

Accepted Manuscript

Culture density influence on the photosynthetic efficiency of microalgae growing under different spectral compositions of light

M. Kula, H.M. Kalaji, A. Skoczowski

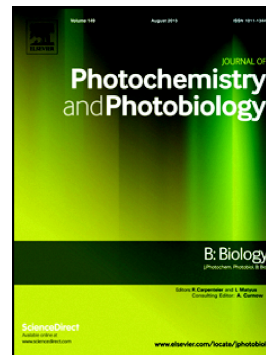
PII: S1011-1344(16)31013-2
DOI: doi: [10.1016/j.jphotobiol.2017.01.013](https://doi.org/10.1016/j.jphotobiol.2017.01.013)
Reference: JPB 10714

To appear in: *Journal of Photochemistry & Photobiology, B: Biology*

Received date: 9 November 2016
Revised date: 5 January 2017
Accepted date: 9 January 2017

Please cite this article as: M. Kula, H.M. Kalaji, A. Skoczowski , Culture density influence on the photosynthetic efficiency of microalgae growing under different spectral compositions of light. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. *Jpb*(2017), doi: [10.1016/j.jphotobiol.2017.01.013](https://doi.org/10.1016/j.jphotobiol.2017.01.013)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Culture Density Influence on the Photosynthetic Efficiency of Microalgae Growing under Different Spectral Compositions of Light

M. Kula¹, H. M. Kalaji^{2,3}, A. Skoczowski^{4,*}

¹Polish Academy of Sciences, Franciszek Górski Institute of Plant Physiology, Niezapominajek 21, 30-239 Kraków, Poland

²SI TECHNOLOGY, Górczewska 226C/26, 01-460 Warsaw, Poland

³Department of Plant Physiology, Warsaw University of Life Sciences WULS-SGGW, Nowoursynowska 159, 02-776 Warsaw, Poland

⁴The Pedagogical University of Cracow, Podchorążych 2, 30-084 Kraków, Poland

Keywords: Algae / OJIP / Photosystems / Fluorescence parameters / Light spectra

***Correspondence author Email:** amskoczowski@gmail.com

Abstract

A density in algal suspension causes a significant change in the intensity and spectral composition of light reaching individual cells. Measurements of chlorophyll fluorescence allow us to observe any general changes in the bioenergetic status of photosynthesis. The aim of the study was to determine the effect of cultivation density on the PSII photochemical efficiency of three species of algae (*Chlorella vulgaris*, *Botryococcus braunii* and *Chlorella emersonii*), each with a different rate of growth – high, medium and low – respectively. The cell density of algae in suspension differentiated through the cultivation time (2, 4, and 8 days) and the spectral composition of light. The results showed that the density of cultivation led to change in the photosynthetic apparatus of algae. The differences described between each day of cultivation (2, 4, and 8) in the kinetics of chlorophyll *a* fluorescence intensity in cells of the algal strains under study probably resulted from the different phases of growth of these cultures. In addition the results showed the beneficial effect of far red light on the photosynthetic apparatus and the growth of biomass in investigated algal strains.

Download English Version:

<https://daneshyari.com/en/article/4754729>

Download Persian Version:

<https://daneshyari.com/article/4754729>

[Daneshyari.com](https://daneshyari.com)