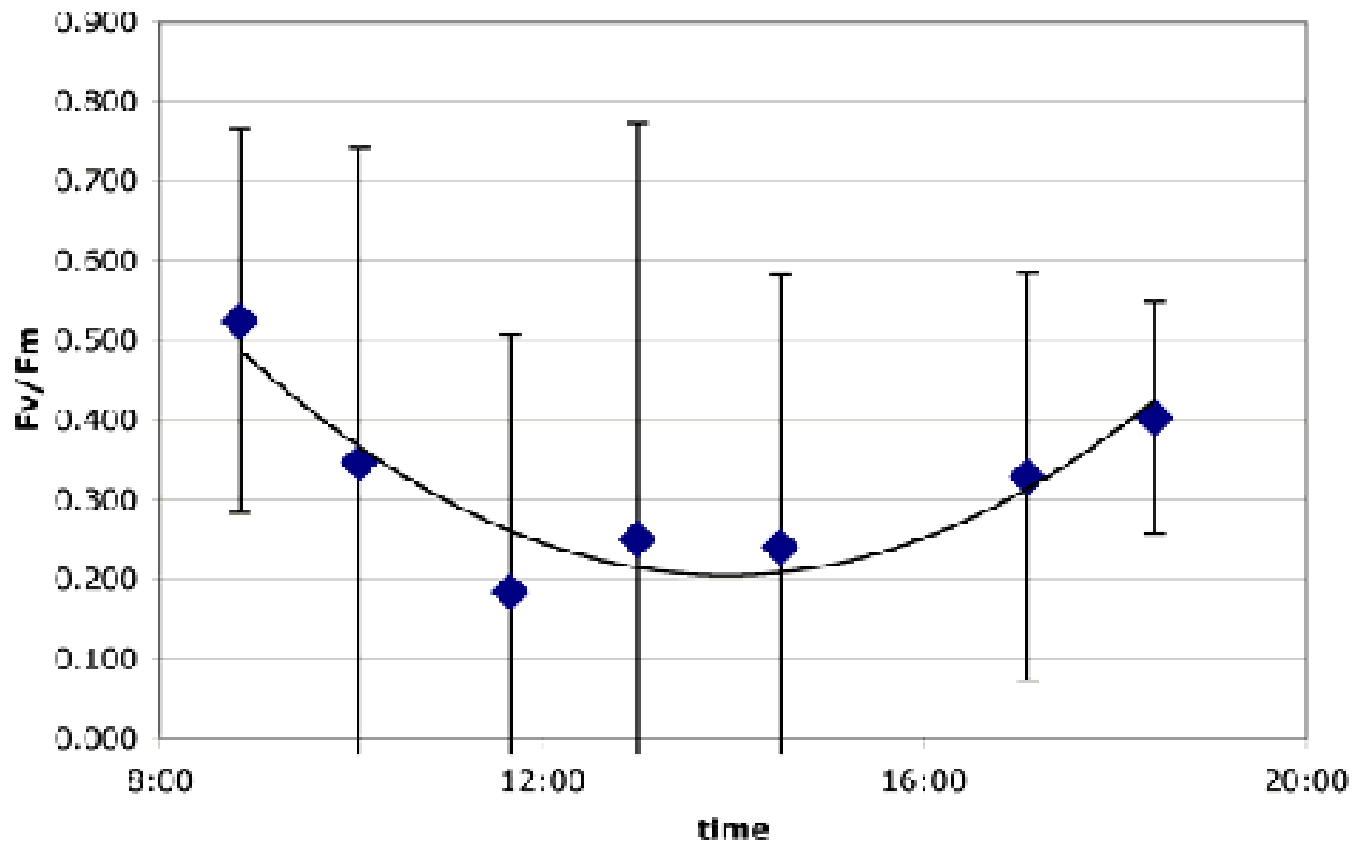
Photosynthetic pathway



Metody stanovení míry fotoinhibice

- Kautského křivka fluorescence chlorofylu doplněná o zhasací mechanismy
- Časové řady parametrů fluorescence chlorofylu

