

Allakhverdiev Suleyman I.

List of publications (2022-2024)

2022 (28 publications)

1. Rodionova MV, Bozieva AM, Zharmukhamedov SK, Leong YK, Land JC.-W, Veziroglu A, Veziroglu TN, Tomo T, Chang J-Sh, **Allakhverdiev SI**. (2022) A comprehensive review on Lignocellulosic biomass biorefinery for sustainable biofuel production. *International Journal of Hydrogen Energy*, v. 47, Issue 3, p. 1481-1498.
2. Farooq MU, Ishaq I, Barutcular C, Skalicky M, Maqbool R, Rastogi A, Hussain S, **Allakhverdiev SI**, Zhu J. (2022) Mitigation effects of selenium on accumulation of cadmium and morpho-physiological properties in rice varieties. *Plant Physiology and Biochemistry*, v. 170, p. 1–13
3. Allakhverdiev ES, Khabatova VV, Kossalbayev BD, Zadneprovskaya EV, Rodnenkov OV, Martynyuk TV, Maksimov GV, Alwasel S, Tomo T, **Allakhverdiev SI**. (2022) Raman Spectroscopy and Its Modifications Applied to Biological and Medical Research. *Cells*, 11(3), 386.
4. Zaspá A, Vitukhnovskaya L, Mamedova A, **Allakhverdiev SI**, Semenov A, Mamedov M. (2022) Voltage generation by photosystem I complexes immobilized onto a millipore filter under continuous illumination. *International Journal of Hydrogen Energy*, 47(22), pp. 11528–11538
5. Sadvakasova AK, Kossalbayev BD, Token AI, Bauenova MO, Wang J, Zayadan BK, Balouch H, Alwasel S, Leong YK, Chang JS, **Allakhverdiev SI**. (2022) Influence of Mo and Fe on Photosynthetic and Nitrogenase Activities of Nitrogen-Fixing Cyanobacteria under Nitrogen Starvation. *Cells*, 11(5), 904.
6. Voloshin RA, Shumilova SM, Zadneprovskaya EV, Zharmukhamedov SK, Alwasel S, Hou HJM, **Allakhverdiev SI**. (2022) Photosystem II in bio-photovoltaic devices. *Photosynthetica* 60 (1), p. 121-135.
7. Kossalbayev BD, Kakimova AB, Bolatkhan K, Zayadan BK, Sandybayeva SK, Bozieva AM, Sadvakasova AK, Alwasel S, **Allakhverdiev SI**. (2022) Biohydrogen production by novel cyanobacterial strains isolated from rice paddies in Kazakhstan. *International Journal of Hydrogen Energy*, 47(37), p. 16440–16453.
8. Rath JR, Pandey J, Yadav RM, Zamal MY, Ramachandran P, Mekala NR, **Allakhverdiev SI**, Subramanyam R. (2022) Temperature-induced reversible changes in photosynthesis efficiency and organization of thylakoid membranes from pea (*Pisum sativum*). *Plant Physiology and Biochemistry*, 185, p. 144–154.
9. Nagarajan D, Lee DJ, Sunita Varjani, Lam SS, **Allakhverdiev SI**, Chang JS. (2022) Microalgae-based wastewater treatment – Microalgae-bacteria consortia, multi-omics approaches and algal stress response. *Science of the Total Environment*, 845, 157110.
10. Feng Y, Kreslavski VD, Shmarev AN, Ivanov AA, Zharmukhamedov SK, Kosobryukhov A, Yu M, **Allakhverdiev SI**, Shabala S. (2022) Effects of Iron Oxide Nanoparticles (Fe₃O₄) on Growth, Photosynthesis, Antioxidant Activity and Distribution of Mineral Elements in Wheat (*Triticum aestivum*) Plants. *Plants*, v. 11(14), 1894.

