

Schedule: Photosynthesis Research for Sustainability-2014

JUNE 1 (SUNDAY)

ARRIVAL, REGISTRATION

JUNE 2 (MONDAY – 1ST DAY)

09:00–11:00 – REGISTRATION

11:00 – OPENING CEREMONY

SPECIAL EVENTS IN HONOR OF PROFESSOR VLADIMIR SHUVALOV

Prof. Anatoly I. Miroshnikov, Chairman of the Pushchino Research Center

Dr. Ivan Savintsev, The head of the Pushchino city

Dr. Alexey Semenov, President of Russian Society for Photobiology

Prof. Hans van Gorkom (*The Netherlands*)

LECTURES

Chairpersons: Masahiko Ikeuchi (Japan), Govindjee (USA),
Anatoly Tsygankov (Russia)

12:00–12:40 **S1.1**

Govindjee (*University of Illinois, Illinois, USA*) Primary photochemistry of photosynthesis: A perspective in honor of Vlad Shuvalov

12:40–13:20 **S1.2**

Vladimir A. Shuvalov (*Institute of Basic Biological Problems, RAS, Pushchino, Russia*) Light energy convertor for biosphere

13:20–14:50 (90 MIN) LUNCH

Chairpersons: Jian-Ren Shen (Japan), Alexandrina Stirbet (USA),
Kimiya Satoh (Japan)

14:50–15:30 **S3.1**

Jian-Ren Shen (*Photosynthesis Research Center, Graduate School of Natural Science and Technology, Okayama University, Okayama, Japan*) Possible mechanism of photosynthetic water oxidation based on atomic structure of Photosystem II

15:30–16:10 **S7.1**

Andrey B. Rubin (*Faculty of Biology, Moscow State University, Moscow, Russia*) Mechanisms of regulation of the electron transfer in the primary processes of photosynthesis

16:10–16:50 **S7.2**

Hong Gil Nam (*Department of New Biology, DGIST and Center for Plant Aging Research, IBS, Korea*) Functional transition history of chloroplasts along leaf life span in *Arabidopsis* coordinated by multi-layered regulatory networks

16:50–17:30 **S2.1**

Masahiko Ikeuchi (*University of Tokyo, Tokyo and Japan Science and Technology Agency (JST), CREST, Saitama, Japan*) Engineering of antenna and photosystems in cyanobacteria

18:00 – LET'S GET TOGETHER

JUNE 3 (TUESDAY – 2ND DAY)

LECTURES

Chairpersons: Andrey Rubin (Russia), Victor Nadochenko (Russia),
Alexey Semenov (Russia)

08:30–09:00 **S1.3**

Hans van Gorkom (*Department of Biophysics, Leiden University, Leiden, The Netherlands*) Why plants are not black

09:00–09:30 **S1.4**

Victor A. Nadochenko (*Semenov Institute of Chemical Physics, RAS, Moscow and Institute of Chemical Physics Problems, RAS, Chernogolovka, Russia*) Primary stages of electron and energy transfer in Photosystem I: Effect of excitation pulse wavelength

09:30–10:00 **S1.5**

Alexey Yu. Semenov (*A.N. Belozersky Institute of Physical-Chemical Biology, Moscow State University, Moscow, Russia*) Free energy dependence of the formation of the secondary ion-radical pair $P700^+A_1^-$ in Photosystem I

10:00–10:30 (30 MIN) COFFEE BREAK

Chairpersons: Tohru Tsuchiya (Japan), Hong Gil Nam (Korea), Alexander Krasnovsky Jr. (Russia)

10:30–11:00 **S1.6**

Anton Savitsky (*Max Planck Institute for Chemical Energy Conversion, 45470 Mülheim (Ruhr), Germany*) Photosynthetic reaction centers in disaccharide glasses: Coupling between protein conformational dynamics and electron-transfer kinetics

11:00–11:30 **S1.7**

Tatsuya Tomo (*Tokyo University of Science, Tokyo and PRESTO, Japan Science and Technology Agency (JST), Saitama, Japan*) Diversity of chlorophylls in photosynthesis

