

Esa Tyystjärvi

Date of birth: 2.6.1957

LIST OF PUBLICATIONS 29.11.2023

Corresponding author in **bold**; the letter A to I after each publication shows the classification according to the Ministry of Education, Science and Culture; class A publications are also numbered.

2023

Rantala M, Mulo P, Tyystjärvi E, **Mattila H** (2023) Biophysical and molecular characterization of senescing leaves of two Norway maple varieties differing in anthocyanin content. *Physiologia Plantarum* 175: e13999. (**A-141**) doi: 10.1111/ppl13999.

Mattila H, **Tyystjärvi E** (2023) Red pigments in autumn leaves of Norway maple do not offer significant photoprotection but coincide with stress symptoms. *Tree Physiology* 43: 751-768 (**A-140**). <https://doi.org/10.1093/treephys/tpad010>

Virtanen O, **Tyystjärvi E** (2023) Plastoquinone pool redox state and state transitions in *Chlamydomonas reinhardtii* in darkness and under illumination. *Photosynthesis Research* 155: 59-76. doi:10.1007/s11120-022-00970-3 (**A-139**).

Mattila H, Mishra S, Tyystjärvi T, **Tyystjärvi E** (2023) Singlet oxygen production by Photosystem II is caused by misses of the oxygen evolving complex. *New Phytologist* 237: 113-125. (**A-138**) doi: 10.1111/nph.18514

2022

Original research papers in international journals with referee practice

Mattila H, **Tyystjärvi E** (2022) Light-induced damage to photosystem II at a very low temperature (195 K) depends on singlet oxygen. *Physiologia Plantarum* 174: e13824; doi: 10.1111/ppl.13824 (**A-137**)

Mattila H, Havurinne V, **Antal T**, **Tyystjärvi E** (2022) Evaluation of visible-light wavelengths that reduce or oxidize the plastoquinone pool in green algae with the activated F₀ rise method. *Photosynthetica* 60: 529-538. DOI 10.32615/ps.2022.049 (**A-136**)

Antal TK, Volgusheva AA, Kukarskikh GP, Lukashev EP, Bulychev AA, Margonelli A, Orlanducci S, Leo G, Cerri L, Tyystjärvi E, **Lambrev M** (2022) Single-walled carbon nanotubes protect photosynthetic reactions in *Chlamydomonas reinhardtii* against photoinhibition. *Plant Physiology and Biochemistry* 192: 298-307. doi: 10.1016/j.plaphy.2022.10.009 (**A-135**).

Kalliola R, Linna A, Ruokolainen K, Tyystjärvi E, Lange C (2022) Foliar element distributions in *Guadua* bamboo, a major forest dominant in southwestern Amazonia. *SN Applied Sciences* 4: 81. <https://doi.org/10.1007/s42452-021-04927-4> (**A-134**)

Mattila H, Valev D, Mishra KB, Havurinne V, Virtanen O, Antinluoma M, **Tyystjärvi E** (2022) Differences in susceptibility to photoinhibition do not determine growth rate under moderate light in batch or turbidostat - A study with five green algae. *Photosynthetica* 60: 10-20. (**A-133**) DOI 10.32615/ps.2021.054

Havurinne V, Aitokari R, Mattila H, Kämpylä V, **Tyystjärvi E** (2022) Ultraviolet screening by slug tissue and tight packing of plastids protect photosynthetic sea slugs from photoinhibition. *Photosynthesis Research* 152: 373-387. doi: 10.1007/s11120-021-00883-7 (**A-132**)

Virtanen O, Constantinidou E, **Tyystjärvi E** (2022) Chlorophyll does not reflect green light - How to correct a misconception. *Journal of Biological Education* 56: 552-559, [DOI: 10.1080/00219266.2020.1858930](https://doi.org/10.1080/00219266.2020.1858930) (**A-131**)

2021

Original research papers in international journals with referee practice

Havurinne V, Handrich M, Antinluoma M, Khorobrykh S, Gould SB, **Tyystjärvi E** (2021) Genetic autonomy and low singlet oxygen yield support kleptoplast functionality in photosynthetic sea slugs. *Journal of Experimental Botany* 72: 5553-5568. doi: 10.1093/jxb/erab216 (**A-130**)