11. Mousazade Y, Nandy S, Bikas R, Aleshkevych P, Chae KH, Siczek M, Lis T, **Allakhverdiev SI**, Najafpour MM. (2022) A copper(ii) coordination compound under water-oxidation reaction at neutral conditions: decomposition on the counter electrode. ***Dalton Transactions***, v. 51(32), pp. 12170–12180.
12. Zharmukhamedov SK, Shabanova MS, Rodionova MV, Huseynova IM, Karacan MS, Karacan N, Aşık KB, Kreslavski VD, Alwasel S, **Allakhverdiev SI**. (2022) Effects of Novel Photosynthetic Inhibitor [CuL₂]Br₂ Complex on Photosystem II Activity in Spinach. ***Cells***, v. 11(17), 2680.
13. Kamshybayeva GK, Kossalbayev BD, Sadvakasova AK, Zayadan BK, Bozieva AM, Dunikov D, Alwasel S, **Allakhverdiev SI**. (2022) Strategies and economic feasibilities in cyanobacterial hydrogen production. ***International Journal of Hydrogen Energy***, 47(69), p. 29661–29684.
14. Ferroni L, Živčák M, Kovar M, Colpo A, Pancaldi S, **Allakhverdiev SI**, Bresti M. (2022) Fast chlorophyll *a* fluorescence induction (OJIP) phenotyping of chlorophyll-deficient wheat suggests that an enlarged acceptor pool size of Photosystem I helps compensate for a deregulated photosynthetic electron flow. ***Journal of Photochemistry and Photobiology B: Biology***, 234, 112549.
15. Akmukhanova NR, Sadvakasova AK, Torekhanova MM, Bauenova MO, Zayadan BK, Shalgimbayeva SM, Bolatkhan K, Alwasel S, Leong YK, Chang JS, **Allakhverdiev SI**. (2022) Feasibility of waste-free use of microalgae in aquaculture. ***Journal of Applied Phycology***, 34(5), pp. 2297–2313.
16. Sandybayeva SK, Kossalbayev BD, Zayadan BK, Sadvakasova AK, Bolatkhan K, Zadneprovskaya EV, Kakimova AB, Alwasel S, Leong YK, **Allakhverdiev SI**, Chang JS. (2022) Prospects of cyanobacterial pigment production: Biotechnological potential and optimization strategies. ***Biochemical Engineering Journal***, 187, 108640.
17. Ulhassan Z, Khan I, Hussain M, Khan AR, Hamid Y, Hussain S, **Allakhverdiev SI**, Zhou W. (2022) Efficacy of metallic nanoparticles in attenuating the accumulation and toxicity of chromium in plants: Current knowledge and future perspectives. ***Environmental Pollution***, 315, 120390.
18. Vasilieva LG, Kaminskaya OP, Yakovlev AG, Shkuropatov AY, Semenov AY, Nadtochenko VA, Krasnovsky AA Jr, Parson WW, **Allakhverdiev SI**, Govindjee G. (2022) In memory of Vladimir Anatolievich Shuvalov (1943–2022): an outstanding biophysicist. ***Photosynthesis Research***, 154(2), p. 207–223.
19. Pashkovskiy P, Vereshchagin M, Kreslavski VD, Ivanov Y, Kumachova T, Ryabchenko A, Voronkov A, Kosobryukhov A, Kuznetsov V, **Allakhverdiev SI**. (2022) Effect of Phytochrome Deficiency on Photosynthesis, Light-Related Genes Expression and Flavonoid Accumulation in Solanum lycopersicum under Red and Blue Light. ***Cells***, 11(21), 3437.
20. Salimi S, Zand Z, Hołyńska M, **Allakhverdiev SI**, Najafpour MM. (2022) Nanostructured manganese oxide on carbon for water oxidation: New findings and challenges. ***International Journal of Hydrogen Energy***, 47(97), p. 40943–40951.
21. Elsheery NI, Helaly MN, El-Hefnawy SF, **Allakhverdiev SI** et al. (2022) 5-Aminolevulinic Acid (ALA) Reduces Arsenic Toxicity Stress in Wheat (*Triticum aestivum* L.). ***J Plant Growth Regul.*** <https://doi.org/10.1007/s00344-022-10791-2>