11:30–12:00 **S1.8**

Seiji Akimoto (*Molecular Photoscience Research Center, Graduate School of Science, Kobe University, and Japan Science and Technology Agency, CREST, Kobe, Japan*) Differences in energy transfer of cyanobacteria grown in different cultivation media

12:00–13:30 (90 MIN) LUNCH

Chairpersons: Hans van Gorkom (The Netherlands), Vyacheslav Klimov (Russia), Seiji Akimoto (Japan)

13:30–14:00 **S8.1**

Barry D. Bruce (*University of Tennessee-Knoxville, Energy Science and Engineering Program, Bredesen Center for Interdisciplinary Research and Education, USA*) Direct solar conversion using thermophilic cyanobacteria

14:00–14:30 **S3.2**

Imre Vass (*BRC, Institute of Plant Physiology, HAS, Szeged, Hungary*) Characterization of singlet oxygen production and its role in photodamage in intact cyanobacteria and microalgae

14:30–15:00 **S2.2**

Julian Eaton-Rye (*University of Otago, Dunedin, New Zealand*) Hydrophilic auxiliary proteins of Photosystem II in the cyanobacterium *Synechocystis sp.* PCC 6803

15:00–15:30 **S3.3**

Takumi Noguchi (*Division of Material Science, Graduate School of Science, Nagoya University, Nagoya, Japan*) Molecular mechanism of photosynthetic water oxidation revealed by infrared spectroscopy with quantum chemical calculations

15:30–16:00 (30 MIN) COFFEE BREAK

Chairpersons: Miwa Sugiura (Japan), Ivan Proskuryakov (Russia), Boris Ivanov (Russia)

16:00–16:30 **S2.3**

Alexander A. Krasnovsky (Jr.) (*A.N. Bach Institute of Biochemistry, RAS and M.V. Lomonosov Moscow State University, Moscow, Russia*) Phosphorescence of triplet chlorophylls

16:30–17:00 **S7.3**

Boris N. Ivanov (*Institute of Basic Biological Problems, RAS, Pushchino, Russia*) The superoxide radical produced in chloroplast thylakoids in the light is reduced in the plastoquinone pool

17:00–18:30 POSTER VIEWING/DISCUSSION:

Sections 1–5

Chairpersons: Imre Vass (Hungary), Hong Gil Nam (Korea), Alexander N. Tikhonov (Russia), Ernst Walter Knapp (Germany)

Sections 6–9

Chairpersons: Julian Eaton-Rye (New Zealand), Vasiliy Goltsev (Bulgaria), Tatsuya Tomo (Japan), Kostas Stamatakis (Greece), Hazem Kalaji (Poland)

18:30 – CHAMBER MUSIC

Artists:

The member of Spivakov's orchestra Anastasia Kosarskaya (oboe) and laureate of international contests Vera Kryukova (piano); Vivaldi, Kirnberger, Mozart, Schubert, Debussi

JUNE 4 (WEDNESDAY – 3RD DAY)

LECTURES

Chairpersons: Tatsuya Tomo (Japan), Suleyman Allakhverdiev (Russia), Daisuke Seo (Japan)

08:30–09:00 **S2.4**

Tohru Tsuchiya (*Kyoto University, Kyoto, Japan*)

Molecular genetic analysis of the chlorophyll *d*-dominated cyanobacterium *Acaryochloris marina*

09:00–09:30 **S3.4**

Ernst Walter Knapp (*Institute of Chemistry and Biochemistry, Freie Universität Berlin, Berlin, Germany*) pKa computations of di-manganese model complexes and S1-state EXAFS spectra from DFT optimized Mn-cluster in PS II

09:30–10:00 **S3.5**

Yuki Kato (*Division of Material Science, Graduate School of Science, Nagoya University, Nagoya, Japan*) FTIR spectroelectrochemical study on the influence of Mn-depletion on the redox potential of the non-heme iron and its surrounding structure in Photosystem II