Time series of Fv/Fm 2004.09.22



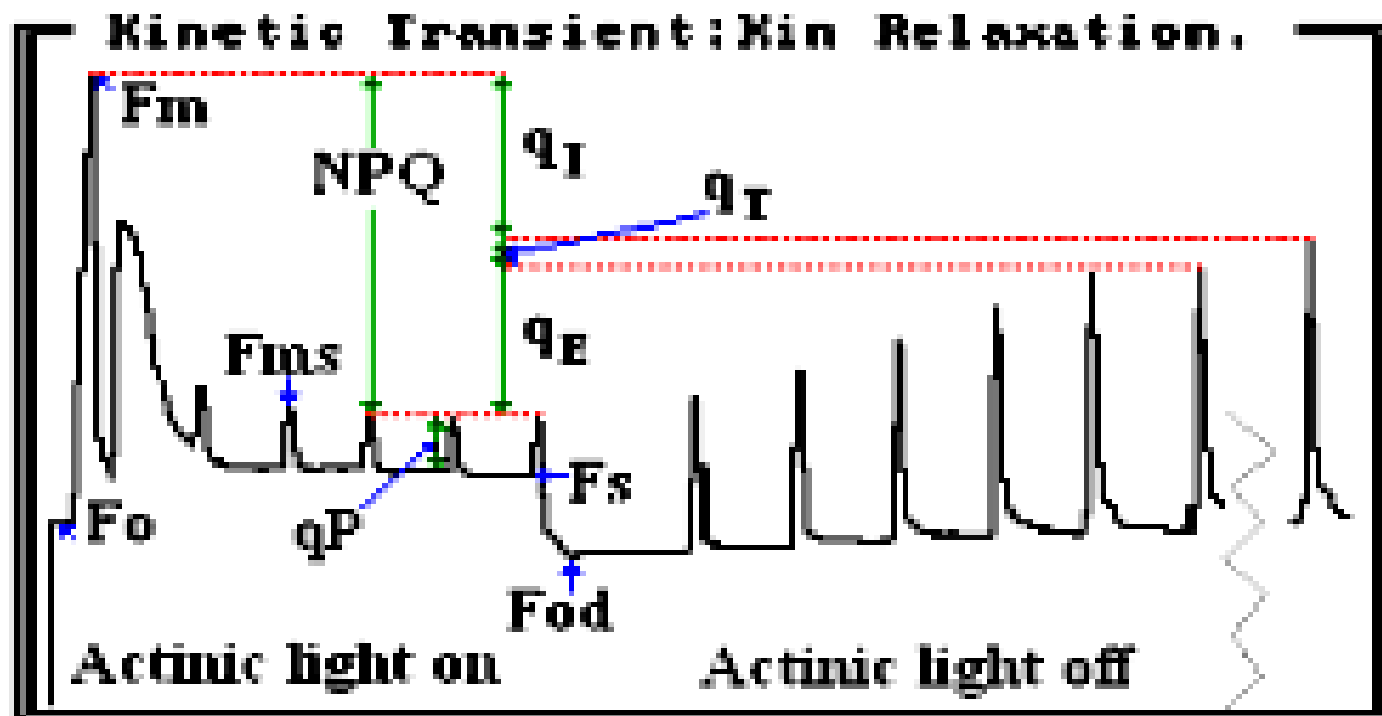
$$qP = (Fm' - F) / (Fm' - Fo')$$

$$NPQ = (Fm - Fm') / (Fm')$$

$$qN = qE + qT + qI$$

$$qE$$

Puddle Model For PSII Antennae



Lake Model for PSII Antennae

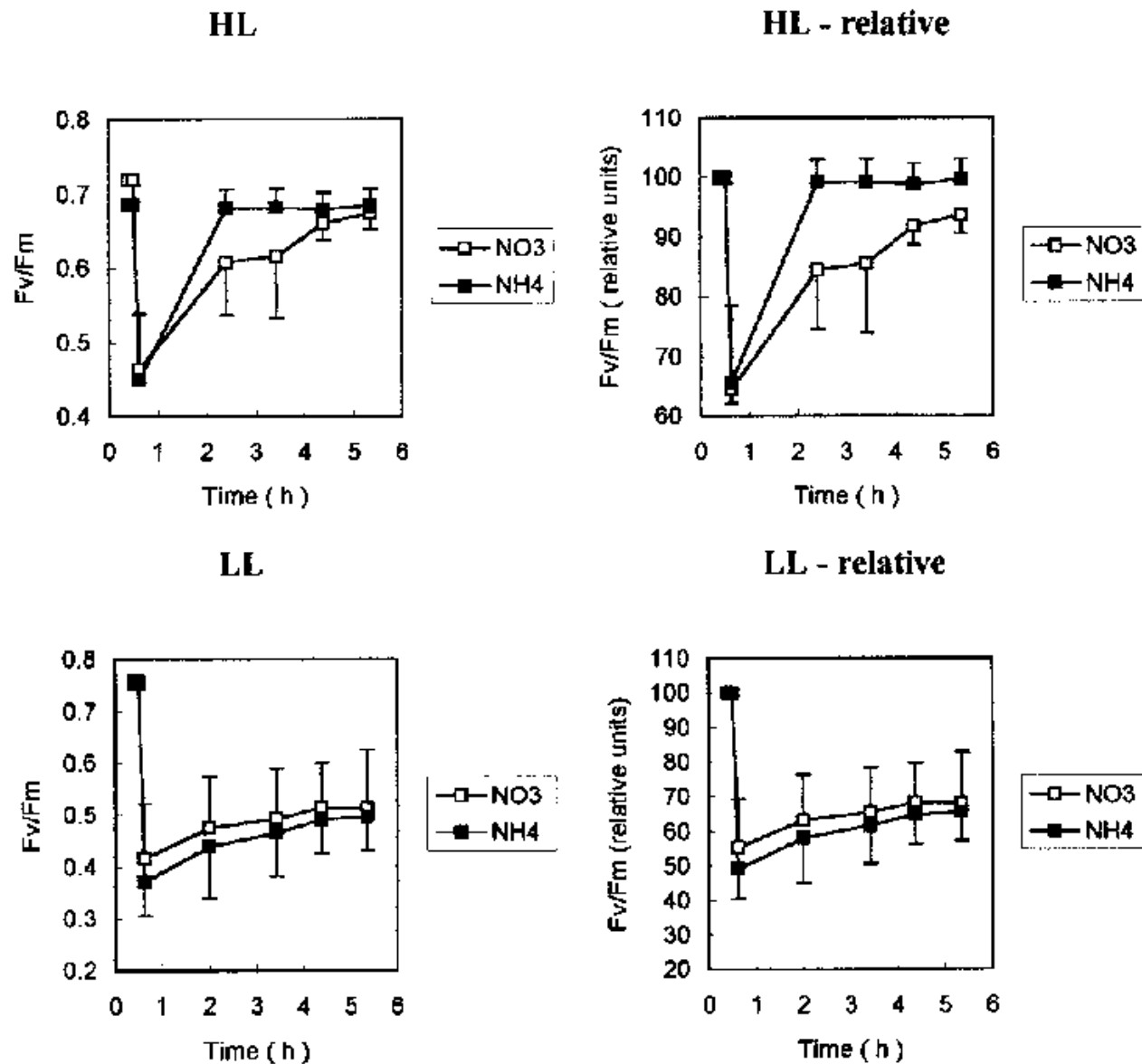


Fig. 1. Decrease and recovery of Fv/Fm after photoinhibitory treatment in plants of *A. pseudoplatanus* cultivated under $400 \mu\text{mol m}^{-2} \text{s}^{-1}$ (HL, upper panels) or 35 (LL, lower panels). Open symbols: NO₃⁻ - supplied plants, full symbols: NH₄⁻ - supplied plants.

