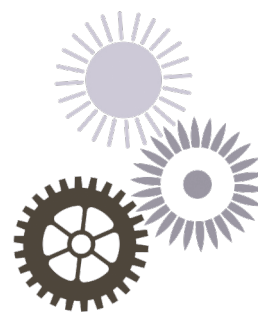


RRRB 2025
RENEWABLE RESOURCES & BIOREFINERIES



21st International Conference on
**Renewable Resources
and Biorefineries**

Moving Beyond Carbon Neutral

2 – 4 June 2025

Turku/Åbo, Finland



Monday 2 June 2025

09.00 – 10.00	Registration	
10.00 – 10.30	Official Opening of RRB 2025 Chairs: Yagut Allahverdiyeva-Rinne, University of Turku, FI Henrik Grénman, Åbo Akademi University, FI Chris Stevens, Ghent University, BE Welcome by the Mayor of Turku, Mrs. Minna Arve Welcome by the Vice-Rector of the University of Turku, Prof. Piia Seppänen Welcome by the Vice-Rector of Research of Åbo Akademi University, Prof. Reko Leino	Päänäyttämö
	Opening Plenary Session	Päänäyttämö
10.30 – 11.15	Keynote Lecture 1 Challenges and opportunities for bioenergy in the EU Anna Törner, Svebio - the Swedish Bioenergy Association, Sweden	
11.15 – 12.00	Keynote Lecture 2 Catalysis achievements and needs for the refinery of the future Bert Weckhuysen, Utrecht University, The Netherlands	
12.00 – 13.00	Lunch	Foyer



Monday 2 June 2025

13.00 - 14.30 Parallel sessions

Session 1A – Päänäyttämö	Session 1B – Pieni Näyttämö	Session 1C – Sopukka
Biobased chemicals and biodegradable materials I Chair: Monika Österberg, Aalto University, FI 13.00 – 13.30 Invited talk: Fungal biorefinery: Upcycling waste textiles into the next generation of mycelium composites with a promising future Alexander Bismarck, University of Vienna, AT	Biocatalysis & novel fermentation processes Chair: Michael Sauer, OMV AG, AT 13.00 – 13.30 Invited talk: Engineering <i>Pseudomonas putida</i> via growth-coupling for production, biosensing and C1-fixation Daniel Volke, Technical University of Denmark, DK	Marine and algal biorefinery I Chair: Yagut Allahverdiyeva-Rinne, University of Turku, FI 13.00 – 13.30 Heterotrophic growth of <i>Galdieria sulphuraria</i> on residues from aquaculture and fish processing industries Daniel Pleissner, Institute for Food and Environmental Research (ILU), DE
13.30 – 13.50 Bio-based films from chickpea extracts reinforced with carrot fibres Mariana Fortunatti Montoya, University of Valladolid, ES	13.30 – 13.50 Searching and targeting specific fungal laccases for building novel materials with unique properties from lignin-rich hemicelluloses Maarit Lahtinen, University of Helsinki, FI	13.30 – 13.50 INNOAQUA – Sustainable aquaculture practices for innovative seafood products: Salmon and microalgae land-based IMTA Dorinde Kleinegris, NORCE Norwegian Research Centre, NO
13.50 – 14.10 Functionalised bacterial cellulose with enhanced conductivity for novel battery components Tom Distler, Wood K plus, AT	13.50 – 14.10 A flexible pilot plant for scaling up production of biobased high-value chemicals Ireen Gebauer, Fraunhofer Center for Chemical-Biotechnological Processes CBP, DE	13.50 – 14.10 Green biorefinery of brown algae side-streams: Subcritical water extraction optimization via Response Surface Methodology Rodrigo Oliver-Simancas, Chalmers University of Technology, SE
14.10 – 14.30 New green process for the synthesis of glycerol carbonate: Screening of catalysts and kinetics study Linda Miturova, Toulouse INP, FR	14.10 – 14.30 H₂-driven xylitol production in <i>Cupriavidus necator</i> H16 Tytti Jämsä, VTT Technical Research Centre of Finland, FI	14.10 – 14.30 Towards full valorisation of algal biomass through acetogenic mixotrophy Natalie Palucha, Ghent University& Bio Base Europe Pilot Plant, Ghent, BE