10:00–10:30 (30 MIN) COFFEE BREAK

Chairpersons: Imre Vass (Hungary), Takumi Noguchi (Japan), Arvi Freiberg (Estonia)

10:30–11:00 **S7.4**

Mikhail F. Yanyushin (*Institute of Basic Biological Problems, RAS, Pushchino, Moscow Region, Russia*) Comparison of dendrograms for electron transporting chains components with the common phylogeny of prokaryotes as an approach to the problem of the origin and the evolution of photosynthesis and respiration

11:00–11:30 **S3.6**

Miwa Sugiura (*Proteo-Science Research Center, Ehime University, Ehime and PRESTO, Japan Science and Technology Agency (JST), Saitama, Japan*) Histidine hydroxyl modification on D2-His336 in Photosystem II of *Thermosynechococcus vulcanus* and *Thermosynechococcus elongates*

11:30–12:00 **S3.7**

Vyacheslav V. Klimov (*Institute of Basic Biological Problems, RAS, Pushchino, Moscow Region, Russia*) Bicarbonate requirement for the donor side of Photosystem II

12:00–13:30 (90 MIN) LUNCH

Chairpersons: Suleyman Allakhverdiev (Russia), Marian Brestic (Slovak Republic), Yuki Kato (Japan)

13:30–14:00 **S5.1**

Arvi Freiberg (*Institute of Physics and Institute of Molecular and Cell Biology, University of Tartu, Tartu, Estonia*) Light harvesting in photosynthetic bacteria acclimated to different levels of light

14:00–14:30 **S4.1**

Ivan Proskuryakov (*Institute of Basic Biological Problems, RAS, Pushchino, Moscow region, Russia*) TR EPR study of singlet-triplet fission of carotenoid excitation

14:30–15:00 **S7.5**

Evgeny Maksimov (*Department of Biophysics, Faculty of Biology, Moscow State University, Moscow, Russia*) The signaling state of orange carotenoid protein

15:00–15:30 (30 MIN) COFFEE BREAK

Chairpersons: Subramanyam Rajagopal (India), Franz-Josef Schmitt (Germany), Alex Ivanov (Canada)

15:30–16:00 **S7.6**

Subramanyam Rajagopal (*Department of Plant Sciences, School of Life Sciences, University of Hyderabad, Hyderabad, India*) Anaerobic and heat induced state transitions in *Arabidopsis thaliana* and its signal mechanism in thylakoid membranes

16:00–16:30 **S5.2**

Vadim Selyanin (*Institute of Microbiology, Academy of Sciences, Třeboň, Czech Republic*) The size and amount of photosynthetic unit in purple bacteria

16:30–17:40 POSTER VIEWING/DISCUSSION:

Sections 1–5

Chairpersons: Imre Vass (Hungary), Hong Gil Nam (Korea), Alexander N. Tikhonov (Russia), Ernst Walter Knapp (Germany)

Sections 6–11

Chairpersons: Julian Eaton-Rye (New Zealand), Vasilij Goltsev (Bulgaria), Tatsuya Tomo (Japan), Kostas Stamatakis (Greece), Hazem Kalaji (Poland)

18:00 – BONFIRE

JUNE 5 (THURSDAY – 4TH DAY)

TOURS

JUNE 6 (FRIDAY – 5TH DAY)

LECTURES

Chairpersons: Julian Eaton-Rye (New Zealand), Mi-Sun Kim (Korea), George Papageorgiou (Greece)

08:30–09:00 **S8.2**

Hiroshi Nishihara (*Department of Chemistry, School of Science, The University of Tokyo, Tokyo, Japan*) Photoelectron conversion using combination of bio-components with artificial molecules

09:00–09:30 **S6.1**

Ivelina Zaharieva (*Freie Universität Berlin, Berlin, Germany*) Manganese oxides as biomimetic water-oxidation catalysts

09:30–10:00 **S7.7**

Franz-Josef Schmitt (*Institute of Physical Chemistry, Technical University of Berlin, Berlin, Germany*) Fluorescence imaging of light induced reactive oxygen species (ROS) in plant cell tissue

