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List of Publications

A. Peer-reviewed scientific articles

1. Kosourov S*, Siitonen V, Tóth G, Levä T, Tammelin T, Kallio K, **Allahverdiyeva Y.*** 2026. Over 4 months of ethylene production using solid-state photosynthetic cell factories, *Trends in Biotechnology* DOI: 10.1016/j.tibtech.2026.06.006
2. Wey L, Brachi M, **Allahverdiyeva Y**, Minter S. D. 2026. Reduced mediators released by cyanobacteria during exoelectrogenesis detected using differential pulse voltammetry, *Bioelectrochemistry*, Vol 172, 109374 DOI: 10.5281/zenodo.21189102
3. Huokko T, Sporre E, Koch B, Patil PP, Wey L, Nikkanen L, Hubáček M, **Allahverdiyeva Y.*** 2026. Differences in photosystem II activity and carbon allocation during photomixotrophic growth in distinct wild-type strains of *Synechocystis* sp. PCC 6803. *The Plant Journal*. 125: e70683
4. Siitonen V, Siivola T, Napaumpaiporn P, Tammelin T, **Allahverdiyeva Y.*** 2026. Photosynthetic engineered living materials incorporating recombinant *Chlamydomonas reinhardtii* enable long-term semi-continuous photobiotransformation. *New Biotechnology*. DOI: 10.1016/j.nbt.2026.04.004
5. Borhan E, Korhonen V, Sirin S, **Allahverdiyeva Y.*** 2026. Long-term phycoremediation of hydroponic drainwater in a pilot-scale turbidostat. *Journal of Environmental Management*. DOI: 10.1016/j.jenvman.2026.129635
6. Mustila H, Hubáček M, Muth-Pawlak D, **Allahverdiyeva Y.*** 2025. Acclimation of *Synechocystis* sp. PCC 6803 to alkaline pH under ambient air. *Physiologia Plantarum*. 177(5): e70474
7. Hubáček M, Nikkanen L, **Allahverdiyeva Y.*** 2025. Optimising CO₂ level and light quality for enhanced whole-cell biotransformation reactions in *Synechocystis* sp. PCC 6803. *Microbial Cell Factories*. 24(1): 198
8. Kosourov S*, Tammelin T, **Allahverdiyeva Y.*** 2025. Engineered biocatalytic architecture for enhanced light utilisation in algal H₂ production. *Energy & Environmental Science*. 18(2):937–947. DOI: 10.1039/d4ee03075c
9. Nikkanen L, Vakal S, Hubáček M, Santana-Sánchez A, Konert G, Wang Y, Boehm M, Gutekunst K, Salminen TA, **Allahverdiyeva Y.*** 2025. Flavodiiron proteins associate pH-dependently with the thylakoid membrane for ferredoxin-1-powered O₂ photoreduction. *New Phytologist*. 246: 2084–2101. DOI: 10.1111/nph.70114
10. Werner E, Huokko T, Santana-Sanchez A, Picossi S, Nikkanen L, Herrero A, **Allahverdiyeva Y.*** 2025. The role of the LysR-type transcription factor PacR in regulating nitrogen metabolism in *Anabaena* sp. PCC7120. *Physiologia Plantarum*. 172(5):123–135. DOI: 10.1111/ppl.70248
11. Santos-Merino M, Nikkanen L, Kokarakis EJ, **Allahverdiyeva Y.** and Ducat D.C. 2025. Plastoquinone redox status influences carboxysome integrity via a RpaA- and reactive oxygen species-dependent regulatory network. *Plant J*, 123: e70480. DOI: 10.1111/tpj.70480
12. Levä T, Mahlamäki E, Kosourov S, **Allahverdiyeva Y**, Mäkelä M, Tammelin T. 2025. Non-invasive monitoring of cyanobacteria growth in a nanocellulose matrix. *Algal Research*. 89: 104090. DOI: 10.1016/j.algal.2025.104090