14.30 – 15.00 Coffee Break

Foyer

15.00 – 15.45 Poster Tour 1

Foyer & Mezzanine

15.45 – 17.15 Parallel sessions

Session 2A – Päänäyttämö	Session 2B – Pieni Näyttämö	Session 2C – Sopukka
Biobased chemicals and biodegradable materials II Chair: Anwar Jardine, University of Cape Town, ZA 15.45 – 16.15 Development of new concepts for thermoset resins from renewable resources for the use in natural fibre composites Mikael Skrifvars, University of Borås, SE	Biorefining I Chair: Joseph Samec, Stockholm University, SE 15.45 – 16.15 Invited talk: Production of kraft lignin at Södra Cell Mönsterås Sven Hermansson, Södra, SE	Carbon capture and utilization Chair: Uģis Cabulis, Latvian State Institute of Wood Chemistry, LV 15.45 – 16.15 Sustainable construction materials from functionalized lignocellulose side streams, properties, carbon capture potential, and applications in harsh environments Guillermo Reyes, VTT Technical Research Centre of Finland, FI
16.15 – 16.35 A journey from natural phenols to circularity in biobased polymers Sylvain Caillol, University of Montpellier, FR	16.15 – 16.35 Industrialisation of beer spent grain for thermoplastic bio-composites Valentina Beghetto, University Ca' Foscari & Crossing Srl, IT	16.15 – 16.35 Anaerobic digestion gases (CO₂, H₂ and CH₄) bioconversion into high value-added single cell protein Carolina Colvée, AINIA, ES
16.35 – 16.55 ChitGel: A hybrid hydrogel through Diels-Alder crosslinking of furan-modified chitosans and maleimide-modified gelatin Ruben Raeymaekers, Ghent University, BE	16.35 – 16.55 Pigments and bioenergy recovery from microalgae treating wastewater in a biorefinery approach Ivet Ferrer, Universitat Politècnica de Catalunya - BarcelonaTech, ES	16.35 – 16.55 Enhanced CO₂ methanation via zeolite-assisted water sorption: A pathway to high-purity methane production Enrico Marchi, Åbo Akademi University, FI
16.55 – 17.15 Advanced aromatic platforms from lignocellulose for high-value materials production Sanja Vučetić, Åbo Akademi University, FI	16.55 – 17.15 Identification of scale-up parameters for the production of platform chemicals from grass press juice Wolfgang Laudensack, RPTU Kaiserslautern-Landau, DE	16.55 – 17.15 Theoretical screening of catalytic surfaces for CO₂RR to promote carbon-free society Muhammad Awais, University of Iceland, IS