10:00–10:30 (30 MIN) COFFEE BREAK

Chairpersons: Hiroshi Nishihara (Japan); Ernst Walter Knapp (Germany), Alexander N. Tikhonov (Russia)

10:30–11:00 **S8.3**

Mi-Sun Kim (*Biomass and Waste Energy Laboratory, Korea Institute of Energy Research, Daejeon, Republic of Korea*) Photo fermentative hydrogen production in combination with lactate and methane fermentation to maximize the bioenergy recovery from food waste

11:00–11:30 **S8.4**

Hajime Masukawa (*Research Institute for Photobiological Hydrogen Production and Department of Biological Sciences, Kanagawa University, Tsuchiya, Hiratsuka, Kanagawa, Japan*) Photobiological hydrogen production by *Anabaena* PCC 7120 mutants with increased heterocyst frequency

11:30–12:00 **S8.5**

Azat Abdullatypov (*Institute of Basic Biological Problems RAS, Pushchino, Moscow Region, Russia*) Modeling the HydSL-hydrogenase from *Thiocapsa roseopersicina*

12:00–12:30 **S4.2**

Petar H. Lambrev (*Hungarian Academy of Sciences, Biological Research Centre, Szeged, Hungary*) Energy transfer in plant light-harvesting complex II revealed by room-temperature 2D electronic spectroscopy

12:30–14:00 (90 MIN) LUNCH

Chairpersons: Hazem M. Kalaji (Poland), Vasiliy Goltsev (Bulgaria), Mahir Mamedov (Russia)

14:00–14:30 **S7.8**

Alexander N. Tikhonov (*Faculty of Physics, Moscow State University, Moscow, Russia*) Light-induced regulation of photosynthetic electron transport in chloroplasts

14:30–15:00 **S7.9**

Eugene A. Lysenko (*Institute of Plant Physiology, RAS, Moscow, Russia*) Cadmium uptake into chloroplasts and its impact on chloroplastic mRNAs, proteins, and energy quenching

15:30–16:00 **S9.1**

Alexandrina Stirbet (*204 Anne Burras Ln, Newport News, VA 23606, USA*) Photosynthetic performance indexes based on fast Chl *a* fluorescence induction data: advantages and limitations

16:00–16:30 (30 MIN) COFFEE BREAK

POSTER VIEWING/DISCUSSION:

Sections 1–5

Chairpersons: Imre Vass (Hungary), Hong Gil Nam (Korea), Alexander N. Tikhonov (Russia), Ernst Walter Knapp (Germany)

Sections 6–9

Chairpersons: Julian Eaton-Rye (New Zealand), Vasiliy Goltsev (Bulgaria), Tatsuya Tomo (Japan), Kostas Stamatakis (Greece), Hazem Kalaji (Poland)

18:00 – SPECIAL EVENTS

1) Young Talents (4 awards/prizes)

2) Best posters (4 awards/prizes)

The awards will be presented to young researchers who have done outstanding research in the field of photosynthesis research for sustainability. All young researchers, including Ph.D. students and Post-Docs may compete for awards.

The names of winners will be selected by the committee (see below), according to recommendation of chairpersons of poster sections.

Committee: Govindjee (USA), Julian Eaton-Rye (New Zealand), Jian-Ren Shen (Japan), Tatsuya Tomo (Japan), Imre Vass (Hungary), Suleyman Allakhverdiev (Russia)

19:00 – BANQUET

JUNE 7 (SATURDAY – 6TH DAY)

LECTURES

Chairpersons: Kimiyuki Satoh (Japan), Govindjee (USA), George Papageorgiou (Greece)

09:00–09:30 **S4.3**

Alexander N. Malyan (*Institute of Basic Biological Problems, RAS, Pushchino, Moscow Region, Russia*) Energy-dependent regulation of chloroplast ATP synthase

09:30–10:00 **S2.5**

Lyudmila G. Vasilieva (*Institute of Basic Biological Problems, RAS, Pushchino, Russia*) Relocation of BChl axial ligands in *Rhodobacter sphaeroides* mutant reaction centers

