

NNFCC highlights from EFIB2023

Article written by Polly-Ann Hanson, November 2023

The European Forum on Industrial Biotechnology (EFIB) was held in Rotterdam in October 2023. NNFCC strives to maintain its presence and connection with the wider bioeconomy industry, so events such as EFIB are invaluable, and team members Polly-Ann Hanson (Consultant) and Sophie Mason (Senior Consultant) attended the event this year to hear the latest industry updates, to catch up with existing contacts and to expand our network. Here's a quick summary of some of the insights we gleaned from the 2 day conference, for those interested in the latest technologies and perspectives in biotechnology.

The conference opened with a discussion on the potential for biotechnology across Europe. A sustainable and resilient Europe is the goal, and biotechnology has a significant role to play in that. Biotechnology can feed into many industries – represented by the diversity of speakers and panelists in attendance – from surfactants and pharmaceuticals to construction materials and novel foods.

Food, feed and nutrition was a big topic on Day 1. Representatives from small businesses, large multinationals, the European Commission (EC) and Food Safety Authority (FSA) discussed some of barriers to getting innovative food products, such as lab-grown meat, to the market. Daan Luining from Meatable felt that the regulatory framework in the EU was limiting innovation, referring to an overly long process in view of safety to get novel food approval, after which member states could still ban the product. While food safety should not be ignored, markets outside the EU may tempt innovation in novel foods away from Europe, like the large and homogenous market in the US, or the UK where Jens Nielsen from the BioInnovation Institute suggested legislation will move faster.

Indeed, regulation is not just a barrier for the food market in Europe: the materials sector also reports many barriers. For example, enzymatic polymerization being described as 'natural' has got the industry tied up in definitions, as Simon Herriott from IFF commented. Sustainable biomaterials were also discussed at length in one of the sessions on Day 1, and as for new innovations aiming for approval from the EU, Ute Schick from Evonik (who produce glycolipid surfactants partnered with Unilever) suggests that a product-centered, instead of process-centered, risk assessment would be more effective.

Ensuring sustainability for chemicals and materials was also a recurring theme, as well as wider discussions on definitions and terminology. Just because a product is biobased, or produced from biotechnology, does not mean that it is sustainable by default. Unfortunately a criteria to properly assess and certify sustainability does not really exist in materials policy beyond biofuels, as Stephane Arditi from the European Environmental Bureau (EEB) commented. Questions have to be asked on what is the best use of biomass, and what is the best market for that material. Individual Member States are moving to consider this question, and the UK Biomass Strategy which was released earlier in the year is a major step in this process – other countries are working on similar, and a pan-EU alignment is necessary, as well as full global consideration for the larger markets.

Measuring carbon footprint and conducting life-cycle assessments (LCAs) are invaluable tools for the industry, as a way to differentiate between fossil and biobased products, and to demonstrate their sustainability. Beyond looking at CO₂, LCAs can also be used to quantify specific measures like water consumption and other environmental, social and economic aspects. Ana Morao from Corbion

discussed the LCA for their PLA production with Total, and suggested that when accounting for biogenic carbon, questions must be raised on how this is accounted for (which is particularly important when you consider the end-of-life for the product). Corbion aim to perform an LCA on 100% of their products by 2025. Tom van Aken from Avantium (who produce biobased PEF as an alternative to fossil-based PEF) described how PEF production is lower in its carbon footprint than PET by 35% even if you do not consider the biogenic carbon, which highlights the growing significance of LCA in the chemicals and materials industry.

New developments in bioprocesses and technologies were also discussed on Day 2, with some specific examples highlighted below due to their relevance or significance.

- Photanol produce circular chemicals from CO₂ by using cyanobacteria to convert water and CO₂ (with light) in chemicals such as glycolic and lactic acid. The interesting thing about the technology is that the source of the CO₂ is adaptable, so could be purified, but also could be taken as flue gas or CO₂ from anaerobic digestion. They are currently at pilot scale in the Netherlands.
- Afyren, part of the After-Biochem CBE JU project, use fermentation and a biorefinery platform to produce carboxylic acids for a variety of applications. Their first plant is built in France and they are currently ramping up production, aiming for 16,000 tons of carboxylic acids per year at full capacity.
- Bloom have developed an aldehyde assisted fractionation technology for biomass, separating and valorizing cellulose, hemicellulose and lignin. Potential markets range from plastics to construction materials. They are scaling up and recently announced working with dsm-firmenich on fine chemical products.

There were also many start-ups and SMEs sharing their innovations and setting out their potential for the industry, not just in processing and manufacturing but also in synthetic biology and strain development. It is also interesting to hear more about how developments in computer science go hand in hand with synthetic biology – new software, libraries and machine learning for statistical analysis can be invaluable tools for biotechnology.

Overall it was a very engaging and positive couple of days focused on the role that biotechnology can play in Europe. There are barriers to navigate, but the industry is growing and it would be great to see the full potential of biotechnology realised. Perhaps NNFCC can help to de-risk some of the common obstacles mentioned as being faced by the industry, with our expertise and experience in areas such as mapping feedstock availability or market analysis.

EFIB is organised by EuropaBio, the European Association for Bioindustries. Many thanks to EuropaBio and their local partners in the Netherlands for an exciting couple of days.

Find out more about EFIB 2023 at <https://efibforum.com/schedule/>

NNFCC

Biocentre, York Science Park, Innovation Way, Heslington, York, YO10 5NY

Phone: +44 (0)1940 217182

Email: enquiries@nnfcc.co.uk

www.nnfcc.co.uk