17.30 Riverside Walk (see page 130)

19.00 Welcome Reception at the Museum Ship Suomen Joutsen (see page 130)





Tuesday 3 June 2025

09.00 - 10.30 Parallel sessions

Session 3A – Päänäyttämö	Session 3B – Pieni Näyttämö	Session 3C – Sopukka
Marine and algal biorefinery II Chair: Dorinde Kleinegriss, NORCE Norwegian Research Centre, NO	Bioenergy & thermochemical transformations Chair: Maria José Cocero Alonso, University of Valladolid, ES	Wood chemistry and engineering Chair: Martin Lawoko, KTH Royal Institute of Technology, SE
09.00 – 09.30 Invited talk: Hypes, hopes and the way forward for microalgal biotechnology Maria Barbosa, Wageningen University and Research, NL	09.00 – 09.30 Invited talk: Biomass thermal conversion technologies - The devil in chemical details Mikko Hupa, Åbo Akademi University, FI	09.00 – 09.30 Invited talk: Structure and function relationship of wood cell wall matrix polysaccharides Gunnar Henriksson, KTH Royal Institute of Technology, SE
09.30 – 09.50 Computational design and solvent selection for a zero waste algal biomass biorefinery Liisa Rihko-Struckmann, Max Planck Institute for Dynamics of Complex Technical Systems, DE	09.30 – 09.50 Valmet's journey in advanced biofuels from catalytic fast pyrolysis of biomass: From lab scale to semi-industrial scale Tooran Khazraie, Valmet, FI	09.30 – 09.50 Chemical characterization and antifungal potential of pyrolytic condensates derived from softwood bark carbonization René Herrera, University of the Basque Country UPV/EHU, ES
09.50 – 10.10 Sustainable drainwater management in Nordics with microalgae-based refineries Sema Sirin, University of Turku, FI	09.50 – 10.10 Combined flowsheet and experimental modeling of biofuel upgraded bio-oil production from forest residues through fast pyrolysis and hydrothermal liquefaction Kristian Melin, LUT University, FI	09.50 – 10.10 3-F Polyurethane-Wood Composites (PU-WCs): Catalyst-free, formaldehyde-free, and petroleum-free alternatives to traditional wood-based panels Adam Olszewski, Gdansk University of Technology, PL
10.10 – 10.30 Co-cultivation of yeast and algae for enhanced lipid and metabolite production in an algal biorefinery framework Ushna Khalid, The University of Manchester, UK	10.10 – 10.30 Unlocking methanogenic Archaea's potential: Pathway to sustainable biomethane production Marco Orthofer, Johannes Kepler University, AT	10.10 – 10.30 Unraveling the potential of native lignin-derived oligomers for the synthesis of high-performance epoxy thermosets Yingtuan Zhang, KU Leuven, BE

10.30 – 11.15 Coffee Break

Foyer

11.15 - 12.45 Parallel sessions

Session 4A – Päänäyttämö	Session 4B – Pieni Näyttämö	Session 4C – Sopukka
Pretreatment and transformation of lignocellulose Chair: Tapio Salmi, Åbo Akademi University, FI	Catalysis for renewables and kinetics Chair: Dmitry Murzin, Åbo Akademi University, FI	Bioprocess development Chair: Patrizia Cinelli, University of Pisa, IT
11.15 – 11.45 Invited talk: Branched biopolyesters from agrifood processing byproducts via sudden supercritical water hydrolysis Maria José Cocero Alonso, University of Valladolid, ES	11.15 – 11.45 Invited talk: Finetuning of zeolite acidity for efficient catalytic transformations of biomass Nataliya Shcherban, National Academy of Sciences of Ukraine, UA	11.15 – 11.45 Invited talk: Smart nanomaterials based on lignin and cellulose extracted from agro-food residues with environmental applications Alfonso Jimenez Migallón, University of Alicante, ES
11.45 – 12.05 Innovative lignin valorisation: Enhancing biomethane efficiency from oil palm waste through microbial treatment Irnia Nurika, Universitas Brawijaya, RI	11.45 – 12.05 Menthol synthesis using bi-functional Ru-H-MCM-41 mesoporous catalytic materials Narendra Kumar, Åbo Akademi University, FI	11.45 – 12.05 Development of a purification cascade for industrial wood hydrolysates Arne Gröngroft, DBFZ - Deutsches Biomasseforschungszentrum gemeinnützige, DE
12.05 – 12.25 Sustainable valorization of industrial lignins: Catalytic depolymerization for antioxidant and UV-absorbing applications Raphaela Süss, Wood K plus, AT	12.05 – 12.25 Hydrodeoxygenation of guaiacol over Ni/Al₂O₃ and Cu/Al₂O₃ catalysts: Studies on the effect of metal sites Snehasis Dutta, UCTP, CZ	12.05 – 12.25 Efficient catalytic depolymerization of organosolv lignins Niko Kinnunen, University of Eastern Finland, FI
12.25 – 12.45 Electro-oxidation of β-O-4 model compounds monitored in a chamber-separated cell via in situ ATR-IR spectroscopy Sibylle Schwartzman, Utrecht University, NL	12.25 – 12.45 Utilizing aqueous-phase reforming to extract value from biorefinery residual waters: Effect of process conditions and individual compounds Jasmilna Palo, VTT Technical Research Centre of Finland, FI	12.25 – 12.45 StrainInSight: A unique private strain collection and innovative tools to facilitate novel strain discovery Eliza Depoorter, StrainInSight, Belgium

