



Universiteit
Leiden
The Netherlands

Magnetic field effects on photosynthetic reactions

Liu, Y.

Citation

Liu, Y. (2008, October 21). *Magnetic field effects on photosynthetic reactions*. Retrieved from <https://hdl.handle.net/1887/13153>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/13153>

Note: To cite this publication please use the final published version (if applicable).

Stellingen

belonging to the thesis

“Magnetic Field Effects on Photosynthetic Reactions”

1. Formation of singlet oxygen, in bacterial reaction centers is magnetic field dependent.
Chapter 2, This thesis.
2. Singlet oxygen is generated under conditions of photoinhibition in cyanobacteria.
Chapter 4, This thesis.
3. Magnetic fields protect photosynthetic complexes from photo-induced damage.
Chapter 2 and 4, This thesis.
4. TEMP is only a suitable spin-trap for singlet oxygen detection in biological systems that can survive in a strong alkaline environment.
*Spetea C. et al. 1997, Biochim. Biophys. Acta 1318: 275–283.
Chapter 2, This thesis.*
5. The effects of intense light on the phycobilisome morphology in *Synechococcus* sp W8102 do not depend on the irradiation wavelength.
Six C. et al. 2007, Photosynth. Res. 92: 75–86.
6. The observation that certain types of *Drosophila* tend to avoid exposure to a magnetic field can indicate singlet oxygen involvement.
Gegear R.J. et al. 2008, Nature 454: 1014–1018.
7. The selectivity and safety of PhotoDynamic Therapy (PDT) will be improved by using photosensitizers in which the triplet state is generated through the Radical Pair Mechanism (RPM).
Weiss E.A. et al. 2005, J. Am. Chem. Soc. 127: 6052–6061.
8. The unidentified cause of inhibition of the oxygen-evolving reaction at alkaline pH is most likely the replacement of chloride by OH⁻.
Clausen J. & Junge W. 2008, Biochim. Biophys. Acta, in press.

Leiden, 21st October 2008

Yan Liu