10:00–10:30 **S4.4**

Anatoly Shkuropatov (*Institute of Basic Biological Problems, RAS, Pushchino, Moscow Region, Russia*) Photosystem II core complexes from spinach with chemically modified pigment composition

10:30–11:00 **S1.9**

Roman Y. Pishchalnikov (*Prokhorov General Physics Institute, RAS, Moscow, Russia*) Numerical studies of the photosynthetic reaction center femtosecond transient absorption by means of hierarchical equations of motions

11:00–11:30 **S1.10**

Anton Khmelnskiy (*Institute of Basic Biological Problems, RAS, Pushchino, Moscow Region, Russia*) Femtosecond processes of charge separation in wild type and mutant reaction centers of *Rhodobacter sphaeroides*

11:30 – CLOSING CEREMONY

Govindjee (USA), Hans van Gorkom (The Netherlands), George Papageorgiou (Greece), Kimiyuki Satoh (Japan), Yuriy Erokhin (Russia)

TAKING PHOTOS, ALL TOGETHER

THE END AND FREE TIME

JUNE 8 (SUNDAY)

DEPARTURE

Poster Session Schedule

JUNE 03

SECTION 1

- S1.11** Andrei G. Yakovlev, Vladimir I. Novoderezhkin, Alexandra S. Taisova, Vladimir A. Shuvalov, Zoya G. Fetisova
POLARIZED TRANSIENT ABSORPTION SPECTROSCOPY OF *CHLOROFLEXUS AURANTIACUS* CHLOROSOMES
- S1.12** Larisa Khamidullina, Gusel Akhtyamova, Svetlana Batasheva, Golsoyar Bakirova, Vladimir Chikov
EFFECT OF LIGHTING CONDITIONS UNDER PLANT CULTIVATION ON THE PHOTOSYNTHETIC CARBON METABOLISM IN POTATO WITH ELEVATED APOPLASTIC INVERTASE ACTIVITY
- S1.13** Peter P. Knox, Evgeni P. Lukashev, Nuranija Kh. Seifullina, Nadezhda P. Grishanova
ABOUT THE DIFFERENCES IN KINETICS OF REDOX CHANGES OF BACTERIOCHLOROPHYLL AND QUINONE ACCEPTORS IN PURPLE BACTERIA RCs
- S1.14** Mahir Mamedov, Irina Petrova, Denis Yanykin, Andrey Zasp, Alexey Semenov
TREHALOSE EFFECTS ON PHOTOSYSTEM II COMPLEX
- S1.15** Pyotr A. Mamonov
COMPUTATIONAL STUDY OF PROTONS TRANSFER WITHIN PHOTOSYNTHETIC REACTION CENTER OF PURPLE BACTERIA *Rb. SPHAEROIDES*
- S1.16** Anastasia Petrova, Ivan Shelaev, Fedor Gostev, Mahir Mamedov, Victor Nadtochenko and Alexey Semenov
INDICATION OF ELECTRON TRANSFER ASYMMETRY IN CYANOBACTERIAL PHOTOSYSTEM I
- S1.17** Andrei Razjivin, Viktor Kompanets, Zoya Makhneva, Andrey Moskalenko, Sergey Chekalin
LH2 COMPLEXES: MECHANISM OF TWO-PHOTON EXCITATION WITHIN 1200–1500 NM RANGE
- S1.18** Toshiyuki Sinoda, Daisuke Nii, Tatsuya Tomo, Seiji Akimoto, Min Chen, Hisataka Ohta, Suleyman I. Allakhverdiev
SPECTROSCOPIC ANALYSIS OF CHLOROPHYLL *f* CONTAINING CYANOBACTERIA
- S1.19** Andrei G. Yakovlev, Vladimir A. Shuvalov
SPECTRAL EXHIBITION OF ELECTRON-VIBRATIONAL RELAXATION IN P* STATE OF *RHODOBACTER SPHAEROIDES* REACTION CENTERS