12.45 – 13.30 Lunch

Foyer

13.30 – 14.15 Poster Tour 2

Foyer & Mezzanine

14.15 – 14.45 Coffee Break

Foyer





Session 5A – Päänäyttämö	Session 5B – Pieni Näyttämö	Session 5C – Sopukka
Sustainability and circular economy I Chair: Maija Pohjakallio, Metsä Group, FI	Synthetic biology and biofoundries Chair: Merja Penttilä, VTT Technical Research Centre of Finland, FI	Polysaccharides Chair: Pedro Fardim, University of Leuven, BE
14.45 – 15.15 Invited talk: New wood-based products – Case Kuura textile fibre Niklas von Weymarn, Metsä Spring, FI	14.45 – 15.15 Invited talk: A microbial platform for discovery and manufacturing of plant-inspired human therapeutics Michael K. Jensen, Technical University of Denmark & Biomia, DK	14.45 – 15.15 Invited talk: Processing of polysaccharide-based nanocomposites: A critical step in the development of high-performance materials Alain Dufresne, Grenoble Institute of Technology, FR
15.15 – 15.35 Economic and environmental assessment of furan derivatives production from lignocellulosic biomass via the 5-chloromethylfurfural route Gabriel Fraga, Queensland University of Technology, Brisbane, AU	15.15 – 15.35 Large-scale innovative approaches for natural products discovery Nigel Mouncey, Lawrence Berkeley National Laboratory, USA	15.15 – 15.35 Cellulosic polyaldehyde and applications Anwar Jardine, University of Cape Town, ZA
15.35 – 15.55 Production of sustainable aviation fuel precursors by aldol condensation of cyclopentanone and furfural on Ce-based catalysts Olha Yevdokimova, Åbo Akademi University, FI	15.35 – 15.55 From genetic resources to bioprocess development: Tools and technologies to help you create a robust microbial fermentation process Maarten De Mol, Ghent University, BE	15.35 – 15.55 The biomass potential of hemicellulose from the wood processing industry Susann Günther, DBFZ - Deutsches Biomasseforschungszentrum gemeinnützige, DE
15.55 – 16.15 Online monitoring of methane transfer rates unveils nitrogen fixation dynamics in <i>Methylococcus capsulatus</i> Dominik Engel, RWTH Aachen University, Aachen, DE	15.55 – 16.15 Advancing whole-cell photosynthetic biotransformation with engineered <i>Chlamydomonas reinhardtii</i> and engineered living materials Vilja Siitonen, University of Turku, FI	15.55 – 16.15 C–C rupture in key monosaccharides and succedent redox in supercritical ethanol Qianxin Sun, Sichuan University, CN

16.25 – 16.50 Biobased Market pitches (see page 17)

Päänäyttämö

16.55 – 18.45 Biobased Market (see page 17)

Entrance Hall

19.30 Conference Dinner at Restaurant Grädda, preceded by a reception at the Sibelius Museum (see page 130)



Tuesday 3 June

16.25 **Introduction to the pitches**
Chris Stevens, Ghent University, BE

Päänäyttämö

- 16.27 Boreal Bioproducts
- 16.30 VTT, Technical research Centre of Finland
- 16.33 Versa Elements
- 16.36 Straininsight
- 16.39 S2B, Solar-to-Butanol
- 16.42 ALGAESOL
- 16.45 CH-Bioforce

After the presentations you are invited to the Biobased Market and Networking Drink in the Entrance Hall of the Conference Venue.

