Polyphenol oxidase-mediated protection against oxidative stress is not associated with enhanced photosynthetic efficiency

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Published in:
Annals of Botany

DOI:
10.1093/aob/mcv081

Publication date:
2015

Citation for published version (APA):
Boeckx, T., Webster, R., Winters, A., Webb, J., Gay, A., & Kingston-Smith, A. (2015). Polyphenol oxidase-mediated protection against oxidative stress is not associated with enhanced photosynthetic efficiency. *Annals of Botany*, *116*(4), 529-540. https://doi.org/10.1093/aob/mcv081

SUPPLEMENTARY DATA

Fig S1. Effect of chilling and return to optimal growth conditions on photosynthesis in leaves of red clover wild type and mutant. Changes to (A) carbon assimilation rate (A_{sat}) and (B) quantum efficiency of photosystem II (ΦPSII) were measured at saturating irradiance (1300 µmol m^{-2} s^{-1}) in wild-type (circles) and low PPO mutant (squares) leaves in response to control (closed symbols) or stress (open symbols) treatment: exposure (days 1-4) and recovery (days 5-7) from cold (2 °C) and high light (580 µmol m^{-2} s^{-1}) stress applied at the end of day 0. The arrow indicates the transfer of plants back to the control cabinet. Error bars are ± SE of differences between the means for stress ($n \geq 8$) and recovery data ($n \geq 3$). For each day, values with no letters in common are significantly different as determined by Bonferroni (adjusted $p < 0.05/6$): stress ($n \geq 8$); recovery ($n \geq 3$); ns, not significant.