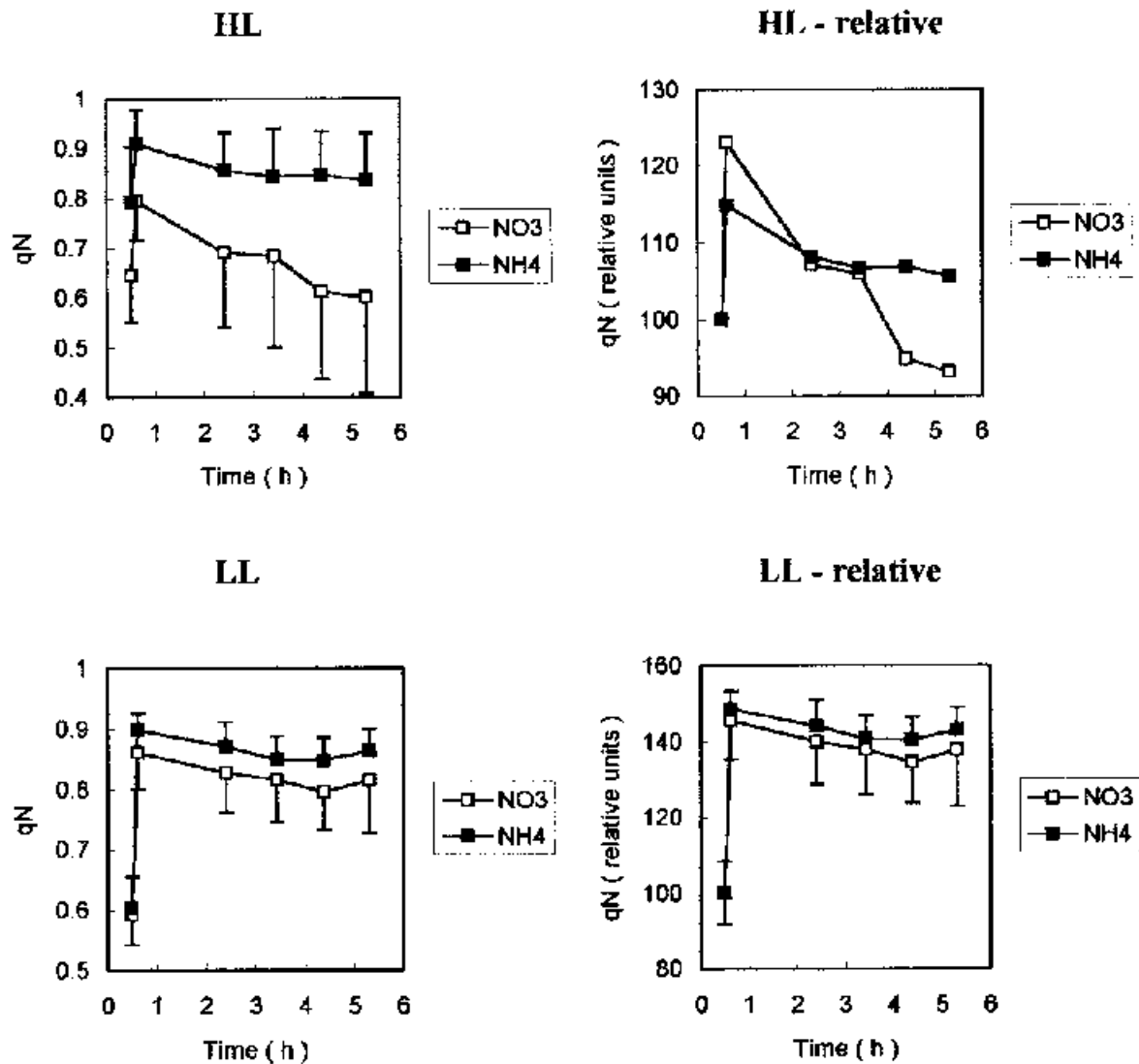


Fig. 2. Increase and recovery of non-photochemical quenching (qN) after photoinhibitory treatment in *A. pseudoplatanus* plants cultivated under nitrate (NO_3) or ammonium (NH_4) nutrition and two levels of irradiance: high light (HL) = $400 \mu mol m^{-2} s^{-1}$, low light (LL) = $35 \mu mol m^{-2} s^{-1}$. Full symbols denote nitrate nutrition, open symbols denote ammonium nutrition.