16.55 **Biobased Market and Networking Drink**

Entrance Hall

Exhibitors at the Biobased Market:

- ALGAESOL
- Boreal Bioproducts
- CH-Bioforce
- S2B, Solar-to-Butanol
- StrainInSight
- UPM
- Versa Elements
- VTT, Technical Research Centre of Finland





Wednesday 4 June 2025

09.00 – 10.20 Parallel sessions

Session 6A – Päänäyttämö	Session 6B – Pieni Näyttämö	Session 6C – Sopukka
Biobased chemicals and biodegradable materials III Chair: Chris Stevens, Ghent University, BE	Sustainability and circular economy II Chair: Henrik Grénman, Åbo Akademi University, FI	Valorisation of food residues I Chair: Roland Verhé, Ghent University, BE
09.00 – 09.20 Sustainable eugenol based epoxy resin with improved thermal properties Danuta Matyklewicz, Poznan University of Technology, PL	09.00 – 09.20 Electrification as a game changer: Efficiencies and prospective environmental impacts of bio-based vs. synthetic methanol Nils Rettenmaier, IFEU – Institute for Energy and Environmental Research, DE	09.00 – 09.20 Biochemical conversion of agro-industrial waste to single-cell protein: A sustainable approach for environmental and food security solutions Hafiz Muhammad Aamir Shahzad, Qatar Environment and Energy Research Institute (QEERI), QA
09.20 – 09.40 Kraft lignin-hydrotrope emulsifier for shelf-stable oil-in-water emulsions Pedro Fardim, KU Leuven, BE	09.20 – 09.40 Recycling postconsumer cotton textile waste: Glucose production, decolorization, and fermentation Julie Durruty, Nouryon, SE	09.20 – 09.40 Upcycling onion waste into high-molecular-weight pectin derived-compounds via continuous water-only extraction Danilo Cantero, University of Valladolid, ES
09.40 – 10.00 Transformation of mussel by-products into sustainable bioproducts: A bioeconomy opportunity Henoc Pérez, INESCOP Footwear Technological Centre, ES	09.40 – 10.00 Monitoring plastic film degradation with <i>in-situ</i> atomic force microscopy Jiaorong Yan, Utrecht University, NL	09.40 – 10.00 Up-cycling food chain side streams into wholly biobased surfactants Federica Zaccheria, CNR – SCITEC “G. Natta”, IT
10.00 – 10.20 Scale-up study on the production and purification of L-(+)-lactic acid from tree and shrub species by employing robust and versatile <i>H. coagulans</i> A166 Linda Schroeder, Leibniz Institute for Agricultural Engineering and Bioeconomy, DE	10.00 – 10.20 Waste derived hydrochar for environmental remediation from inorganic pollutants Elisa Cerza, University of Perugia, IT	10.00 – 10.20 Microbial upcycling of food waste with <i>Starmarella bombicola</i> for biosurfactant production Thibo Van de Craen, Ghent University & Bio Base Europe Pilot Plant, BE