22. Tahir MA, Hamza A, Noor-us-Sabah, Hussain S, Xie Z, Brestic M, Rastogi A, **Allakhverdiev SI**, Sarwar G. (2022) Carbon sequestrating fertilizers as a tool for carbon sequestration in agriculture under aridisols. *Carbon Letters*, 32(7), p. 1631–1644.
23. Najafpour MM, Shen JR., **Allakhverdiev SI**. (2022) Natural and artificial photosynthesis: fundamentals, progress, and challenges. *Photosynth Res*. <https://doi.org/10.1007/s11120-022-00982-z>
24. Moghaddam NJ, Hassani L, Bagheri R, Song Z, **Allakhverdiev SI**, Najafpour MM. (2022) Toward *Escherichia coli* bacteria-machine for water-oxidation reaction at neutral conditions: Using Ruthenium Red. *International Journal of Hydrogen Energy*. <https://doi.org/10.1016/j.ijhydene.2022.10.202>
25. **Allakhverdiev SI**. (2022) 10th Anniversary of Cells – Advances in Plant, Algae and Fungi Cell Biology. *Advances in Plant, Algae and Fungi Cell Biology*. *Cells*, 11, 3759. <https://doi.org/10.3390/cells11233759>
26. Brestic M, **Allakhverdiev SI**. (2022) Photosynthesis under Biotic and Abiotic Environmental Stress. *Cells*, 11, 3953. <https://doi.org/10.3390/cells11243953>
27. Pashkovskiy P, Kreslavski V, Khudyakova A, Pojidaeva ES, Kosobryukhov A, Kuznetsov V, **Allakhverdiev SI**. (2022) Independent Responses of Photosynthesis and Plant Morphology to Alterations of PIF Proteins and Light-Dependent MicroRNA Contents in *Arabidopsis thaliana* pif Mutants Grown under Lights of Different Spectral Compositions. *Cells*, 11, 3981. <https://doi.org/10.3390/cells11243981>
28. Бозиева АМ, Заднепровская ЕВ, **Аллахвердиев СИ**. (2022) Получение биоводорода: последние достижения и современное состояние // *Глобальная энергия*. Т. 28, № 4. С. 59–78. DOI: <https://doi.org/10.18721/JEST.28404>

2023 (32 publications)

29. Akmukhanova NR, Leong YK, Seiilbek SN, Konysbay A, Zayadan BK, Sadvakasova AK, Sarsekeyeva FK, Bauenova MO, Bolatkhan K, Alharby HF, Chang J-S, **Allakhverdiev SI**. Eco-friendly biopesticides derived from CO₂-Fixing cyanobacteria. *Environmental Research* 239 (2023) 117419
30. **Allakhverdiev SI**, Manca J, Holzwarth A, Halme J, Frese RN and Valcke R (2023) Editorial: Bringing together the worlds of photosynthesis and photovoltaics: mechanisms, methods, and applications. *Front. Plant Sci.* 14:1321591.
31. Ashikhmin A, Bolshakov M, Pashkovskiy P, Vereshchagin M, Khudyakova A, Shirshikova G, Kozhevnikova A, Kosobryukhov A, Kreslavski V, Kuznetsov V, **Allakhverdiev SI**. The Adaptive Role of Carotenoids and Anthocyanins in *Solanum lycopersicum* Pigment Mutants under High Irradiance. *Cells* 2023, 12, 2569. <https://doi.org/10.3390/cells12212569>
32. Balouch H, Zayadan BK, Sadvakasova AK, Kossalbayev BD, Bolatkhan K, Gencer D, Civelek D, Demirbag Z, Alharby HF, **Allakhverdiev SI**. Prospecting the biofuel potential of new microalgae isolates (2023). *International Journal of Hydrogen Energy*, <https://doi.org/10.1016/j.ijhydene.2023.02.028>.