SECTION 2

- S2.6** Parveen Akhtar, Márta Dorogi, Krzysztof Pawlak,
Gyöző Garab, Petar H. Lambrev
EFFECTS OF DETERGENTS, LIPIDS AND TRIMER-TRIMER CONTACTS ON THE PIGMENT
EXCITONIC INTERACTIONS IN PLANT LIGHT-HARVESTING COMPLEX II
- S2.7** Aleksandr Ashikhmin, Zoya Makhneva, Maksim Bolshakov,
Yuriy Erokhin, Andrey Moskalenko
RECOVERING COLORED-CAROTENOID BIOSYNTHESIS IN THE CELLS OF THE SULFUR
PHOTOSYNTHETIC BACTERIUM *ECTOTHIORHODOSPIRA HALOALKALIPHILA*
- S2.8** Maksim Bolshakov, Aleksandr Ashikhmin,
Zoya Makhneva, Andrey Moskalenko
COULD THE LH2 COMPLEX FROM PURPLE PHOTOSYNTHETIC BACTERIA BE ASSEMBLED
IN THE CELL WITHOUT CAROTENOIDS?
- S2.9** Kostas Stamatakis, Dimitris Vayenos, Christos Kotakis
INTEGRATION OF ANTARCTIC PHAEOPHYTE KLEPTOPLAST IN A DINOFLAGELLATE HOST
- S2.10** Elena V. Tyutereva, Wolfram G. Brenner, Alexandra N. Ivanova,
Katharina Pawlowski, Olga V. Voitsekhovskaja
CHANGED STOICHIOMETRY OF THE MINOR ANTENNA AND PS2 REACTION CENTRES,
A POSSIBLE BASIS FOR INCREASED PHOTOSYNTHESIS PRODUCTIVITY AND INCREASED
TOLERANCE TO LIGHT AND DROUGHT STRESS IN BARLEY

SECTION 3

- S3.8** N. E. Belyaeva, F.-J. Schmitt, V. Z. Paschenko,
G. Yu. Riznichenko, A. B. Rubin
EVOLUTION OF THE PHOTOSYSTEM II REDOX STATES BY MODELING OF THE ELECTRON
TRANSFER
- S3.9** Imed Hasni, Saber Hamdani and Robert Carpentier
IMPACT OF THE INTERACTION OF AL³⁺ WITH THE PROTEINS COMPOSITION OF
PHOTOSYSTEM II
- S3.10** Zhiyong Liang, Ivelina Zaharieva, Oliver Karge, Holger Dau
SUPRISING GLYCEROL EFFECT ON THE ACTIVATION ENTHALPY OF WATER OXIDATION IN
PHOTOSYSTEM II
- S3.11** Mohammad Mahdi Najafpour, Mahnaz Abasi,
Tatsuya Tomo, Suleyman I. Allakhverdiev
Mn OXIDE/NANODIAMOND COMPOSITE: A NEW WATER-OXIDIZING CATALYST FOR
WATER OXIDATION
- S3.12** Shin Nakamura and Takumi Noguchi
VIBRATIONAL ANALYSES OF THE WATER OXIDIZING CENTER IN PHOTOSYSTEM II USING
QM/MM CALCULATIONS

- S3.13** László Sass, Zsuzsanna Deák, Imre Vass
IN SILICO PHOTOSYNTHESIS: COMPUTER ASSISTED SIMULATION OF ELECTRON TRANSPORT
PROCESSES IN PHOTOSYSTEM II
- S3.14** Boris Semin, Lira Davletshina, Tatyana Podkovirina,
Kirill Timofeev, Andrey Rubin
EXTRACTION OF Mn CATIONS FROM OXYGEN-EVOLVING COMPLEX BY HYDROQUINONE
AT DIFFERENT pH: CORRELATION BETWEEN pH-DEPENDENT RESISTANCE OF Mn IONS TO
THE ACTION OF HYDROQUINONE AND OXYGEN-EVOLVING ACTIVITY
- S3.15** S. Skandary, M. Hussels, A. Konrad, C. Glöckner,
E. Schlodder, J. Hellmich, A. Zouni, M. Brecht
SINGLE MOLECULE SPECTROSCOPY ON PHOTOSYSTEM II OF
THERMOSYNECHOCOCCUS ELONGATUS
- S3.16** Masato Yamada, Tatsuya Tomo
FUNCTION AND CHARACTERIZATION OF PHOTOSYSTEM II EXTRINSIC PROTEIN PSBQ'