10.20 - 11.00 Coffee Break

Foyer

11.00 – 12.20 Parallel Sessions

Session 7A – Päänäyttämö	Session 7B – Pieni Näyttämö	Session 7C – Sopukka
Sustainability and circular economy III Chair: Nigel Mouncey, Lawrence Berkeley National Laboratory, USA	Biorefining II Chair: Wim Soetaert, Ghent University, BE	Valorisation of food residues II Chair: Juan Serna, University of Valladolid, ES
11.00 – 11.20 From a fully green process to a fully green bioplastic: Production of polyhydroxybutyrate from eucalyptus bark integrated with enzymatic biopolymer recovery João Matias, NOVA University Lisbon, PT	11.00 – 11.20 Comprehensive molecular description of biorefinery products by direct-infusion ultrahigh-resolution mass spectrometry Janne Jänis, University of Eastern Finland, FI	11.00 – 11.20 Improving cereal brans through continuous subcritical water hydrolysis for advanced food applications Laura Román, University of Valladolid, ES
11.20 – 11.40 Life cycle assessment of catalytic arabinose oxidation Mouad Hachhach, Åbo Akademi University, FI & Ibn Zohr University, MA	11.20 – 11.40 Renewable natural polymers, by products of agro-food sectors as additive and coatings on cellulose and bioplastic based substrates for packaging, cosmetic and agricultural applications Patrizia Cinelli, University of Pisa, IT	11.20 – 11.40 Anaerobic fermentation of blueberry waste into short-chain organic acids for use in PHA production Lex Van Es, NOVA University Lisbon, PT
11.40 – 12.00 Synthesis and characterization of reprocessable composite flexible polyurethane foams with self-reorganizing Diels-Alder (DA)-based Covalent Adaptable Networks (CANS) Federica Recupido, Italian National Research Council, IT	11.40 – 12.00 Valorization of lignocellulosic biomass to bioplastics and bioenergy through an integrated catalytic and biological process Magda Constantí, University Rovira i Virgili, ES	11.40 – 12.00 Valorization of tea wastes into polyethylene composites via rotational molding technology Joanna Aniśko-Michalak, Poznań University of Technology, PL
12.00 – 12.20 PET as bacterial carbon source – A new hope for plastic pollution Maria Nicolau Batista, NOVA University Lisbon, PT	12.00 – 12.20 Continuous pilot scale slurry hydroprocessing of kraft lignin Niklas Bergvall, RISE Research Institutes of Sweden, SE	12.00 – 12.20 From waste to wealth: Hydrothermal biorefining of banana peels German Araujo-Barahona, Åbo Akademi University, FI & University of Valladolid, ES

12.20 – 12.50 Closing Session

Philippe Tavernier, 3PT Consult, BE
Yagut Allahverdiyeva-Rinne, University of Turku, FI
Henrik Grénman, Åbo Akademi University, FI

Presentation of the 13th Golden Crop Award
Presentation of the Awards for the best PhD talks
Presentation of RRB 2026

12.50 – 14.00 Farewell Lunch

14.30 Visit of Meyer Shipyard (see page 130)

Päänäyttämö



Foyer



Algal biorefinery

- P1 Life cycle assessment of carotenoid extraction from microalgae biomass: A biorefinery approach**
Alexandre R. Lima, M. Burger, S. Navalho, B. Carvalho, T. Bradley, H.G. Pereira, L.G. Speranza (PT, NL & UK)
- P2 Nutrients recovery from vegetal beverage industrial wastewater effluents for sustainable pigments production**
A. Sáenz-Cenicerós, E. Rueda, Ivet Ferrer (ES)
- P3 Developing a water-based biorefinery for diatom biomass**
Bernardo Carvalho, R. Domingues, H. Pereira, J. Varela (PT)
- P4 Adaptive laboratory evolution of algae for enhanced CO₂ utilization and stress tolerance**
T. Sarlin, A. Tamminen, E. Haajanen, J. Limnell, M. Toivari, Dorothee Barth (FI)
- P5 Process integration approach for implementing and optimising multi-product biorefineries for *Nannochloropsis oceanica***
Pedro Cunha, B. Carvalho, M. Kholany, H. Pereira, J. Varela (PT)
- P6 Valorisation of algae biomass through a pilot-scale biorefinery**
I.F. Costa, T. Rua, B. Várzea, I.B. Maia, Y. Valle-Inclán, A.M.C. Rodrigues, R. Vitorino, M. Kholany, M.M. Costa, H. Pereira, Mariana Carneiro (PT)
- P7 Characterization of *Tetrademus* and *Desmodesmus* sp. in broad pH range conditions**
Mervi Toivari, A. Tamminen, G. Peddinti, M. Penttilä, M.G. Wiebe (FI)
- P8 Sustainable biorefinery platform for the valorisation of algae into high-value ingredients**
Mariam Kholany, R. Vitorino, C.H.G. Oliveira, P. Cunha, P. Letras, B. Carvalho, I. Guerra, V. Spinola, H.G. Pereira (PT)