33. Bozieva AM, Khasimov MK, Voloshin RA, Sinetova MA, Kupriyanova EV, Zharmukhamedov SK, Dunikov DO, Tsygankov AA, Tomo T, **Allakhverdiev SI** New cyanobacterial strains for biohydrogen production (2023). ***International journal of hydrogen energy*** 48 (21), 7569-7581 <https://doi.org/10.1016/j.ijhydene.2022.11.198>
34. Feng Y, Han H, Nong W, Tang J, Chen X, Li X, Shi L, Kreslavski VD, **Allakhverdiev SI**, Shabala S, Shi W, Yu M. The biomineralization of silica induced stress tolerance in plants: a case study for aluminum toxicity (2023). ***Plant Signaling & Behavior***, 18:1, 2233179, <https://doi.org/10.1080/15592324.2023.2233179>
35. Hewedy OA, Elsheery NI, Karkour AM, Elhamouly N, Arafa RA, Mahmoud GAE, Dawood MFA, Hussein WE, Mansour A, Amin DH, **Allakhverdiev SI**, Zivcak M, Brestic M. Jasmonic acid regulates plant development and orchestrates stress response during tough times (2023). ***Environmental and Experimental Botany***, 208, 105260. <https://doi.org/10.1016/j.envexpbot.2023.105260>
36. Hou HJM, Najafpour MM, **Allakhverdiev SI**, Govindjee G. Editorial: Current challenges in photosynthesis: From natural to artificial, volume II (2023). ***Front. Plant Sci.*** 13:1113693. <https://doi.org/10.3389/fpls.2022.1113693>
37. Ivanov A, Kosobryukhov A, Kreslavski V, **Allakhverdiev SI**. Changes in the photosynthetic performance, the activity of enzymes of nitrogen metabolism, and proline content in the leaves of wheat plants after exposure to low CO₂ concentration (2023). ***Photosynthetica*** 61 (SI): 53-65, 2023 DOI 10.32615/ps.2022.047 1
38. Jajoo A, Subramanyam R, Garab G, **Allakhverdiev SI**. Honoring two stalwarts of photosynthesis research: Eva-Mari Aro and Govindjee (2023). ***Photosynth Res.*** <https://doi.org/10.1007/s11120-022-00988-7>
39. Kamshybayeva GK, Kossalbayev BD, Sadvakasova AK, Bauenova MO, Zayadan BK, Krapivina AA, Sainova GA, Alharby HF, **Allakhverdiev SI**. Effect of the photosynthesis inhibitors on hydrogen production by non-heterocyst cyanobacterial strains (2023). ***International Journal of Hydrogen Energy***, <https://doi.org/10.1016/j.ijhydene.2023.03.453>
40. Kamshybayeva GK, Kossalbayev BD, Sadvakasova AK, Bauenova MO, Zayadan BK, Bozieva AM, Alharby HF, Tomo T, **Allakhverdiev SI**. Screening and optimisation of hydrogen production by newly isolated nitrogen-fixing cyanobacterial strains (2023). ***International Journal of Hydrogen Energy***, <https://doi.org/10.1016/j.ijhydene.2023.01.163>
41. Kreslavski V, Khudyakova A, Kosobryukhov A, Pashkovskiy P, Vereshchagin M, Balakhnina T, Alharby HF, **Allakhverdiev SI**. Impact of additional green light and deficit in cryptochrome 1 on photosynthetic activity and pro-/antioxidant balance in *Arabidopsis thaliana* (2023). ***Photosynthetica*** 61 (SI): 78-87.
42. Kreslavski VD, Khudyakova AY, Kosobryukhov AA, Balakhnina TI, Shirshikova GN, Alharby HF, **Allakhverdiev S.I.** The effect of short-term heating on photosynthetic activity, pigment content, and pro-/antioxidant balance of *A. thaliana* phytochrome mutants (2023). ***Plants***, 12, 867. <https://doi.org/10.3390/plants12040867>
43. Kreslavski VD, Shmarev AN, Ivanov AA, Zharmukhamedov SK, Strokina V, Kosobryukhov A, Yu M, **Allakhverdiev SI**, Shabala S Effects of iron oxide nanoparticles (Fe₃O₄) and salinity on growth, photosynthesis, antioxidant activity and distribution of mineral elements in wheat (*Triticum aestivum*). (2023) ***Functional Plant Biology***, -. <https://doi.org/10.1071/FP23085>

