

2025 GREEN DEAL BIOTECHNOLOGY

Towards sustainable recovery
and valorization of natural resources

26-28 May 2025 Aveiro, Portugal



We would like to thank the participants, speakers, sponsors and partners for joining us. The event gathered more than 120 participants from 23 countries, including 50% early-career scientists. 90% of participants presented their work through short talks and poster presentations.

The topics covered included:

- Innovative solutions in bioremediation.
- Biotechnological valorization of marine, other natural resources and wastes.
- Sustainability of environmental biotechnology solutions.
- Biotechnological approaches to nutrient cycling balances.
- AI and genome editing – friends or foes in environmental biotechnology?

Conference partners



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Organized by **efb** | Environmental
Biotechnology

Scientific Programme (extended)

Monday, 26 May 2025

12:00-14:00 Registration

Poster exhibition: please place posters with numbers starting with “1-” on the poster boards

14:00-14:20 Welcome and opening ceremony

14:20-14:55 From research to innovation: pioneering biotechnological solutions for a sustainable future

Luisa Orsini, University of Birmingham and Daphne Water Solutions, United Kingdom

Session 1: Innovative solutions in bioremediation

14:55-15:10 Effect of immobilization method on *Trametes versicolor* (strain CB8) efficiency in vincristine removal under wastewater-like conditions

Marcelina Jureczko, Silesian University of Technology, Poland

15:10-15:25 Scaling up mycoremediation: a full-scale pilot study on hydrocarbon-contaminated soil

Alessandro D'Annibale, Tuscia University – DIBAF, Italy

15:25-15:40 Polystyrene microplastics presence or water availability – which plays a greater role in diesel biodegradation in soil?

Marta Woźniak-Karczewska, Poznan University of Technology, Poland

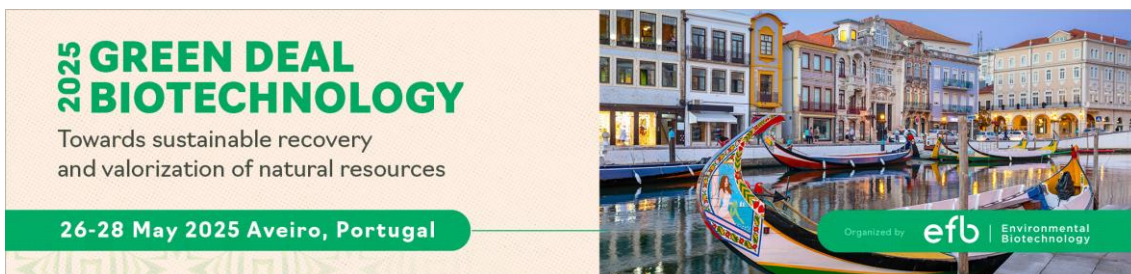
15:40-15:55 Heavy metals bioremoval by *Parachlorella hussii* ACOI 1508 (N9) isolated from a saline Lake in Southeastern of Algeria

Karima Guehaz, University of Florence, Italy

15:55-16:10 Enhancing electron transfer mechanisms in *Bacillus spizizenii* DN for sustainable dye removal using microbial electrochemical systems and gamma radiation

Ola Mahmoud Gomaa, Egyptian Atomic Energy Authority, Egypt

16:10-16:40 Coffee break



Monday, 26 May 2025

Session 2: Integration of Artificial Intelligence and Omic technologies in environmental biotechnology

- 16:40-17:15 Bridging machine learning and cellulose nanomaterials: modelling the transition from micro to nano
Marc Delgado Aguilar, University of Girona, Spain
- 17:15-17:30 Integrating microfluidics, deep sequencing, and AI to accelerate biocatalyst engineering for green chemistry
Friederike Nintzel, University of Cambridge, United Kingdom
- 17:30-17:45 Characterization of microbial plastsphere from agricultural plastic wastes: Taxonomic and functional insights into low density polyethylene and polypropylene
Diego Becerra Mora, Cordoba University, Spain
- 17:45-18:00 Green biorefinery: microalgae and duckweed as sustainable sources of natural products and high-interest by-products
David Suárez-Montes, AINIA Centro Tecnológico, Spain
- 18:00-18:30 Flash poster presentations session A
- 18:30-19:00 Poster session 1 (posters with numbers starting with "1-")
- 18:30-20:30 *Welcome reception*