Mattila H, Sotoudehnia P, Kuuslampi T, Stracke R, Mishra KB, **Tyystjärvi E** (2021) Singlet oxygen, flavonols and photoinhibition in green and senescing silver birch leaves. *Trees* 35: 1267-1282 (**A-129**). <https://doi.org/10.1007/s00468-021-02114-x>

Salazar J, Valev D, Näkkilä J, Tyystjärvi E, Sirin S, **Allahverdiyeva Y** (2021) Nutrient removal from hydroponic effluent by Nordic microalgae: from screening to a greenhouse photobioreactor operation. *Algal Research - Biomass Biofuels and Bioproducts* 55: 102247. DOI: 10.1016/j.algal.2021.102247 (**A-128**).

Virtanen O, Khorobrykh S, **Tyystjärvi E** (2021) Acclimation of *Chlamydomonas reinhardtii* to extremely strong light. *Photosynthesis Research* 147: 91-106 (**A-127**) <https://doi.org/10.1007/s11120-020-00802-2>

Grabsztunowicz M, Rantala M, Ivanauskaite A, Blomster T, Koskela MM, Vuorinen K, Tyystjärvi E, Burow M, Overmyer K, Mähönen AP, **Mulo P** (2021) Root-type ferredoxin-NADP(+) oxidoreductase isoforms in *Arabidopsis thaliana*: expression patterns, location and stress responses. *Plant Cell and Environment* 44: 548-558. (**A-126**)

2020

Original research papers in international journals with referee practice

Havurinne V, **Tyystjärvi E** (2020) Photosynthetic sea slugs induce protective changes to the light reactions of the chloroplasts they steal from algae. *eLife* 9:e57389 (DOI: 10.7554/eLife.57389) (**A-125**)

Mattila H, Khorobrykh S, Hakala-Yatkin M, Havurinne V, Kuusisto I, Antal T, Tyystjärvi T, **Tyystjärvi E** (2020) Action spectrum of the redox state of the plastoquinone pool defines its function in plant acclimation. *The Plant Journal* 104: 1088-1104. <https://doi.org/10.1111/tpj.14983> (**A-124**)

Mattila H, Mishra KB, Kuusisto I, Mishra A, Novotna K, Šebela D, **Tyystjärvi E** (2020) Effects of low temperature on photoinhibition and singlet oxygen production in four natural accessions of *Arabidopsis*. *Planta* 252: 19. (**A-123**)

Valev D, Kurkela J, Tyystjärvi E, **Tyystjärvi T** (2020) Testing the potential of regulatory sigma factor mutants for wastewater purification or bioreactor run in high light. *Current Microbiology* 77: 1590-1599. . (<https://doi.org/10.1007/s00284-020-01973-w>) (**A-122**)

Khorobrykh S, Tsurumaki T, Tanaka K, **Tyystjärvi T**, **Tyystjärvi E** (2020) Measurement of the redox state of the plastoquinone pool in cyanobacteria. *FEBS Letters* 594: 367-375. <https://doi.org/10.1002/1873-3468.13605> (**A-121**)

Shapiguzov A, Nikkanen L, Fitzpatrick D, Vainonen JP, Gossens R, Alseekh S, Aarabi F, Tiwari A, Blokhina O, Panzarová K, Benedikty Z, Tyystjärvi E, Fernie AR, Trilek M, Aro E-M, Rintamäki E, **Kangasjärvi J** (2020) Dissecting the interaction of photosynthetic electron transfer with mitochondrial signalling and hypoxic response in the *Arabidopsis rcd1* mutant. *Philosophical Transactions of the Royal Society B* 375: 20190413 (**A-120**)

Valev D, Silva Santos H, **Tyystjärvi E** (2020) Stable wastewater treatment with *Neochloris oleoabundans* in a tubular photobioreactor. *Journal of Applied Phycology* 32: 399-410. <https://doi.org/10.1007/s10811-019-01890-x> (**A-119**)

Reviews in international journals with referee practice

Khorobrykh S, Havurinne V, Mattila H, **Tyystjärvi E** (2020) Oxygen and ROS in photosynthesis. *MDPI Plants* 9: 91. doi:10.3390/plants9010091 (**A-118**)