44. Landi M, Brestic M, Kataria S, **Allakhverdiev SI** (2023). EDITORIAL. *Photosynthetica*, 61(SPECIAL ISSUE 2023/1), 135-137. doi: 10.32615/ps.2023.024
45. Moghaddam NJ, Hassani L, Bagheri R, Song Z, **Allakhverdiev SI**, Najafpour MM. Toward Escherichia coli bacteria-machine for water-oxidation reaction at neutral conditions: Using Ruthenium Red (2023). *International journal of hydrogen energy* 48 (9) 3478-3485. <https://doi.org/10.1016/j.ijhydene.2022.10.202>
46. Omar S, Salim H, Eldenary M, Nosov AV, **Allakhverdiev SI**, Alfiky A. Ameliorating effect of nanoparticles and seeds' heat pre-treatment on soybean plants exposed to sea water salinity *Helicon*. 9 (2023) e21446 <https://doi.org/10.1016/j.helicon.2023.e21446>
47. Omar SA, Elsheery NI, Pashkovskiy P, Kuznetsov V, **Allakhverdiev SI**, Zedan AM. Impact of Titanium Oxide Nanoparticles on Growth, Pigment Content, Membrane Stability, DNA Damage, and Stress-Related Gene Expression in Vicia faba under Saline Conditions. *Horticulturae* 2023, 9, 1030.
48. Pashkovskiy P, Ivanov Y, Ivanova A, Kreslavski VD, Vereshchagin M, Tatarkina P, Kuznetsov VV, **Allakhverdiev S.I.** Influence of light of different spectral compositions on growth parameters, photosynthetic pigment contents and gene expression in scots Pine plantlets. *Int. J. Mol. Sci.* 2023, 24, 2063. <https://doi.org/10.3390/ijms24032063>
49. Pashkovskiy P, Ivanov Yu, Ivanova A, Kartashov A, Zlobin I, Lyubimov V, Ashikhmin A, Bolshakov M, Kreslavski V, Kuznetsov VI, Allakhverdiev SI. Effect of Light of Different Spectral Compositions on Pro/Antioxidant Status, Content of Some Pigments and Secondary Metabolites and Expression of Related Genes in Scots Pine (2023). *Plants*, 12, 2552. <https://doi.org/10.3390/plants12132552>
50. Pashkovskiy P, Khalilova L, Vereshchagin M, Voronkov A, Ivanova T, Kosobryukhov A, **Allakhverdiev SI**, Kreslavski VD, Kuznetsov VI. Impact of varying light spectral compositions on photosynthesis, morphology, chloroplast ultrastructure, and expression of light-responsive genes in Marchantia polymorpha. *Plant Physiology and Biochemistry*, 203 (2023) 108044.
51. Pashkovskiy P, Kreslavski V, Khudyakova A, Kosobryukhov A, Kuznetsov VIV, **Allakhverdiev SI**. Influence of phytochromes on microRNA expression, phenotype, and photosynthetic activity in A. thaliana phy mutants under light with different spectral composition (2023). *Photosynthetica* 61 (SI): 1-10, 2023 <https://doi.org/10.32615/ps.2022.036>
52. Sadvakasova AK, Bauenova MO, Kossalbayev BD, Zayadan BK, Huang Z, Wang J, Balouch H, Alharby HF, Chang J-S, **Allakhverdiev SI**. Synthetic algocyanobacterial consortium as an alternative to chemical fertilizers (2023) *Environmental Research*, 233, 116418. <https://doi.org/10.1016/j.envres.2023.116418>
53. Sadvakasova AK, Kossalbayev BD, Bauenova MO, Balouch H, Leong YK, Zayadan BK, Huang Z, Alharby HF, Tomo T, Chang J-S, **Allakhverdiev SI**. Microalgae as a key tool in achieving carbon neutrality for bioproduct production (2023). *Algal Research*, V. 72, 103096, <https://doi.org/10.1016/j.algal.2023.103096>
54. Salimi S, Akbari N, Zand Z, Holyńska M, Aleshkevych P, **Allakhverdiev SI**, Najafpour MM. Nanostructured manganese oxide on fullerene soot for water oxidation under neutral

- conditions (2023). *International Journal of Hydrogen Energy*, V. 48, Issue 38, pages 14199-14209, <https://doi.org/10.1016/j.ijhydene.2022.12.236>
55. Tripathi DK, Bhat JA, Ahmad P, Allakhverdiev SI. Polyamines and nitric oxide crosstalk in plant development and abiotic stress tolerance (2023) *Functional Plant Biology*, 50(2), i–iv. <https://doi.org/10.1071/FP22170>
56. Voloshin RA, Bozieva AM, Bruce BD, **Allakhverdiev SI**. Photosynthetic microbial fuel cells: practical applications of electron transfer chains. *Russ. Chem. Rev.*, 2023, 92 (5) RCR5073 <https://doi.org/10.57634/RCR5073>
57. Voloshin RA, Lokteva ES, **Allakhverdiev SI**. Photosystem I in the biohybrid electrodes (2023). *Current Opinion in Green and Sustainable Chemistry*, V. 41, 100816 <https://doi.org/10.1016/j.cogsc.2023.100816>
58. Zharmukhamedov SK, Shabanova MS, Huseynova IM, Karacan MS, Karacan N, Akar H, Kreslavski VD, Alharby HF, Bruce BD, **Allakhverdiev SI**. Probing the Influence of Novel Organometallic Copper(II) Complexes on Spinach PSII Photochemistry Using OJIP Fluorescence Transient Measurements (2023). *Biomolecules*, 13, 1058. <https://doi.org/10.3390/biom13071058>
59. Аллаxвердиев СИ. Альтернативная Энергетика и Искусственный Фотосинтез. *Вестник Российской Академии Наук*, 2023, том 93, № 9, с. 101–110. DOI: 10.31857/S0869587323090037
60. Волошин РА, Бозиева АМ, Bruce BD, **Аллахвердиев СИ**. Фотосинтетические микробные топливные элементы: практическое применение электрон-транспортных цепей (2023). *Russ. Chem. Rev.*, 92 (5) RCR 5073 [*Успехи химии*, 2023, 92(5) RCR 5073] <https://doi.org/10.57634/RCR5073>