SECTION 8

- S8.6** Thitirut Assawamongkholisiri, Alissara Reungsang
SIMULTANEOUS BIO-HYDROGEN AND MICROBIAL OIL PRODUCTION BY
RHODOBACTER SP. KKV-PS1
- S8.7** Barry D. Bruce
APPLIED PHOTOSYNTHESIS: PUTTING PS I TO WORK
- S8.8** Khorcheska A. Batyrova, Anastasia I. Gavrishcheva, Anatoly A. Tsygankov
SUSTAINED HYDROGEN PHOTOPRODUCTION BY PHOSPHOROUS-DEPRIVED MARINE GREEN
MICROALGAE *CHLORELLA C65*.
- S8.9** Arturo Solís Herrera
HUMAN PHOTOSYNTHESIS?
- S8.10** Shu Ikehira, Mariko Miyachi, Kyoko Okuzono,
Yoshinori Yamanoi, Tatsuya Tomo and Hiroshi Nishihara
CONSTRUCTION OF A PHOTOCHEMICAL SYSTEM USING PS II AND A MOLECULAR WIRE
EQUIPPED WITH A PLATINUM NANOPARTICLE
- S8.11** Tatyana Laurinavichene, Evgeny Shastik and Anatoly Tsygankov
HYDROGEN PHOTOPRODUCTION BY MIXED CULTURE OF *RHODOBACTER SPHAEROIDES* AND
CLOSTRIDIUM BUTYRICUM
- S8.12** Valéria Nagy, André Vidal-Meireles, Roland Tengölics,
Gábor Rákhely, Gyöző Garab, László Kovács, Szilvia Z. Tóth
EFFECTS OF ASCORBATE ON PHOTOSYSTEM II DURING SULPHUR-DEPRIVATION OF
CHLAMYDOMONAS REINHARDTII

JUNE 04

SECTION 7

S7.10 Abdelghafar M. Abu-Elsaoud and Allan G. Rasmusson

DOES THE EXTERNAL MITOCHONDRIAL NADPH DEHYDROGENASE HAVE A SPECIAL ROLE IN PROTECTING THE CHLOROPLASTS FROM BLEACHING IN YOUNG LEAVES OF *NICOTIANA SYLVESTRIS* TOBACCO?

S7.11 Jalal A. Aliyev

PHOTOSYNTHETIC GAS EXCHANGE OF WHEAT VARIETIES UNDER WATER DEFICIT

S7.12 Tofiq I. Allahverdiyev

EFFECT OF DROUGHT STRESS ON YIELD AND YIELD COMPONENTS OF DURUM AND BREAD WHEAT GENOTYPES

S7.13 Ulduza Gurbanova, Hasan Babayev, Minakhanym Aliyeva,

Yashar Feyziyev, Novruz Guliyev

EFFECTS OF DROUGHT ON MITOCHONDRIAL NAD-MALATE DEHYDROGENASE IN *AMARANTHUS CRUENTUS* L. DURING ONTOGENESIS

S7.14 Shahniyar Bayramov, Minakhanym Aliyeva,

Taliya Orujova, Wolfgang Brüggemann

PHOTOSYNTHETIC ENZYME ACTIVITIES UNDER DROUGHT STRESS IN *CHENOPODIUM ALBUM* L.