2019

Original research papers in international journals with referee practice

Tenhunen H, Pahikkala T, Nevalainen O, Teuhola J, Mattila H, **Tyystjärvi E** (2019) Automatic detection of cereal rows by means of pattern recognition techniques. *Computers and Electronics in Agriculture* 162: 677-688

(A-117)

Virtanen O, Valev D, Kruse O, Wobbe L, **Tyystjärvi E** (2019) Photoinhibition and continuous growth of the wild-type and a high-light tolerant strain of *Chlamydomonas reinhardtii*. *Photosynthetica* 57: 617-626 (A-116)

Shapiguzov A, Vainonen JP, Hunter K, Tossavainen H, Tiwari A, Järvi S, Hellman M, Aarabi F, Alseekh S, Brecht W, van der Kelen K, Nikkanen L, Krasensky-Wraczek J, Sipari N, Keinänen M, Tyystjärvi E, Rintamäki E, de Rybel B, Salojärvi J, van Breusegen F, Fernie AF, Brosché M, Permi P, Aro E-M, Wraczek M, **Kangasjärvi J** (2019) Arabidopsis RCD1 coordinates chloroplast and mitochondrial functions through interaction with ANAC transcription factors. *eLife* 8: e43284. (A-115)

Lama AD, Klemola T, Tyystjärvi E, Niemelä P, Vuorisalo T (2019) Physiological and growth responses of *Jatropha curcas* (L.) seedlings to simulated herbivory and drought stress. *South African Journal of Botany* 121: 486-493. (A-114).

Hakkila K, Valev D, Antal T, Tyystjärvi E, **Tyystjärvi T** (2019) Group 2 sigma factors are central regulators of oxidative stress acclimation in cyanobacteria. *Plant and Cell Physiology* 60: 436-447. (A-113)

Havurinne V, Mattila H, Antinluoma M, **Tyystjärvi E** (2019) Unresolved quenching mechanisms may invalidate MT saturating pulse analyses of photosynthetic electron transfer in microalgae. *Physiologia Plantarum* 166: 365-379. (A-112)

Preprints

Mattila H, **Tyystjärvi E** (2019) Photosystem II does not convert nascent oxygen to the poisonous singlet form. *BioRxiv*, <https://doi.org/10.1101/777029>

2018

Original research papers in international journals with referee practice

Antonacci A, Lambrevia M, Margonelli A, Sobolev A, Pastorelli S, Bertalan I, Johanningmeier U, Sobolev V, Samish I, Edelman M, Havurinne V, Tyystjärvi E, Giardi M, Mattoo AK, **Rea G** (2018) Photosystem-II D1 protein mutants of *Chlamydomonas reinhardtii* in relation to metabolic rewiring and remodelling of H-bond network at QB site. *Scientific Reports* 8: 14745. (A-111)

Koskinen S, Hakkila K, Kurkela J, Tyystjärvi E, **Tyystjärvi T** (2018) Inactivation of group 2 σ factors upregulates production of transcription and translation machineries in the cyanobacterium *Synechocystis* sp. PCC 6803. *Scientific Reports* 8: 10305. doi: 10.1038/s41598-018-28736-9. (A-110)

Koskela MM, Brünje A, Ivanauskaite A, Grabsztunowicz M, Lassowskat I, Neumann U, Dinh TV, Sindlinger J, Schwartz D, Wirtz M, Tyystjärvi E, **Finkemeier I**, **Mulo P** (2018) Chloroplast acetyltransferase NSI is required for state transitions in *Arabidopsis thaliana*. *Plant Cell* 30: 1695-1709 (A-109)

Khorobrykh S, **Tyystjärvi E** (2018) Plastoquinol generates and scavenges reactive oxygen species in organic solvent: potential relevance for thylakoids. *Biochimica et Biophysica Acta - Bioenergetics* 1859: 1119-1131. <https://doi.org/10.1016/j.bbabi.2018.07.003> (A-108)

Mattila H, Valev D, Havurinne V, Khorobrykh S, Virtanen O, Antinluoma M, Mishra KB, **Tyystjärvi E** (2018) Degradation of chlorophylls and synthesis of flavonols during autumn senescence - The story told by individual leaves. *AoB Plants* 10: ply028. doi: 10.1093/aobpla/ply028. (A-107)