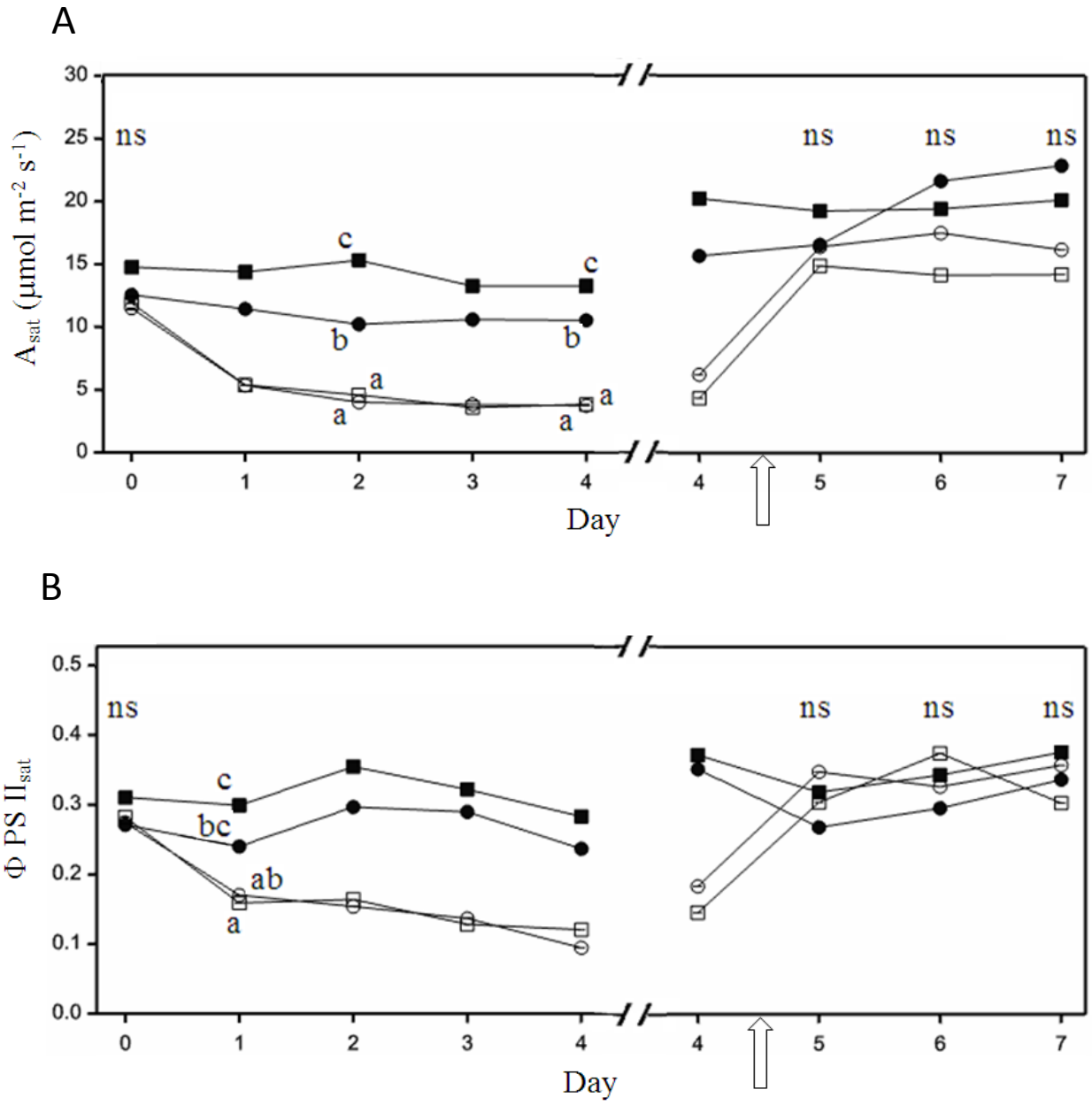

Fig S2. Changes in (A) non-photochemical quenching (q_N) and (B) photochemical quenching (q_P) measured at saturating irradiances (1300 µmol m^{-2} s^{-1}) in leaves of wild-type (circles) and low PPO mutant (squares) red clover in response to control conditions (open symbols) or stress (closed symbols): exposure to cold (2 °C) and high light (580 µmol m^{-2} s^{-1}) stress applied at the end of day 0. Error bars are ± SE of differences between the means (n ≥ 8). For each day, values with no letters in common are significantly different as determined by Bonferroni (adjusted $p < 0.05/6$): n ≥ 8; ns; not significant.

