

Biofuels Through Electrochemical Transformation Of Intermediate Bio-Liquids

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EBIO is a four-year project that is part of the European Union's Horizon 2020 Research and Innovation Programme. It is set to be a game changer in the field of biofuel production with the aim to generate energy dense biofuels through electrochemical transformation of intermediate liquified biomass. The project launched in December 2020 with a budget of around 4 million euros. After some Covid-19 pandemic related start-up challenges, the project has successfully brought together partners from all over Europe, and has successfully reached its final year of research, all with the same goal: to turn low value crude bio liquids into sustainable road transport fuels. The consortium is built on strong foundations of research, innovation, and industrial knowledge. It consists of nine beneficiaries from seven different countries, among them some of the world leaders in the field.

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1. Final Event at Nordic Wood Biorefinery Conference

The EBIO project's final event is approaching, set to take place in Örnsköldsvik, Sweden, where this year's NBWC (Nordic Wood Biorefinery Conference) is going to be held. The EBIO side event will have "*Green chemistry approaches for the wood industry*" as the central topic and will feature presentations and discussions with researchers and industry experts.

Find the agenda and information to register [here](#).



2. Watch the Recordings of the latest EBIO webinars

EBIO recently organized a series of webinars providing interesting insights on the project technologies and advancements. All the recordings are now available on the [EBIO YouTube channel](#).

Here is an overview of the treated topics:

Webinar #1: “Pyrolysis Oil: Production, Use, and State of the Art and Challenges”, featuring Robbie Venderbosch from BTG and Roman Tschentscher from SINTEF.

Webinar #2: “Connecting Heterogeneous and Electrocatalysis: Understanding Substrate Specificity”, including insights from Guido Mul and Bastian Mei from University of Twente.

Webinar #3: “Upgrading Pyrolysis Liquid into Biofuel: Opportunities & Challenges”, presented by Seda Karahan and Can Güvenç from Tüpraş and Yannick Mathieu from CSIC.



3. Talal Ashraf's Presentation at ECCNS2024

PhD candidate Talal Ashraf attended the 1st National Symposium on Electrochemical Conversion (ECCNS2024) in The Hague, The Netherlands, on May 21, 2024.

He presented his research on the “Electrooxidation of Carboxylic Acids on Boron Doped Electrodes for Pyrolysis Oil Upgradation Application.” Talal discussed the challenges of carboxylic acids in bio-based pyrolysis oil and the potential of electrochemical decarboxylation to address these issues sustainably.

His presentation covered the process of hydroxyl radical-mediated electrooxidation of carboxylic acids on boron-doped diamond electrodes. The reaction leads to the production of valuable chemicals such as methanol, ethanol, and ethylene, as well as hydrogen.

These findings underscore the potential of the EBIO research, demonstrating electrochemical decarboxylation is a sustainable route for bio-based fuel production, even from complex mixtures.



Talal Ashraf during the 1st National Symposium on Electrochemical Conversion

4. EBIO's Social Impact Assessment Presented at GEOINNO 2024

The EBIO project's Social Impact Assessment (SIA) task was presented at the GEOINNO conference in Manchester from January 10–12, 2024 during the "Innovation in the Bioeconomy and Regional Sustainability Transitions" track.

The presentation highlighted the potential social impacts of implementing EBIO technology for advanced biofuels production in Innlandet, Norway. Key topics included the electrochemical conversion of pyrolysis oil, a case-based approach to assessing regional development, and the need for refined social sustainability assessment methods.

The session also featured a presentation from the STAR4bbs project on sustainability certification and labeling of biobased products.

View the presentation [here](#)



5. EBIO in Marseille for the EUBCE

EBIO has recently been featured at the annual conference EUBCE, that took place in Marseille, France, from June 24–27, 2024.

Project coordinator Roman Tschentscher and PhD candidate Elisabeth K. Oehl presented key research findings through their posters entitled "Electrocatalytic Kraft Lignin Conversion in Industrial Black Liquor" and "Catalytic Glucose Oxidation Applying Electrochemically Produced Green Oxidants"



Roman Tschentscher presenting at EUBCE 2024



PROJECT PARTNERS




Contacts:

info@EBIO-h2020.eu

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