13. Chovancek E, Poque S, Bayram E, Borhan E, Jokel M, Rantanen I-M, Haznedaroglu BZ, Himanen K, Sirin S, **Allahverdiyeva Y.*** 2025. Stepwise processing of *Chlorella sorokiniana* confers plant biostimulant that reduces mineral fertilizer requirements. *Bioresource Technology*. 418:131923. DOI: 10.1016/j.biortech.2024.131923

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14. Grimm HC, Erlsbacher P, Medipally H, Malihan-Yap L, Sovic L, Zöhrer J, Kosourov SN, **Allahverdiyeva Y**, Paul CE, Kourist R. 2025. Towards high atom economy in whole-cell redox biocatalysis: up-scaling light-driven cyanobacterial ene-reductions in a flat panel photobioreactor. *Green Chemistry*. 27(11):2907–2920. DOI: 10.1039/d4gc05686h
15. He M, Santana-Sánchez A, Tóth GS, Ermakova M, Collard D, Kosourov S, **Allahverdiyeva Y***. 2025. Deletion of Flv3A facilitates long-term H₂ photoproduction in diazotrophic *Anabaena* sp. PCC 7120. *Physiologia Plantarum*. e70087. DOI: 10.1111/ppl.70087
16. Rantanen IM, Isojärvi J, Chovancek E, Sirin S*, **Allahverdiyeva Y*** 2025 Biological complexity in rapid biostimulant screening across multiple seasons. *J Appl Phycol* **37**, 4655–4668. DOI: 10.1007/s10811-025-03673-z
17. Eckardt N, **Allahverdiyeva Y**. et al. 2024. Lighting the way: Compelling open questions in photosynthesis research. *The Plant Cell*. koae203. DOI: 10.1093/plcell/koae203
18. Hubáček M, Wey L, Kourist R, Malihan-Yap L, Nikkanen L, **Allahverdiyeva Y***. 2024. Strong heterologous electron sink outcompetes alternative electron transport pathways in photosynthesis. *The Plant Journal*. 5, 2500–2513. DOI: 10.1111/tpj.16935
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20. Ortega-Martinez P, Nikkanen L, Wey L, Florencio FJ, **Allahverdiyeva Y***, Diaz-Troya S*. 2024. Glycogen synthesis prevents metabolic imbalance and disruption of photosynthetic electron transport from photosystem II during transition to photomixotrophy in *Synechocystis* sp. PCC 6803. *New Phytologist*. 243, 162–179. DOI: 10.1111/nph.19793
21. Tóth GS, Siitonen V, Backman O, Siivola T, Xu W, Kosourov S, Siitonen V, Xu C, **Allahverdiyeva Y***. 2024. Employing photocurable biopolymers to engineer photosynthetic 3D-printed living materials for production of chemicals. *Green Chemistry*. 26, 4032–4042. DOI: 10.1039/D3GC04264B
22. Marchetto F, Santaefemia S, Lebiezińska-Arciszewska M, Śliwińska M, Pich M, Kurek E, Nازیębło A, Strawski M, Solymosi D, Szklarczyk M, Bulska E, Szymański J, Wierzbicka M, **Allahverdiyeva Y**, Więckowski M, Kargul J. 2024. Dynamic adaptation of the extremophilic red microalga *Cyanidioschyzon merolae* to high nickel stress. *Plant Physiology and Biochemistry*. 207, 108365. DOI: 10.1016/j.plaphy.2024.108365
23. Lund S, Wey L, Peltonen J, Bobacka J, Latonen RM*, **Allahverdiyeva Y***. 2024. Graphene and graphene–cellulose nanocrystal composite films for sustainable anodes in biophotovoltaic devices. *Sustainable Energy & Fuels*. 8, 210. DOI: 10.1039/D3SE01185B
24. Wey L, Yewale R, Hautala E, Hannonen J, Katavisto K, Kvarnström C, **Allahverdiyeva Y***, Damlin P*. 2024. Optoelectronic enhancement of photocurrent by cyanobacteria on sustainable AP-VPP-fabricated PEDOT electrodes. *Electrochimica Acta*. 475, 143597. DOI: j.electacta.2023.143597