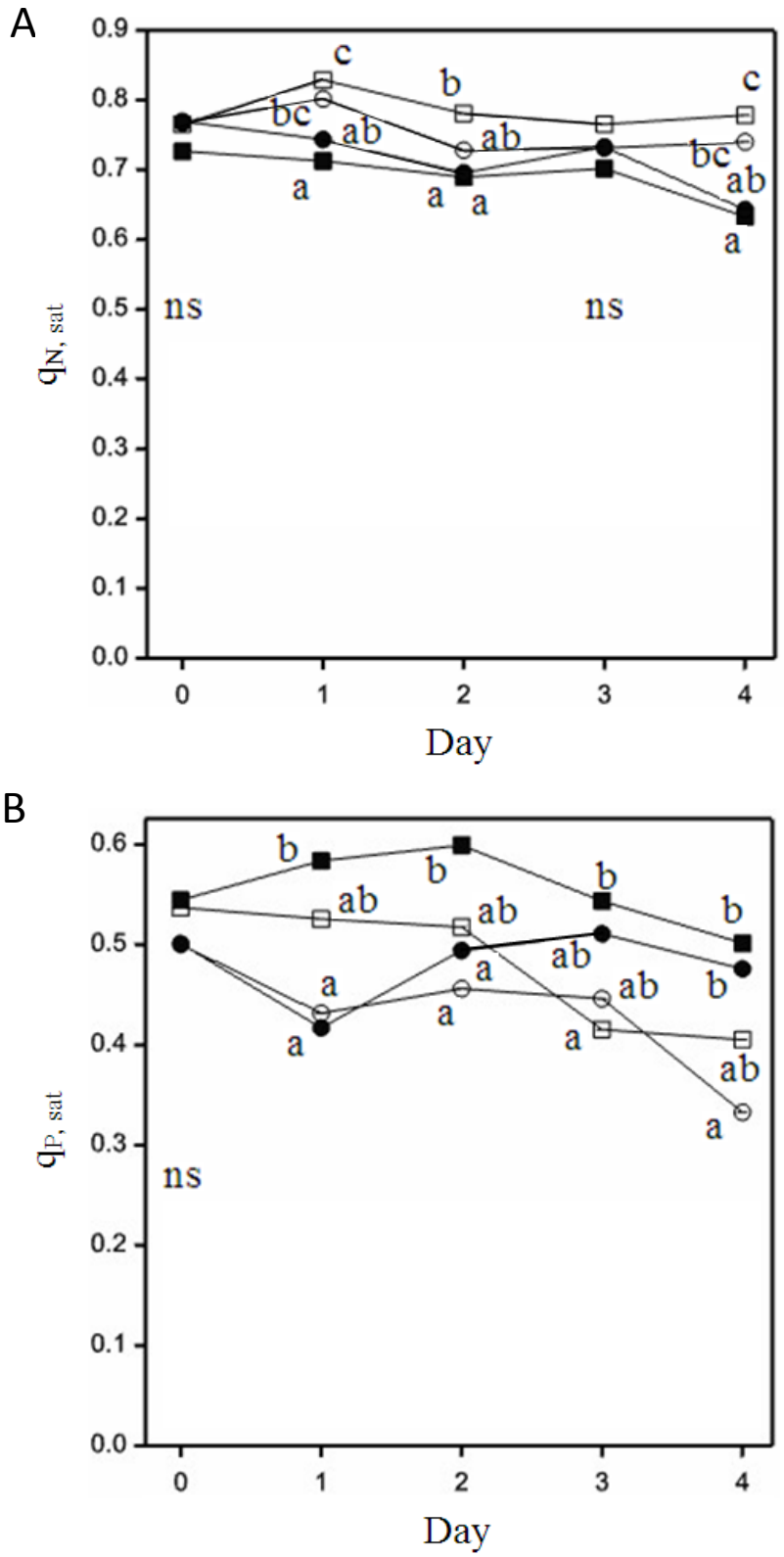

Fig. S3. Total leaf chlorophyll (Chl_a + Chl_b) content of wild-type (circles) and low PPO mutant (squares) under control (solid symbols) or stress (open symbols) conditions: exposure (days 1-4) and recovery (days 5-7) from cold (2 °C) and high light (580 µmol m^{-2} s^{-1}) stress applied at the end of day 0. The arrow indicates the transfer of plants back to the control cabinet. For each day, values with no letters in common are significantly different as determined by Bonferroni (adjusted $p < 0.05/6$): stress ($n \geq 8$); recovery ($n \geq 3$); ns; not significant.

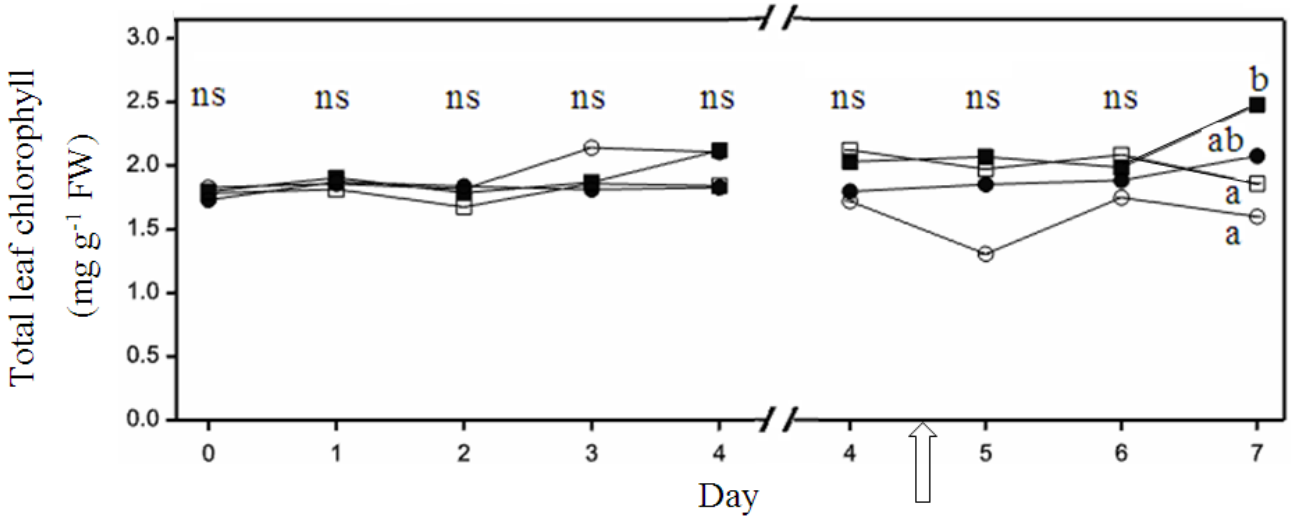

Fig S4. Change in F_m values of wild-type (circles) and low PPO mutant (squares) under control (solid symbols) or stress (open symbols) conditions (2 °C and 580 µmol m^{-2} s^{-1} light applied at the end of day 0. Error bars are ± SE of differences between the means ($n \geq 8$).