2024 (23 publications)

61. Kossalbayev BD, Yilmaz G, Sadvakasova AK, Zayadan BK, Belkozhayev AM, Kamshybayeva GK, Sainova GA, Bozieva AM, Alharby HF, Tomo T, **Allakhverdiev SI**. Biotechnological production of hydrogen: Design features of photobioreactors and improvement of conditions for cultivating cyanobacteria (2024). *International Journal of Hydrogen Energy*, Volume 49, Part A, 2024, Pages 413-432, ISSN 0360-3199 <https://doi.org/10.1016/j.ijhydene.2023.09.001>
62. Bauenova MO, Sadvakasova AK, Kossalbayev BD, Yilmaz G, Huang Z, Wang J, Balouch H, Zaletova DE, Lyaguta MA, Alharby HF, **Allakhverdiev SI**. Optimising microalgae-derived butanol yield (2024). *International Journal of Hydrogen Energy*, Volume 49, Part A, 2024, Pages 593-601, ISSN 0360-3199 <https://doi.org/10.1016/j.ijhydene.2023.11.065>
63. Madadkhani S, Nandy S, Aleshkevych P, Chae KH, **Allakhverdiev SI**, Najafpour MM. Decomposition of a manganese complex loaded on TiO₂ nanoparticles under photochemical reaction. (2024) *International Journal of Hydrogen Energy*, Volume 51, Part C, 2024, Pages 742-746, ISSN 0360-3199 <https://doi.org/10.1016/j.ijhydene.2023.10.196>
64. Akbari N, **Allakhverdiev SI**, Najafpour MM. Exploring the potential of calcined nanolayered manganese oxides for water-oxidation reaction. 2023. *International Journal of*

Hydrogen Energy, Volume 49, Part C, 2024, Pages 933-942, ISSN 0360-3199
<https://doi.org/10.1016/j.ijhydene.2023.10.025>

65. Dunikov DO, Blinov DV, Bozieva AM, Kazakov AN, Krapivina AA, Romanov IA, Zadneprovskaya EV, **Allakhverdiev SI**. Permeability of a deformable metal hydride bed during hydrogen absorption (2023). ***International Journal of Hydrogen Energy***, Volume 51, Part D, 2024, Pages 375-387, ISSN 0360-3199 <https://doi.org/10.1016/j.ijhydene.2023.05.224>
66. Kamshybayeva GK, Kossalbayev BD, Sadvakasova AK, Bauenova MO, Zayadan BK, Krapivina AA, Sainova GA, Alharby HF, **Allakhverdiev SI**. Effect of the photosynthesis inhibitors on hydrogen production by non-heterocyst cyanobacterial strains, ***International Journal of Hydrogen Energy***, Volume 52, Part D, 2024, Pages 167-182, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2023.03.453>
67. Kamshybayeva GK, Kossalbayev BD, Sadvakasova AK, Kakimova AB, Bauenova MO, Zayadan BK, Lan CW, Alwasel S, Tomo T, Chang JS, **Allakhverdiev SI**. Genetic engineering contribution to developing cyanobacteria-based hydrogen energy to reduce carbon emissions and establish a hydrogen economy (2023). ***International Journal of Hydrogen Energy***. Volume 54, 2024, Pages 491-511, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2022.12.342>
68. Yilmaz G, Sadvakasova AK, Kossalbayev BD, Bauenova MO, Zharmukhamedov SK, Ziyayeva GK, Zaletova DE, Alharby HF, **Allakhverdiev SI**. Hydrogen energy development in Turkey: Challenges and opportunities, ***International Journal of Hydrogen Energy***, Volume 52, Part D, 2024, Pages 1304-1311, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2023.11.230>
69. Khudyakova A., Kreslavski V., Kosobryukhov A., Vereshagin M., **Allakhverdiev S.I**. Effect of cryptochrome 1 deficiency and spectral composition of light on photosynthetic processes in *A. thaliana* under high-intensity light exposure. ***PHOTOSYNTHETICA*** 62 (1): 71-78, 2024
70. Nouf H. Alotaibi, Sumaira Manzoor, Shahroz Saleem, Saikh Mohammad, Muhammad Khalil, Şenay Yalçın, Abdul Ghafoor Abid, **Suleyman I. Allakhverdiev**, Rational development of PPy/CuWO₄ nanostructure as competent electrocatalyst for oxygen evolution, and hydrogen evolution reactions, ***International Journal of Hydrogen Energy***, Volume 59, 2024, Pages 1326-1334, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2024.02.125>
71. Elvin S. Allakhverdiev, Bekzhan D. Kossalbayev, Asemgul K. Sadvakasova, Meruyert O. Bauenova, Ayaz M. Belkozhayev, Oleg V. Rodnenkov, Tamila V. Martynyuk, Georgy V. Maksimov, **Suleyman I. Allakhverdiev**, Spectral insights: Navigating the frontiers of biomedical and microbiological exploration with Raman spectroscopy, ***Journal of Photochemistry and Photobiology B: Biology***, Volume 252, 2024, 112870, ISSN 1011-1344, <https://doi.org/10.1016/j.jphotobiol.2024.112870>
72. Munirah D. Albaqami, Mehar Un Nisa, Sumaira Manzoor, Jafar Hussain Shah, Saikh Mohammad, Senay Yalcin, Abdul Ghafoor Abid, **Suleyman I. Allakhverdiev**, Controlled fabrication of various nanostructures iron-based tellurides as highly performed oxygen evolution reaction, ***International Journal of Hydrogen Energy***, Volume 60, 2024, Pages 593-600, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2024.02.051>
73. Asma A. Alothman, Jafar Hussain Shah, Khuolwod A. Aljadoa, Gürkan Soykan, Şenay Yalçın, Abdul Ghafoor Abid, **Suleyman I. Allakhverdiev**, Fabrication of heterojunction electrode based on Fe₂O₃@CuO-400 nanocomposite constructed for hydrogen production,