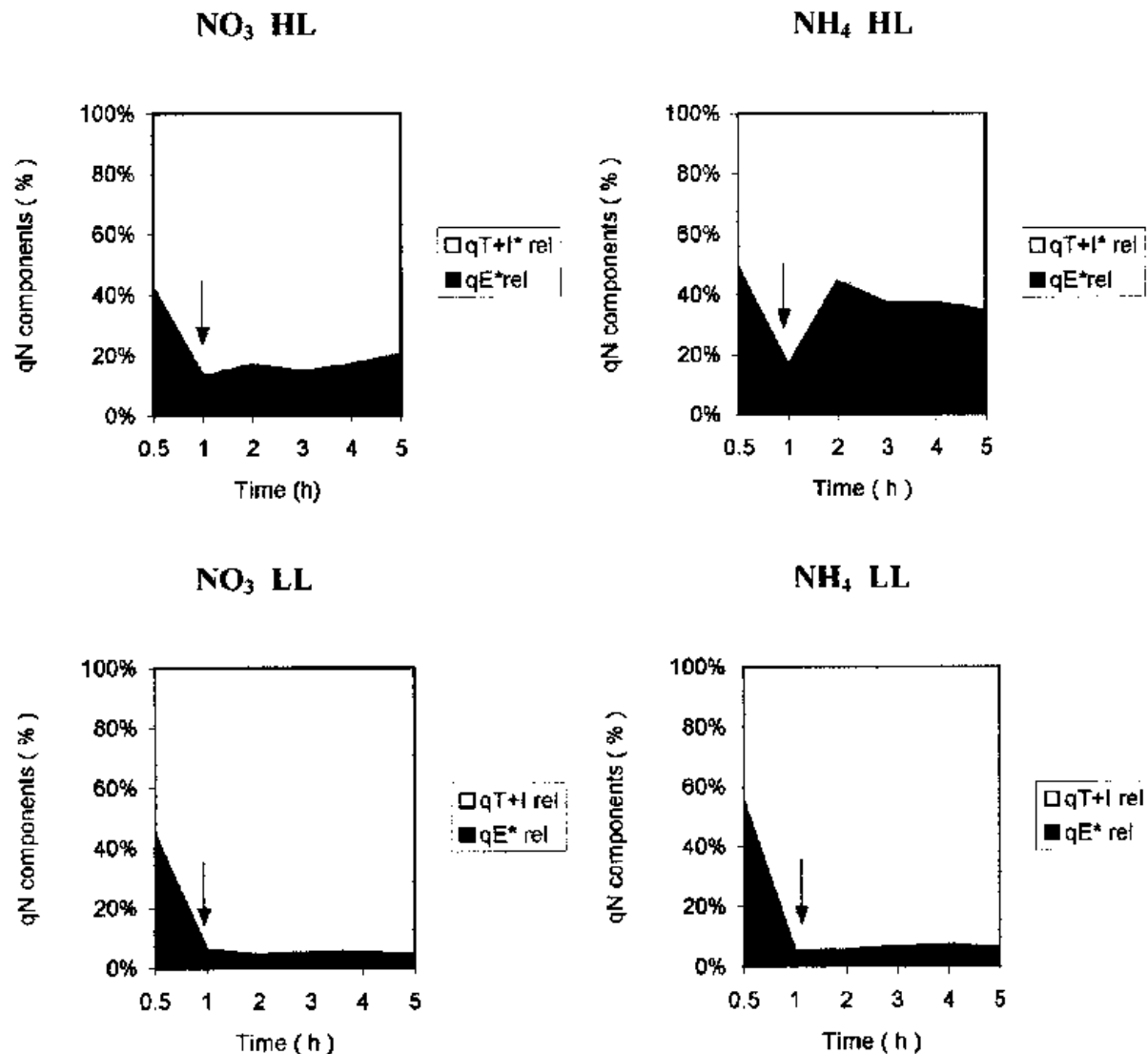


Fig. 3. Relative proportion of energy quenching (qE^* - black area) and photoinhibitory quenching ($qT+I^*$ - white area) forming together non-photochemical quenching (qN) in *A. pseudoplatanus* plants during photoinhibitory treatment and recovery. Photoinhibition is indicated by an arrow. The plants were cultivated under nitrate (NO_3) or ammonium (NH_4) nutrition and two levels of irradiance: high light (HL) = $400 \mu mol m^{-2} s^{-1}$, low light (LL) = $35 \mu mol m^{-2} s^{-1}$.