Biobased chemicals and biodegradable materials

- P9 POLYMEER – Brewers spent grain as main by-product for development of novel, high-performance bio-based polymers, polymer blend, and co-polymers**
Assunta Marrocchi, D. Lanari, O. Marconi (IT)
- P10 Innovative areas of the use of biomass lignin in selected material technologies developed in Łukasiewicz-ICSO**
Przemysław Boberski, J. Nowicki, D. Kielkiewicz (PL)
- P11 Development and characterization of poly(vinyl alcohol) films reinforced with (ligno)cellulose nanofibrils and enhanced with biologically active wood extract**
Ida Poljanšek, U. Osolnik, V. Vek, M. Humar, P. Oven (SI)
- P12 Comparative analysis of the chemical-physical properties of starch/chitosan/PVA blends with lignin obtained via solvent casting and extrusion**
Jessica Costa, R. Pogni (IT)
- P13 Lignin utilization for biobased wood adhesives manufacture**
Dumindu Peththa Wadu, A. Pranovich, D. Tarasov, C. Xu (FI)
- P14 Biodegradable films coated with chitosan-based/curcumin layer as active food packaging**
Miriam Cappello, N. Barbani, N. Malik, D. Rossino, C. Cristallini, C. Trouki, P. Cinelli (IT)
- P15 Kraft lignin modified with imidazolium ionic liquids - Novel lignin-IIs biomaterials with potentially versalite applications**
Janusz Nowicki, A. Dzieniszewska, E. Sabura, G. Rzepa, M. Muszyński, J. Kyzioł – Komosińska (PL)

- P16 Removal of acid dyes form aqueous solutions using functionalized chitosan as a novel adsorbent**
Janusz Nowicki, A. Dzieniszewska, G. Rzepa, E. Sabura (PL)
- P17 Conversion of biomass-derived monosaccharides to 2-methylfuran in supercritical acetone**
Qiufu Zeng, Q.X. Sun, C.W. Hu (CN)
- P18 Reproducible production processes for cellobiose lipid biosurfactants - Influence of growth and transition phase on the production characteristics and technical developments towards in-situ product recovery**
Sini Münßinger, A. Beck, S. Zibek (DE)
- P19 BAPUR Project: Fully bio-based advanced filtration systems for removal of emerging pollutants from water**
F. Sofía Gómez, T. Llano, F. Pigazo, V. Sedlařík, I. Poljanšek, L. Andze, P. Eklund, A. Coz (ES, CZ, SI, LV & FI)
- P20 Stereospecific *b*-etherases for valorisation of lignin**
Elina Roine, A. Kazanavičiūtė, J. Sipilä, V. K. Sundaravel, T. Bortolato, M.W. Gillick-Healy, K. Hilden (FI & IE)
- P21 Towards sustainable acetic acid production: Increasing fermentation yield from methanol and CO₂ in *Acetobacterium woodii***
Clara Goldin, D. Mattanovich, R.H. Bischof, H. Marx (AT)
- P22 Chitosan and suberinic acids coating interaction improves paper hydrophobic properties**
Ulla Milbreta, L. Andze, J. Rizikovs, I. Filipova (LV)
- P23 Low-value tree biomass of silver fir as a source material for natural antioxidants**
Viljem Vek, U. Osolnik, P. Hrovatič, I. Poljanšek, E. Visiné Rajczi, T. Hofmann, P. Oven (SI)
- P24 Preliminary study of biomass residue leaching from natural fibre-based materials**
Kristine Meile, I. Irbe, M. Kampuss, L. Andze (LV)
- P25 Heavy metal sorption potential of hemp fiber chitosan filter materials**
Laura Andze, U. Milbreta, O. Bikovens, I. Filipova (LV)
- P26 LCA'50: Comparative formulations of biosourced 50th LCA anniversary perfume by Hybrid Artificial Intelligence (HAI) & Perfumer Apprentice (PA) vs Perfumer Expert (PE)**
G. Marsaud, S. Grivot, A. Miral, O. Hachette, Thierry Talou (FR)
- P27 Screening of yeast surface displayed hydrophobins by Fluorescence-Activated Cell Sorting (FACS)**
Salla Koskela, J. Klemola, K. Elfving, M. Linder (FI)
- P28 Improved extraction of native fungal class II hydrophobin proteins via Aqueous Two-Phase System (ATPS)**
Tiia Siivola, S. Koskela, M.B. Linder (FI)
- P29 Synthesis of fully bio-based and re-processable self-blowing composite Non Isocyanate PolyUrethane (NIPU) foams**
F. Orabona, K. Polaczek, F. Recupido, G.C. Lama, F. Taddeo, T. Salmi, M. Di Serio, V. Russo, R. Marzella, Letizia Verdolotti (IT & FI)
- P30 Combined bioremediation and agrichemical production by Nordic microalgae**
Martina Jokeł, S. Sirin, Y. Allahverdiyeva