25. Chovancek E, Salazar J, Sirin S, **Allahverdiyeva Y***. 2023. Microalgae from Nordic collections demonstrate biostimulant effect by enhancing plant growth and photosynthetic performance. *Physiologia Plantarum*. 175: e13911. DOI: 10.1111/ppl.13911
26. Jokel M, Salazar J, Chovancek E, Sirin S, **Allahverdiyeva Y***. 2023. Screening of several microalgae revealed biopesticide properties of *Chlorella sorokiniana* against the strawberry pathogen *Phytophthora cactorum*. *Journal of Applied Phycology*. 1–13. DOI: 10.21203/rs.3.rs-2462473/v1
27. Siitonen V, Probst A, Toth G, Kourist R, Schroda M, Kosourov S, **Allahverdiyeva Y***. 2023. Engineered green alga *Chlamydomonas reinhardtii* as a whole-cell photosynthetic biocatalyst for stepwise photoproduction of H₂ and ϵ -caprolactone. *Green Chemistry*. 25, 5945–5955. DOI: 10.1039/d3gc01400b

28. Virkkala T, Kosourov S, Rissanen V, Siitonen V, Arola S, **Allahverdiyeva Y***, Tammelin T*. 2023. Bioinspired mechanically stable all-polysaccharide based scaffold for photosynthetic production. *Journal of Materials Chemistry B*. 11: 8788–8803. DOI: 10.1039/D3TB00919J
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30. Vajravel S, **Allahverdiyeva Y**, Kosourov S. 2023. Balancing algal photosynthesis, O₂ consumption, and H₂ recycling for sustained H₂ photoproduction in pulse-illuminated algal cultures. *Sustainable Energy & Fuels*. 7, 1818–1828. DOI: 10.1039/d2se01545e
31. Barone GD, Hubáček M, Malihan-Yap L, Grimm HC, Nikkanen L, Pacheco CC, Tamagnini P, **Allahverdiyeva Y**, Kourist R. 2023. Towards the rate limit of heterologous biotechnological reactions in recombinant cyanobacteria. *Biotechnology for Biofuels and Bioproducts*. 16:4. DOI: 10.1186/s13068-022-02237-4
32. Salazar J, Santana-Sánchez A, Näkkilä J, Sirin S, **Allahverdiyeva Y***. 2023. Complete N and P removal from hydroponic greenhouse wastewater by *Tetrademus obliquus*: A strategy for algal bioremediation and cultivation in Nordic countries. *Algal Research*. 70:102988. DOI: 10.1016/j.algal.2023.102988
33. Santana-Sánchez A, Nikkanen L, Werner E, Tóth G, Ermakova M, Kosourov S, Walter J, He M, Aro EM, **Allahverdiyeva Y***. 2023. Flv3A facilitates O₂ photoreduction and affects H₂ photoproduction independently of Flv1A in diazotrophic *Anabaena* filaments. *New Phytologist*. 237:126–139. DOI: 10.1111/nph.18506
34. Tóth GS, Siitonen V, Nikkanen L, Sovic L, Kallio P, Kourist R, Kosourov S, **Allahverdiyeva Y***. 2022. Photosynthetically produced sucrose by immobilized *Synechocystis* sp. PCC 6803 drives biotransformation in *E. coli*. *Biotechnology for Biofuels and Bioproducts*. 15:146. DOI: 10.1186/s13068-022-02248-1
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37. Erdem E, Malihan-Yap L, Assil-Companiononi L, Grimm H, Davide Barone G, Serveau-Avesque C, Amouric A, Duquesne K, de Berardinis V, **Allahverdiyeva Y**, Alphand V, Kourist R. 2022. Photobiocatalytic oxyfunctionalization with high reaction rate using a Baeyer–Villiger monooxygenase from *Burkholderia xenovorans* in metabolically engineered cyanobacteria. *ACS Catalysis*. 12:66–72. DOI: 10.1021/acscatal.1c04555
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