qT
= Fm' after rapid relaxation is complete usually with the actinic light turned off usually one hour - Fm' at qE / Fm' at steady state.

qI = Fm - Fm' at qT / Fm' at steady state.

qN = Fm - Fm' / Fm - Fo

qL = qP(Fo'/F')

Y(NO) = 1/NPQ + 1 + qL((Fm/Fo)-1)

Y(NPQ) = 1 - Y - Y(NO)

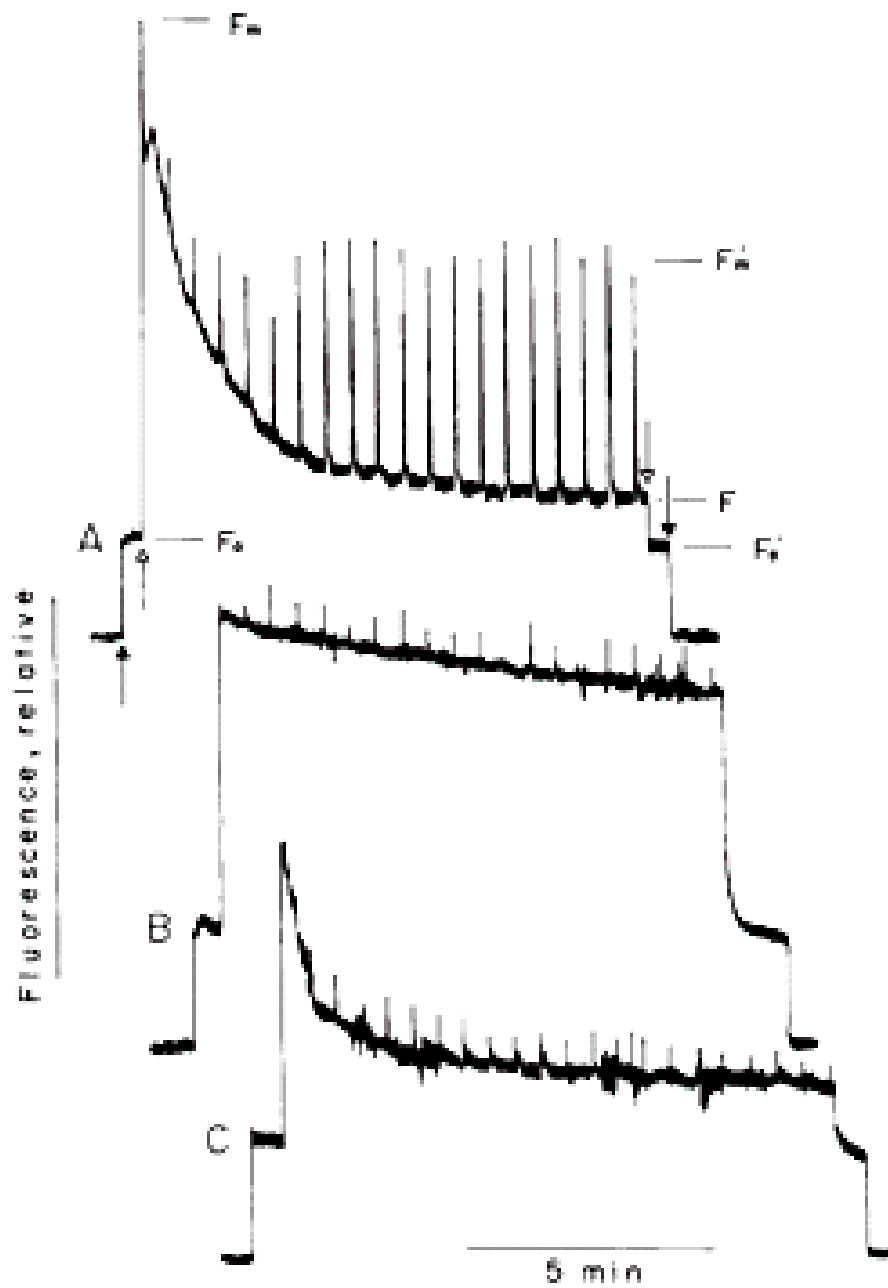
1 = qL + Y(NPQ) + Y(NO)

qP
= (Fm' - F) / (Fm' - Fo')