2017

Original research papers in international journals with referee practice

Havurinne V, **Tyystjärvi E** (2017) Action spectrum of photoinhibition in the diatom *Phaeodactylum tricornutum*. *Plant and Cell Physiology* 58: 2217-2225. doi: 10.1093/pcp/pcx156. (A-106)

Koski T-M, Lindstedt C, Klemola T, Troscianko J, Mäntylä E, Tyystjärvi E, Stevens M, Helander M, Laaksonen T (2017) Insect herbivory may cause changes in the visual properties of leaves and affect the camouflage of herbivores to avian predators. *Behavioral Ecology and Sociobiology* 71: 97 DOI 10.1007/S00265-017-2326-0 (A-105)

Soitamo A, Havurinne V, **Tyystjärvi E** (2017) Photoinhibition in marine picocyanobacteria. *Physiologia Plantarum* 161: 97-108. doi:10.1111/ppl.12571 **(A-104)**

Ojanen S, **Tyystjärvi E**, Holmberg H, Kouhia M, Ahtila P (2017) Can bacterial biofiltration be replaced by autotrophic organisms in recirculating fresh water aquaculture? *Aquaculture International* 25: 1427-1440. <http://dx.doi.org/10.1007/s10499-017-0126-1>; open link: <http://rdcu.be/pm5v> **(A-103)**

Book

Sarvikas P, Suorsa M, Rintamäki E, Vapaavuori E, Aro E-M, **Tyystjärvi E** (2017) Fotosynteesi. BoD, Helsinki. **(C)**

Other publications

Ojanen S, Tyystjärvi E, **Jokinen K** (2017) Utilization of microalgae in industrial symbiosis, focus on Finland. Natural resources and bioeconomy studies 33/2017, Natural Resources Institute Finland. <http://urn.fi/URN:ISBN:978-952-326-413-7> **(E)**

2016

Original research papers in international journals with referee practice

Antal TK, Kukarskikh GP, Volgusheva AA, Krendeleva TE, Tyystjärvi E, Rubin AB (2016) Hydrogen photoproduction by immobilized S-deprived *Chlamydomonas reinhardtii*. Effect of light intensity and spectrum, and initial medium pH. *Algal Research* 17: 38-45 **(A - 102)**

Antal T, Kurkela J, Parikainen M, Kårlund A, Hakkila K, Tyystjärvi E and **Tyystjärvi T** (2016) Roles of group 2 sigma factors in acclimation of the cyanobacterium *Synechocystis* sp. PCC 6803 to nitrogen deficiency. *Plant and Cell Physiology* 57: 1309-1318 **(A - 101)**

Lama AD, Kim J, Martiskainen O, Klemola T, Niemelä P, Salminen J-P, Tyystjärvi E, Vuorisalo J (2016) Impacts of simulated drought stress and artificial damage on concentrations of flavonoids in *Jatropha curcas* (L.), a biofuel shrub. *Journal of Plant Research* 129: 1141-1150 **(A - 100)**

Rantamäki S, Meriluoto J, Spoof L, Puputti E-M, Tyystjärvi T, **Tyystjärvi E** (2016) Oxygen produced by cyanobacteria in simulated Archaeal conditions partly oxidizes ferrous iron but mostly escapes – conclusions about early evolution. *Photosynthesis Research* 130: 103-111 **(A-99)**

2015

Original research papers in international journals with referee practice

Pahikkala T, Kari K, Mattila H, Lepistö A, Teuhola J, Nevalainen OS, **Tyystjärvi E** (2015) Classification of plant species from images of overlapping leaves. *Computers and Electronics in Agriculture* 118: 186-192 **(A-98)**

Polishchuk A, Valev D, Tarvainen M, Mishra S, Kinnunen V, Antal T, Yang B, Rintala J, **Tyystjärvi E** (2015) Cultivation of *Nannochloropsis* for eicosapentaenoic acid production in wastewaters of pulp and paper industry. *Bioresource Technology* 193: 469-476 **(A-97)**

Khorobrykh SA, Karonen M, **Tyystjärvi E** (2015) Experimental evidence suggesting that H₂O₂ is produced within the thylakoid membrane in a reaction between plastoquinol and singlet oxygen. *FEBS Letters* 589: 779-786 **(A – 96)**