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Tuesday, 27 May 2025

Session 3: Different aspects of industrial biotechnology at ACIB

- 8:45-9:00 **Poster exhibition: please remove from the poster boards posters with numbers starting with “1-”**
- 09:00-09:10 Promotional talk
Matthias Slatner, Austrian Centre of Industrial Biotechnology, Austria
- 09:10-09:25 CO₂ exploitation for protein and PHB production
Petra Heidinger, Austrian Centre of Industrial Biotechnology, Austria
- 09:25-09:40 Functional carbohydrates from renewable resources
Christiane Luley, Austrian Centre of Industrial Biotechnology, Austria
- 09:40-09:55 From waste to wattage: biogas meets battery recycling
Silja Välimets, Austrian Centre of Industrial Biotechnology, Austria
- 09:55-10:10 Cyanoflan polymer: versatile resource from the ocean
Rita Mota, Austrian Centre of Industrial Biotechnology, Austria
- 10:10-10:25 Recovery and re-use of terephthalic acid from enzymatically depolymerized polyesters
Felice Quartinello, Austrian Centre of Industrial Biotechnology, Austria

Session 4: Biotechnological valorization of marine, other natural resources and wastes

- 10:25-11:00 Exploitation of novel TRAP transporters in cell factories and environmental biotechnology
David Kelly, University of Sheffield, United Kingdom
- 11:00-11:30 *Coffee break*
Poster exhibition: please place posters with numbers starting with “2-” on the poster boards
- 11:30-11:45 Understanding and mitigating inhibitor effects in lignocellulose-based butanol production
Barbora Branska, University of Chemistry and Technology, Czech Republic

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11:45-12:00 Biohydrogen production by lactate-driven dark fermentation of cheese whey using the indigenous microbial community and biochar as eco-engineering strategy

Eleonora de Santis, University of Naples Federico II, Italy

12:00-12:15 Process scale-up simulation and techno-economic assessment of ethanol fermentation from cheese whey

Isabella Pisano, University of Bari Aldo Moro, Italy

12:15-12:30 Transforming poultry waste into advanced biomaterials using ionic liquids

Helena Passos, University of Porto, Portugal

12:30-13:00 Flash poster presentations session B

13:00-14:30 *Lunch*

14:30-15:05 From Portuguese ocean to your house - how blue biotech is shifting the blue economy landscape

Helena Vieira, University of Aveiro, Portugal

15:05-15:20 Microalgae cultivation as a key process for protein production in Green Circular Biorefineries.

Marcella Fernandes de Souza, Ghent University, Belgium

15:20-15:35 Bioconversion of volatile fatty acids from microalgae side streams fermentation into polyhydroxyalkanoates

Joana Fradinho, NOVA University Lisbon, Portugal

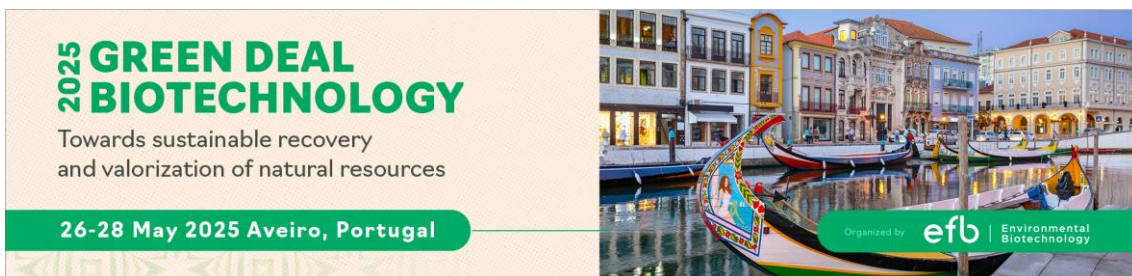
15:35-15:50 Prebiotic effect of red seaweed extracts produced by autohydrolysis: Combining efficiency and sustainability to achieve algae-based nutraceutical solutions

Cristina Rocha, University of Minho, Portugal

15:50-16:05 Fabrication of more sustainable cork based thermoset composites using marine polysaccharides

Ana C.Q. Silva, University of Aveiro, Portugal

16:05-16:35 *Coffee break*



Tuesday, 27 May 2025

- 16:35-16:50 Coupled bioleaching and electrodialysis for improved metal recovery from waste streams
Anil Kumar, University of Nottingham, United Kingdom
- 16:50-17:05 Enzymatic processing of fungal biomass: a novel route to chitin extraction and valorization
Peter Elias Kidibule, Norwegian University of Life Sciences, Norway
- 17:05-17:20 Multiproduct biorefinery of brown seaweed using deep eutectic solvents
Wimar Reynaga Navarro, Wageningen University & Research, Netherlands
- 17:20-17:50 Flash poster presentations session C
- 17:50-18:20 Poster session 2 (posters with numbers starting with “2-”)