NPQ
= (Fm - Fm') / (Fm')

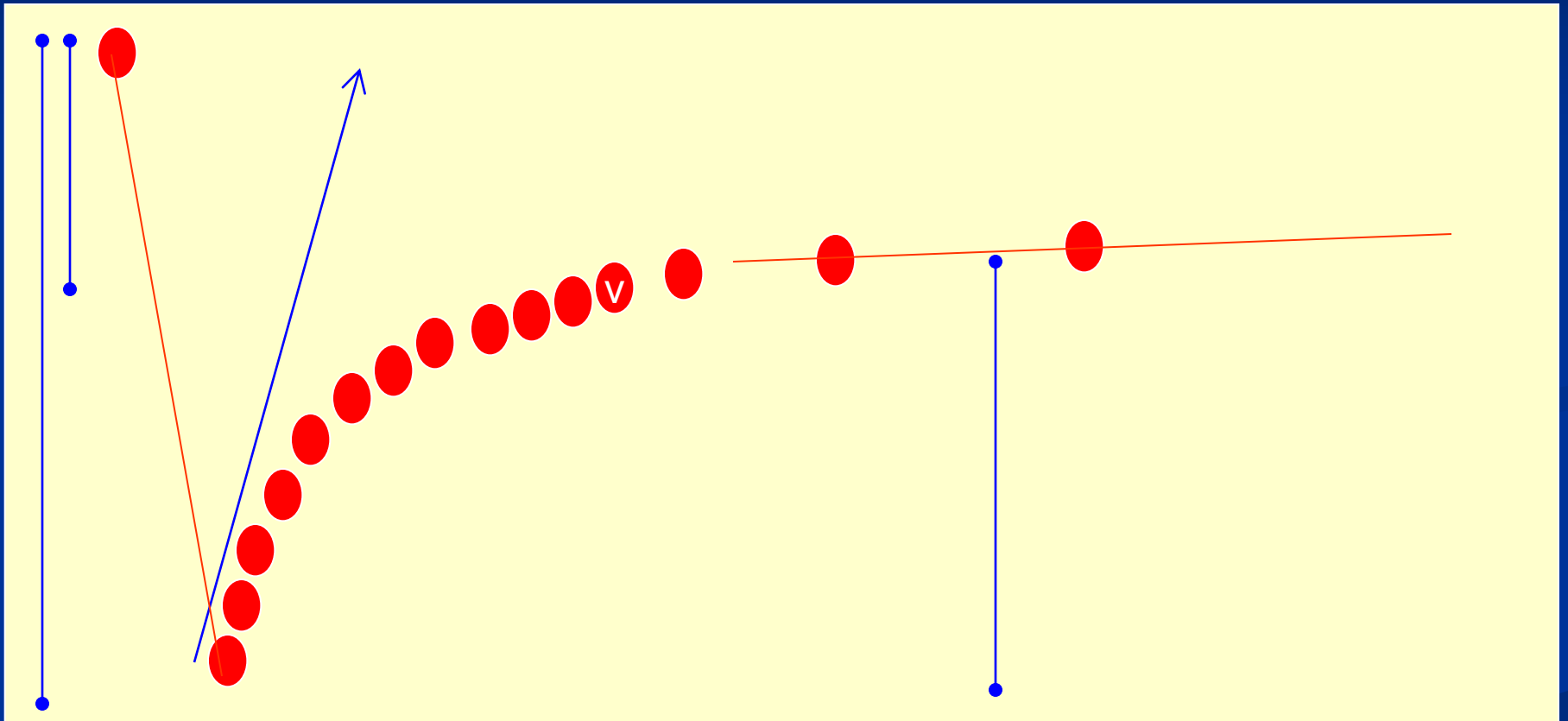
qN
= qE + qT + qI

qE



http://www.biol.s.u-tokyo.ac.jp/users/seitaip/personal/terashima/terashima_e.html

Brno, Laboratoř fotosyntetických procesů



Senzitivita vůči dlouhotrvající fotoinhibici
A zotavení se