Ojanen S, **Tyystjärvi E**, Holmberg H, Ahtila P (2015) Porous membrane as a means of gas and nutrient exchange in a tubular photobioreactor. *Journal of Applied Phycology* 27: 1169-1175 **(A – 95)**

Konert G, Rahikainen M, Trotta A, Durian G, Salojärvi J, Khorobrykh S, Tyystjärvi E, **Kangasjärvi S** (2015) Subunits B' γ and B' ζ of protein phosphatase 2A regulate photo-oxidative stress responses and growth in *Arabidopsis thaliana*. *Plant, Cell & Environment* 38: 2641-2651 **(A – 94)**

Martinez DE, Borniego ML, Battchikova N, Aro E-M, Tyystjärvi E, Guamét JJ (2015) SASP, a senescence-associated subtilisin protease, is involved in reproductive development and determination of silique number in *Arabidopsis*. *J Exp Bot* 66: 161-174 (**A-93**)

Reviews in international journals with referee practice

Mattila H, Khorobrykh S, Havurinne V, **Tyystjärvi E** (2015) Reactive oxygen species: Reactions and detection from photosynthetic tissues. *Journal of Photochemistry and Photobiology B: Biology* 152: 176-214 (**A-92**)

Wondraczek L, Tyystjärvi E, Méndez-Ramos J, Müller FA, Zhang O (2015) Shifting the Sun: Solar spectral conversion and extrinsic sensitization in natural and artificial photosynthesis. *Advanced Science* 2: 1500218; doi:10.1002/advs.201500218 (**A-91**)

Lambrea MD, Lavecchia T, Tyystjärvi E, Antal TK, Orlanducci S, Margonelli A, **Rea G** (2015) Potential of carbon nanotubes in algal biotechnology, *Photosynthesis Research* 125: 451-471 (**A – 90**)

Antal TK, Krendeleva TE, Tyystjärvi E (2015) Multiple regulatory mechanisms in the chloroplast of green algae: relation to hydrogen production. *Photosynthesis Research* 125: 357-381 (**A – 89**)

Nath K, Najafpour MM, Voloshin RA, Balaghi SE, Tyystjärvi E, Timilsina R, Eaton-Rye JJ, Tomo T, Nam HG, Nishihara H, Ramakrishna S, Shen J-R, **Allakhverdiev SI** (2015) Photobiological hydrogen production and artificial photosynthesis for clean energy: From bio to nanotechnologies. *Photosynthesis Research* 126: 237-247 (**A – 88**)

2014

Original research papers in international journals with referee practice

Antal TK, Matorin DN, Kukarshkikh GP, Lambrea MD, Tyystjärvi E, Krendeleva TE, Tsygankov AA, Rubin AB (2014) Pathways of hydrogen photoproduction by immobilized *Chlamydomonas reinhardtii* cells deprived of sulfur. *International Journal of Hydrogen Energy* 39: 18194-18203. doi:10.1016/j.ijhydene.2014.08.135 (**A – 87**)

Karonen M, Mattila H, Huang P, Mamedov F, Styring S, **Tyystjärvi E** (2014) A tandem mass spectrometric method for singlet oxygen measurement. *Photochemistry and Photobiology* 90: 965-971. DOI: 10.1111/php.12291 (**A – 86**)

Gunnellius L, Hakkila K, Kurkela J, Wada H, Tyystjärvi E, **Tyystjärvi T** (2014) The omega subunit of the RNA polymerase core directs transcription efficiency in cyanobacteria. *Nucleic Acids Research* 42: 4606-4614 (**A – 85**)

Hakkila K, Antal T, Rehman AU, Kurkela J, Wada H, Vass I, Tyystjärvi E, **Tyystjärvi T** (2014) Oxidative stress and photoinhibition can be separated in the cyanobacterium *Synechocystis* sp. PCC 6803. *Biochimica et Biophysica Acta – Bioenergetics* 1837: 217-225 (**A – 84**)

Reviews in refereed journals with referee practice

Porcar-Castell A, Tyystjärvi E, Atherton J, Van der Tol C, Flexas J, Pfündel EE, Moreno J, Frankenberg C, Berry JA (2014) Linking chlorophyll-a fluorescence to photosynthesis for remote sensing applications: mechanisms and challenges. *Journal of Experimental Botany* 65: 4065-4095 (**A – 83**)