S7.15 Maria Borisova-Mubarakshina, Boris Ivanov,

Tatyana Fedorchuk, Natalia Rudenko, Daria Vetoshkina,

Marina Kozuleva, Luca Dall'osto, Stefano Cazzaniga, Roberto Bassi

IDENTIFICATION OF THE SIGNAL MESSENGER FOR THE LONG-TERM REGULATION OF THE PHOTOSYSTEM II LIGHT-HARVESTING ANTENNA SIZE IN HIGH LIGHT

S7.16 Marián Brestič, Marek Živčák, Kristýna Kunderlíková,

Katarína Olšovská and Suleyman I. Allakhverdiev

SPECIFIC RESPONSES OF PS I AND PS II ELECTRON TRANSPORT IN LEAVES OF *CHLORINA* WHEAT MUTANTS

S7.17 Nina Djapic

CHLOROPHYLL CATABOLISM UNDER LOW WATER REGIME IN *APIUM GRAVEOLENS* VAR. DULCE

S7.18 Tamara Golovko, Igor Dalke, Ilya Zakhochiy and Olga Dymova

THE TOLERANCE OF LICHEN *LOBARIA PULMONARIA* PHOTOSYNTHESIS TO EXCESS LIGHT AND UV(A+B)-RADIATION

S7.19 Olga Dymova, Mikhail Khristin and Tamara Golovko

THE STATE OF PIGMENT-PROTEIN COMPLEXES IN CLOROPLASTS OF *AJUGA REPTANS* SUMMER AND WINTER GREEN LEAVES

S7.20 Zinaida Eltsova and Anatoly Tsygankov

CONTINUOUS CULTURES OF *RHODOBACTER SPHAEROIDES*

S7.21 Shahniyar Bayramov, Ulduza Gurbanova, Hasan Babayev,

Minakhanym Aliyeva, Novruz Guliyev, Yashar Feyziyev

EFFECTS OF TEMPERATURE AND LIGHT INTENSITY ON PHOTOSYNTHETIC ENZYME ACTIVITIES IN C4 SPECIES OF *CHENOPODIACEAE* FAMILY IN THE NATURAL ENVIRONMENT

S7.22 Vasilij Goltsey, Stella Dimitrova, Kolyo Dankov, Vladimir Aleksandrov,

Vasilena Krasteva, Momchil Paunov, Hazem M. Kalaji, Reto J. Strasser

APPLICATION OF BIOPHYSICAL LUMINESCENCE METHODS FOR PLANT PHENOTYPING

S7.23 Farida B. Guliyeva, Samira M. Rustamova,

Irada M. Huseynova, Jalal A. Aliyev

MOLECULAR DETECTION OF LEAF RUST RESISTANCE GENES *Lr26* AND *Lr35* IN WHEAT CULTIVARS IN AZERBAIJAN

S7.24 Irada M. Huseynova, Durna R. Aliyeva, Jalal A. Aliyev

GENERATION OF FREE RADICALS AND ANTIOXIDATIVE DEFENSE SYSTEM IN WHEAT PLANTS SUBJECTED TO LONG-TERM SOIL DROUGHT

S7.25 Elena Ikkonen, Tatjana Shibaeva and Aleksander Titov

THERMAL ACCLIMATION OF PHOTOSYNTHESIS IN CUCUMBER LEAVES IS ENHANCED BY A DAILY SHORT-TERM TEMPERATURE DROP

S7.26 Alexander G. Ivanov, David P. Sprott, Mona Sedeeq, Marc Rosembergt,

Leonid Kurepin, Jas Singh, Norman P.A. Huner, Leonid V. Savitch

ROLE OF CBF-MEDIATED ALTERNATIVE ELECTRON PATHWAYS IN BALANCING CHLOROPLAST REDOX SIGNALING AND COLD ACCLIMATION OF PHOTOSYNTHESIS

S7.27 Atabay Jahangirov, Gamid Hamidov, Ali Jahangirov,

Djavanshir Talai, Irada Huseynova, Jalal Aliyev

INVESTIGATION OF REUTILIZATION OF PHOTOSYNTHETIC PRODUCTS IN WHEAT GENOTYPES WITH CONTRASTING MORPHO-PHYSIOLOGICAL PARAMETERS UNDER WATER STRESS

S7.28 Hassan Khanzade, Rasoul Fakhari, Ahmad Tobeh

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