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Wednesday, 28 May 2025

Session 5: Sustainability of environmental biotechnology solutions

- 8:40-8:50 **Poster exhibition: please remove from the poster boards posters with numbers starting with “2-”**
- 8:50-9:00 **Poster exhibition: please place posters with numbers starting with “3-” on the poster boards**
- 09:00-09:35 Recent EU policy developments in the biotechnology framework
María Rincón, European Commission
- 09:35-9:50 Characterization of *Priestia megaterium* KW16 and its response to a fungal pathogen in the context of its application as a biopesticide in sustainable agriculture
Katarzyna Hupert-Kocurek, University of Silesia in Katowice, Poland
- 09:50-10:05 Unlocking the potential of anaerobic high-cell density cultivation: A novel approach for microbial protein production
Marte Mølsæter Maråk, Norwegian University of Life Sciences, Norway
- 10:05-10:20 Brewing sustainability: turning spent coffee grounds into bioplastics
Elisabetta Borselleca, University of Naples Federico II, Italy
- 10:20-10:35 Flash poster presentations session D
- 10:35-11:05 Poster session 3 (posters with numbers starting with “3-”)
- 10:35-11:05 *Coffee break*

Session 6: Biotechnological approaches to nutrient cycling balances

- 11:05-11:40 **Marcel Kuypers**, Max Planck Institute for Marine Microbiology, Germany
- 11:40-11:55 Sustainable drainwater management in Nordics with microalgae
Emren Borhan, University of Turku, Finland
- 11:55-12:10 From waste to soil wealth: assessing the safety and agronomic potential of olive pomace-based entomofertilizer
Amid Mostafaie, University of Aveiro, Portugal

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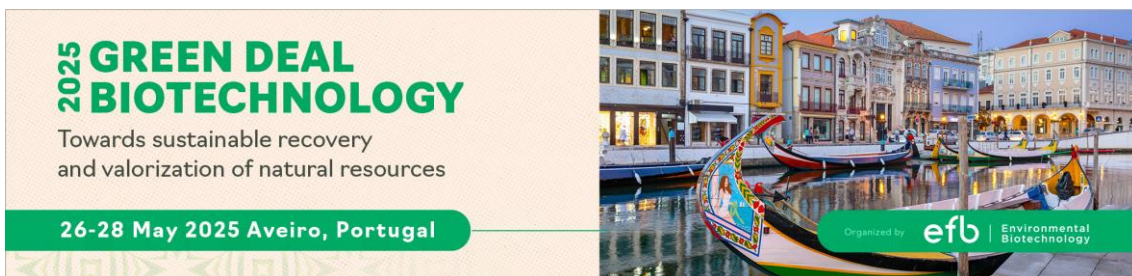
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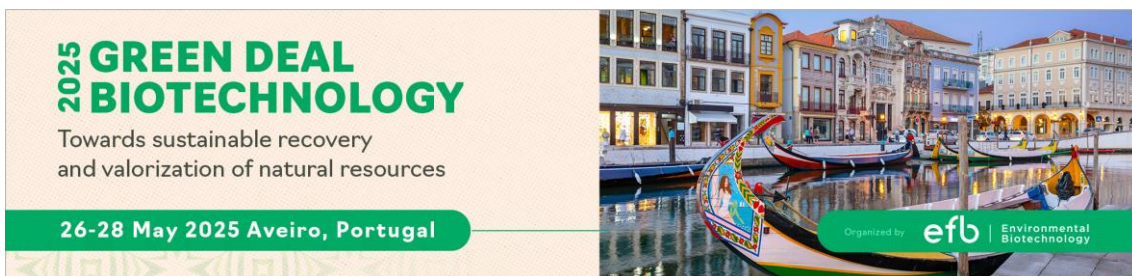
- 12:10-12:25 Cyclic peptides biostimulants as a new tool for plant protection from biotic stress
Nina Gauri Capra, University of Milan, Italy
- 12:25-12:40 Overcoming a bicarbonate transporter-caused suppression on cyanobacterial growth at high CO₂
Myint Khin, Ben-Gurion University of the Negev, Israel
- 12:40-13:15 **Closing lecture:** Digital soil mapping a biotechnology to improve nitrogen management and soil health
David Burton, Dalhousie University, Canada
- 13:15-13:25 Closing ceremony