2013

Original research papers in international journals with referee practice

Hakkila K, Antal T, Gunnellius L, Kurkela J, Matthijs HCP, Tyystjärvi E, **Tyystjärvi T** (2013) Group 2 sigma factor mutant Δ sigCDE of the cyanobacterium *Synechocystis* sp. PCC 6803 reveals functionality of both carotenoids and flavodiiron proteins in photoprotection of photosystem II. *Plant & Cell Physiology* 54: 1780-1790 (**A – 82**)

Mattila H, Valli P, Pahikkala T, Teuhola J, Nevalainen J, **Tyystjärvi E** (2013) Comparison of chlorophyll fluorescence curves and texture analysis for automatic plant identification. *Precision Agriculture* 14: 621-636 (**A – 81**)

Antal TK, Kukarskikh GP, Bulychev AA, Tyystjärvi E, Krendeleva T (2013) Antimycin A effect on the electron transport in chloroplasts of two *Chlamydomonas reinhardtii* strains. *Planta* 237: 1241-1250 (**A – 80**)

Tyystjärvi T, Huokko T, Rantamäki S, Tyystjärvi E (2013) Impact of different group 2 sigma factors on light use efficiency and high salt stress in the cyanobacterium *Synechocystis* sp. PCC 6803. *Plos One* 8: 463020. doi: 10.1371/journal.pone.0063020 (**A – 79**)

Reviews in international journals with referee practice

Tyystjärvi E (2013) Photoinhibition of Photosystem II. *International Review of Cell and Molecular Biology* 300: 243- 303. <https://doi.org/10.1016/B978-0-12-405210-9.00007-2> (**A – 78**)

Antal T, Kovalenko IB, Rubin AB, **Tyystjärvi E** (2013) Photosynthesis-related quantities for education and modeling. *Photosynthesis Research* 117: 1-30 (**A – 77**)

2012

Original research papers in international journals with referee practice

Antal T, Harju E, Pihlgren L, Lastusaari M, Tyystjärvi T, Hölsä J, **Tyystjärvi E** (2012) Use of near-infrared radiation for oxygenic photosynthesis via photon up-conversion. *International Journal of Hydrogen Energy* 37: 8859-8863 (**A – 76**)

Reviews in international journals with referee practice

Campbell DA, **Tyystjärvi E** (2012) Parameterization of Photosystem II photoinactivation and repair. *Biochimica et Biophysica Acta – Bioenergetics* 1817: 258-265 (**A - 75**)

Book chapter

Antal TK, Krendeleva TE, Pashchenko VZ, Rubin AB, Stensjo K, Tyystjärvi E, Los DA, Carpentier R, Nishihara H, Allakhverdiev SI (2012) Photosynthetic hydrogen production: mechanisms and approaches. In: Azbar N, Levin DB (eds.) *State of the Art and Progress in Production of Biohydrogen*. Bentham Science. Bussum, Netherlands, pp. 25-53. (e-Book, DOI: 10.2174/97816080522401120101) (**A - 74**)

2011

Original research papers in international journals with referee practice

Hakala-Yatkin M, Sarvikas P, Paturi P, Mäntysaari M, Mattila H, Tyystjärvi T, Nedbal L, **Tyystjärvi E** (2011) Magnetic field protects plants against high light by slowing down production of singlet oxygen. *Physiologia Plantarum* 142: 26-34 (**A - 73**)

Rantamäki S, **Tyystjärvi E** (2011) Analysis of S₂Q⁺A⁻ charge recombination with the Arrhenius, Eyring and Marcus theories. *Journal of Photochemistry and Photobiology B: Biology* 104: 292-300 (**A - 72**)

Tyystjärvi E, Nørremark M, Mattila H, Keränen M, Hakala-Yatkin M, Ottosen C-O, Rosenqvist E (2011) Automatic identification of crop and weed species with chlorophyll fluorescence induction curves. *Precision Agriculture* 12: 546-563 (**A - 71**)