International Journal of Hydrogen Energy, Volume 61, 2024, Pages 1004-1014, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2024.02.354>

74. Nouf H. Alotaibi, Jafar Hussain Shah, Mehar Un Nisa, Saikh Mohammad, Hüseyin Günhan Özcan, Abdul Ghafoor Abid, **Suleyman I. Allakhverdiev**, Catalytic enhancement of graphene oxide by trace molybdenum oxide nanoparticles doping: Optimized electrocatalyst for green hydrogen production, ***International Journal of Hydrogen Energy***, Volume 62, 2024, Pages 488-497, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2024.03.032>
75. A. Shmarev, M. Vereshagin, P. Pashkovskiy, V.D. Kreslavski, **S.I. Allakhverdiev**. Influence of additional far-red light on the photosynthetic and growth parameters of lettuce plants and the resistance of the photosynthetic apparatus to high irradiance ***Photosynthetica*** 2024, 62 (2): 180-186. <https://doi.org/10.32615/ps.2024.016>
76. Muhammad Abdullah, Syed Imran Abbas Shah, Karam Jabbour, Peter John, Muhammad Fahad Ehsan, Abdunnasser M. Karami, Muhammad Naeem Ashiq, **Suleyman I. Allakhverdiev**. Synthesis of NiMn₂O₄/PANI nanosized compositewith increased specific capacitance for energy storage applications 2024. ***Dalton Transactions*** 53, 8680. <https://doi.org/10.1039/D4DT00722K>
77. Kiran Shoukat, Muhammad Moazzam Khan, Sajal Bukhari, Syed Imran Abbas Shah, Ifra Bashir, Asma A. Alothman, Muhammad Fahad Ehsan, Muhammad Naeem Ashiq, **Suleyman I. Allakhverdiev**, Study on oxygen evolution reaction efficiency demonstrated by Ce-E (E = S, Se and te) electrocatalyst, ***International Journal of Hydrogen Energy***, Volume 69, 2024, Pages 11-20, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2024.04.343>
78. Samar A. Omar, Yingming Feng, Min Yu, Samar A. Gamal. Eldin, Medhat E. Eldenary, Sergey Shabala, **Suleyman I. Allakhverdiev**, Mohamed H. Abdelfattah, Exogenous application of 5-azacitidin, royal jelly and folic acid regulate plant redox state, expression level of DNA methyltransferases and alleviate adverse effects of salinity stress on *Vicia faba* L. plants, ***Heliyon***, Volume 10, Issue 10, 2024, e30934, ISSN 2405-8440, <https://doi.org/10.1016/j.heliyon.2024.e30934>
79. Rashid AR, Manzoor S, Ajisafe MP, Khan SA, Sun B, Yalcin S, Qin H-L, **Allakhverdiev SI**, MOF-derived MnCe₃.67C₆Permeable microflower: A robust electrocatalyst for oxygen evolution reaction, ***International Journal of Hydrogen Energy***, Volume 71, 2024, Pages 309-318, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2024.05.291>
80. B.D. Kossalbayev, G. Yilmaz, H.G. Ozcan, G. Soykan, S. Yalcin, **S.I. Allakhverdiev**. Photosynthesis and hydrogen energy for sustainability: harnessing the sun for a greener future. ***Photosynthetica*** 2024 62 (2): 138-146. <https://doi.org/10.32615/ps.2024.013>
81. Hou, H.J., **Allakhverdiev, S.I.** Photo-induced processes in photosynthesis—from femtoseconds to seconds. ***Photosynth Res*** 159, 93–95 (2024). <https://doi.org/10.1007/s11120-024-01090-w>
82. **Suleyman I. Allakhverdiev**, Guest Editorial for the Special Issue on “Photosynthesis and Hydrogen Energy Research for Sustainability” ***International Journal of Hydrogen Energy***, Volume 67, 2024, Page 991, ISSN 0360-3199, <https://doi.org/10.1016/j.ijhydene.2024.02.258>
83. Subramanyam, R., Tomo, T., Eaton-Rye, J.J., Yilmaz G., **Allakhverdiev S.I.** International conference on “Photosynthesis and Hydrogen Energy Research for Sustainability-2023”: in