Flash poster presentations

Flash poster presentations session A: Monday, 26 May 2025, 18:00
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Poster number	Title	Author
1-1	Protein engineering of a fungal feruloyl esterase enhances plastic degradation	Efstratios Nikolaivits, National Technical University of Athens, Greece
1-2	The potential of corn steep liquor as biofertilizer and biopesticide	Ksenia Lvova, University of Vigo, Spain
1-3	Fast aerobic granulation in challenging landfill leachate: a progressive nitrogen loading approach	Víctor Guzmán Fierro, Universidad de Concepción, Chile
1-4	Multi-omics insights into the response of <i>Aspergillus parasiticus</i> to long-chain alkanes in relation to polyethylene modification	Evangelos Topakas, National Technical University of Athens, Greece
1-5	Pyrolyzed <i>Corbicula fluminea</i> shells as biosorbents for removal of pharmaceuticals from water – the effect of pH	Fátima Jesus, University of Aveiro, Portugal
1-6	Enhanced biodegradation of low-density polyethylene, polypropylene and polyester polyurethane using a microbial consortium isolated from a coastal environment	Bruno Bustabad García, Fundación CETIM Technological Centre, Spain
1-18	Effects of applying pig slurries and biochar to the soil on greenhouse gas emissions and ryegrass yield	Adelaide Perdigão, CERNAS, Portugal
1-19	Green adsorption approaches for recovering platinum group metals from complex matrices	Amir Nobahar, CICECO - Aveiro institute of materials, Portugal



Poster number	Title	Author
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Flash poster presentations session B: Tuesday, 27 May 2025, 12:30		
2-2	Engineering <i>Desulfovibrio alaskensis</i> G20 to improve production of palladium nanoparticle catalysts for cross-coupling reactions	Kholood Gharieb Elsayed, The University of Edinburgh, United Kingdom
2-5	Harnessing cyanobacteria for sustainable biofuel production: a green alternative to fossil fuels	Pamela Torres Salas, Repsol S.A., Spain
2-6	Potential fertilizer of organic composts with water hyacinth (<i>Eichhornia crassipes</i> (Mart.) Solms) wastes: comparison with commercial solutions	André de Souza Alves Guimarães, Colina Generosa, Portugal
2-11	Biomedical potential of oxygen plasma modified biopolymer blends	Jéssica Fernanda Pereira Pereira, Federal University of Sao Carlos, Spain
2-12	From textile waste blends to biopolymers and valuable bio-compounds	Sophia Mihalyi, BOKU University Vienna, Institute of Environmental Biotechnology, Austria
2-13	Bacterial valorisation of electronic waste and synthesis of technology-critical metal nanoparticles	Taslin Jahan Mou, University of Edinburgh, United Kingdom

Flash poster presentations session C: Tuesday, 27 May 2025, 17:20		
2-15	A green and economical approach for extracting xylan and xylo-oligosaccharides from <i>Palmaria palmata</i>	Diogo Coelho, Universidade do Minho, Portugal
2-16	Cyanobacterial exopolysaccharides as biogenic mediators of heavy metal	Soundarya Rajapitamahuni, Ben-

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Poster number	Title	Author
	sequestration and carbonate precipitation under elevated CO ₂ conditions	Gurion University of the Negev, Israel
2-17	Temperature-responsive deep eutectic solvent for efficient alginate extraction and solvent recycling	Isa Hiemstra, Wageningen University & Research, the Netherlands
2-19	Development of novel thermoplastic blends incorporating marine polysaccharide derivatives	Vasco Valente, CICECO-Aveiro Institute of Materials, University of Aveiro, Portugal
2-20	New thermoplastic formulations using marine polysaccharides – impact of the biopolymers and plasticizer contents on blends properties	Allison Vercasson, CICECO-Aveiro Institute of Materials, Department of Chemistry, University of Aveiro, Portugal
2-21	Stability of lipids and carbohydrates during shelf life of marine macroalgae as valuable sources for food and biotechnological applications	Ana Moreira, University of Aveiro, Portugal

Flash poster presentations session D:

Wednesday, 28 May 2025, 10:20

3-1	The role of microplastics in herbicide transport: sorption, toxicity and environmental impact	Anna Parus, Poznan University of Technology / Institute of Chemical Tehcnology and Engineering, Poland
3-9	Sustainable nanofiber coatings for copper protection: halloysite nanotube-integrated silver-copper bimetallic nanoclusters for microbial corrosion prevention	Nalan Oya San Keskin, Ankara Hacı Bayram Veli University, Turkey
3-10	Green solvents for green plastics: NADES as key enablers for PHA production	Simona Varriale, University of Naples Federico II, Italy

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Poster number	Title	Author
3-11	Biodegradability of chitosan-based films enriched with <i>Callistemon citrinus</i> extract	Marika Avitabile, University of Naples Federico II, Italy
3-12	Biomass valorisation for advanced bioprocesses through the European Research Infrastructure IBISBA	Mauro Di Fenza, National Research Council of Italy
3-13	Optimisation and acclimatisation of <i>Chlorella vulgaris</i> and nanochloropsis grown on the liquid fraction of digestate	Shruti Katti, UGent, Belgium