

**Szőllősi, E., Oláh, V., Kanalas, P., Kis, J.,
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Short reference: Szőllősi (2010)

First author: Szőllősi Erzsébet

Year: 2010

Abstract

Seasonal variation of leaf ecophysiological traits within the canopy of Quercus
petraea (Matt.) Liebl. trees

E. Szőllősi, V. Oláh, P. Kanalas, J. Kis, A. Fenyvesi and I. Mészáros

Facing contrasting light regimes during a vegetation season and depending on canopy position, physiological plasticity of leaves is vital for tree species to sustain the optimal ratio between the benefit of carbon assimilation and the costs of photoprotection in a given leaf. We tested the seasonal adjustment of sun and shade leaf photochemistry of sessile oak (Quercus petraea (Matt.) Liebl.) to changing light environments by parallel investigation of the meteorological conditions, photosynthetic pigment content, PSII quantum efficiency and excitation energy quenching. Sun and shade leaves got adapted to their prevailing light regimes till mid of May. High LMA was a favourable trait in avoiding water loss and decreasing photoinhibition in both flushing and sun leaves, while low LMA optimized the light absorbing leaf surface in the lower canopy layer. Partitioning of excitation energy dissipation pathways that is PSII photochemistry-Y(II), regulated-Y(NPQ) and non-regulated-Y(NO) quenching changed significantly during leaf ontogeny and with the position of leaves in the canopy. At 800 mikromol m⁻²s⁻¹Y(II)

[forest ecology](#)

[forest structure: stand](#)

Notes

Quercus petraea, photosynthetic pigments, chlorophyll fluorescence, sun and shade leaves, VAZ (violaxanthin+antheraxanthin+zeaxanthin)

Címszavazva- VA

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