Biocatalysis and novel fermentation processes

- P31 Fluorescence measurement enables distinguished online monitoring of co-cultures of *Trichoderma reesei* and varying *Streptomyces* species**
Gesa Brauneck, M. Heykena, D. Schütterle, I. Schlembach, M.A. Rosenbaum, M. Mann, J. Magnus (DE)
- P32 Production of biobased ethyl-butyrates by combination of fermentation and biocatalysis**
Katharina Oehlenschläger, E. Schepp, D. Holtmann, R. Ulber (DE)





- P33 Online monitoring of the polyol lipid liamocin accelerates development of novel biosurfactant production process**
Max Dicke, P. Kohl, T. Tiso, M. Mann, J. Magnus (DE)
- P34 A process-based dynamic model for succinic acid production by *Actinobacillus succinogenes*: Regulatory role of ATP/ADP balance**
Emiliano Salucci, F. Carteni, F. Giannino, E. de Alteris, F. Raganati, S. Mazzoleni (FI & IT)
- P35 Development of gas fermentation system by using HTB approaches for the obtainment of sustainable biomaterials**
Amiza Amiza, C. Torri (IT)
- P36 Enhancing bioprocess control with advanced in-line PAT sensors**
Hans Mattila, J. Havisto, E. Hietala, O. Koivistoinen, H. Lindström, M. Virkki, J. Lievonen (FI)
- P37 Microbial cultivation in polymer vessels: Examples of stirred and static systems for the production of biostimulants and biocontrol agents used in agriculture and forestry**
Oskars Grigs, O. Kurpnieks, I. Sutris (LV)
- P38 The effect of downstream processing on the enzymatic activity of tyrosine phenol lyase – Lyophilised lysate vs whole-cell catalyst**
Idamaria Romakkaniemi, J. Ahola, J. Panula-Perälä (FI)
- P39 Changes in elemental composition of lignin during enzymatic modification by white rot fungi**
Kristiina Hildén, J. Karppi, J. Mikkilä, J. Kontro, J. Kuuskeri, R. Maltari, C. Lyra, P. Nousiainen, J. Sipilä (FI)
- P40 New AA3 oxidoreductases from *Arabidopsis thaliana***
Johanna Karppi, M. Sun, H. Zhao, T. Paasela, M. Tenkanen (FI)

Bioenergy and thermochemical transformation

- P41 Development of a kinetic scheme for hemicellulose pyrolysis: A combined experimental and modelling strategy**
Eleonora Benedetto, V. Piazza, P. Debiagi, M.Y. Suleiman, A. Frassoldati, L. Lietti, T. Faravelli, A. Beretta (IT & CN)
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