Pollari M, Rantamäki S, Huokko T, Kårlund-Marttila A, Virjamo V, Tyystjärvi E, **Tyystjärvi T** (2011) Effects of deficiency and overdose of group 2 sigma factors in triple inactivation strains of *Synechocystis* sp. strain PCC 6803. *Journal of Bacteriology* 193: 265-273 (**A - 70**)

Hakala-Yatkin M, **Tyystjärvi E** (2011) Inhibition of Photosystem II by the singlet oxygen sensor compounds TEMP and TEMPD. *Biochimica et Biophysica Acta – Bioenergetics* 1807: 243-250 (**A - 69**)

Inoue S, Ejima K, Iwai E, Hayashi H, Appel J, Tyystjärvi E, Murata N, **Nishiyama Y** (2011) Protection by α -tocopherol of the repair of photosystem II during photoinhibition in *Synechocystis* sp. PCC 6803. *Biochimica et Biophysica Acta – Bioenergetics* 1807: 236-241 (**A - 68**)

Gylle AM, Rantamäki S, Ekelund NGA, Tyystjärvi E (2011) Fluorescence emission spectra of marine and brackish water ecotypes of *Fucus vesiculosus* L. and *F. radicans* sp. Nov. (Phaeophyceae) reveal differences in light harvesting apparatus. *Journal of Phycology* 47: 98-105 (**A - 67**)

Hideg E, Déak Z, Hakala-Yatkin M, Karonen M, Rutherford AW, Tyystjärvi E, Vass I, **Krieger-Liszkay A** (2011) Pure forms of the singlet oxygen sensors TEMP and TEMPD do not inhibit Photosystem II. - *Biochimica et Biophysica Acta – Bioenergetics* 1807: 1658-1661 (**A - 66**)

Popular science

Tyystjärvi E (2011) Fotosynteesin varhaishistoria. In Brozinski A, Lehto H, Rajala K, Lehto K (eds) Aikakirja. Aikavaellusprojekti, Turku, pp. 45-46 (**E**)

2010

Original research papers in international journals with referee practice

Sarvikas P, Hakala-Yatkin M, Dönmez S, **Tyystjärvi E** (2010) Short flashes and continuous light have similar photoinhibitory efficiency in intact leaves. *Journal of Experimental Botany* 61: 4239-4247 (**A - 65**)

Hakala-Yatkin M, Mäntysaari M, Mattila H, **Tyystjärvi E** (2010) Contributions of visible and ultraviolet parts of sunlight to photoinhibition. *Plant & Cell Physiology* 51: 1745-1753 (**A - 64**)

Sarvikas P, Tyystjärvi T, **Tyystjärvi E** (2010) Kinetics of prolonged photoinhibition revisited: Photoinhibited Photosystem II centres do not protect the active ones against loss of oxygen evolution. *Photosynthesis Research* 103: 7-17 (**A - 63**)

Codrea MC, Hakala-Yatkin M, Kårlund-Marttila A, Nedbal L, Aittokallio T, Nevalainen O and **Tyystjärvi E** (2010) Mahalanobis distance screening of Arabidopsis mutants with chlorophyll fluorescence. *Photosynthesis Research* 105: 273-283 (**A - 62**)

Antal T, Mattila H, Hakala-Yatkin M, Tyystjärvi T, **Tyystjärvi E** (2010) Acclimation of photosynthesis to nitrogen deficiency in *Phaseolus vulgaris*. *Planta* 232: 887-898 (**A - 61**)

Gunnellius L, Tuominen I, Rantamäki S, Pollari M, Ruotsalainen V, Tyystjärvi E, **Tyystjärvi T** (2010) SigC sigma factor is involved in acclimation to low inorganic carbon at high temperature in *Synechocystis* sp. PCC 6803. *Microbiology* 156: 220-229 (**A - 60**)

2009

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Tyystjärvi E, Rantamäki S, Tyystjärvi J (2009) Connectivity of Photosystem II is the physical basis of retrapping in photosynthetic thermoluminescence. *Biophysical Journal* 96: 3735-3743 (**A - 59**)

Antal TK, Sarvikas P, **Tyystjärvi E** (2009) Two-electron reactions $S_2Q_B \rightarrow S_0Q_B$ and $S_3Q_B \rightarrow S_1Q_B$ are involved in deactivation of higher S states of Photosystem II. - *Biophysical Journal* 96: 4672-4680 (**A - 58**)

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