honor of Robert Blankenship, Győző Garab, Michael Grätzel, Norman Hüner and Gunnar Öquist. *Photosynth Res* (2024). <https://doi.org/10.1007/s11120-024-01087-5>

BOOKS – 4

1. GÖLKƏND-1967. «MƏZUNLAR» Bakı: «Müəllim» nəşriyyatı – 2024-cü il, 214 səh”. ISBN: 978 9952 850437
2. Allakhverdiev SI, Ivanov AG, Brestic M. Photosynthesis under Biotic and Abiotic Environmental Stress. Pages: 318 Published: October 2023 ISBN 978-3-0365-9143-8 (hardback); ISBN 978-3-0365-9142-1 (PDF)
3. Allakhverdiev SI. 10th Anniversary of Cells—Advances in Plant, Algae and Fungi Cell Biology. Pages: 280. October 2023 ISBN 978-3-0365-9145-2 (hardback); ISBN 978-3-0365-9144-5 (PDF)
4. Photosynthesis: From Plants to Nanomaterials (Eds: Harvey J.M. Hou, Suleyman I. Allakhverdiev) ISBN: 978-0-323-98391-4 (2023) 538 p. https://doi.org/10.1007/978-3-031-20878-2_3 <https://shop.elsevier.com/books/photosynthesis/hou/978-0-323-98391-4>

BOOK CHAPTERS – 4

1. **Аллахвердиев С.И.** Горизонты искусственного фотосинтеза // *Горизонты биофизики. Т. 2* / Под ред. А. Б. Рубина. — М.–Ижевск : Институт компьютерных исследований, 2022. — 376 с. ISBN 978-5-4344-0964-3
2. Harvey J.M. Hou, **Suleyman I. Allakhverdiev** Overview of recent advances in photosynthesis and nanotechnology. **In: *Photosynthesis: From Plants to Nanomaterials*** (Eds: Harvey J.M. Hou, Suleyman I. Allakhverdiev) ISBN: 978-0-323-98391-4 (2023) 538 p.
3. Sajad Hussain, Maryam Mumtaz, Marian Brestic, Abida Parveen, Zaid Ulhassan, Harvey J.M. Hou, Milan Skalicky, Hassan Shehryar Yasin, Muhammad Hayder Bin Khalid, Amjad Saeed, Irshan Ahmad, **Suleyman I. Allakhverdiev**, Sana Ur Rehmana and Wenyu Yang. Effectiveness of titanium treatment on photosynthesis and production in crop plants under stress conditions. **In: *Photosynthesis: From Plants to Nanomaterials*** (Eds: Harvey J.M. Hou, Suleyman I. Allakhverdiev) ISBN: 978-0-323-98391-4 (2023) 538 p.
4. Fardad Didaran, Ali Akbar Ghasemi-Soloklui, **Suleyman I. Allakhverdiev**, and Mojtaba Kordrostami. Engineered nanoparticles enhance photosynthesis processes. **In: *Photosynthesis: From Plants to Nanomaterials*** (Eds: Harvey J.M. Hou, Suleyman I. Allakhverdiev) ISBN: 978-0-323-98391-4 (2023) 538 p.