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Welcome to the 4th CAFIPLA Newsletter!

Dear Reader,

Not only the first half year but also summer is clearly over as we are in the middle of a very busy last third of 2022. Within the CAFIPLA project, many activities were scheduled for the past months and finally several on site events could take place – overall a lot of activities were happening: The consortium prepared the **project brochure and video**, launched a **webinar series**, successfully completed the first reporting period, **met in person** for the very first time, organised two **stakeholder workshops** in Belgium and Germany and published the **first research paper**. The most recent news surely is the installation of the pilot reactor "**The loop**" currently taking place at the test plant of IDELUX in Tenneville – we will report about this exciting activity in our next edition! Join our LinkedIn community to "stay in the loop" with updates and new formats: the **CAFIPLA Podcasts** are upcoming soon…

We wish you a warm and productive fall season!

The CAFIPLA Dissemination Team

Content

1. CAFIPLA Webinar series: From organic waste to biochemicals

Recordings available on the CAFIPLA website!

The CAFIPLA Webinar series "From organic waste to biochemicals" started in December 2021 and continued in March this year was a great success with approximately 90 participants.

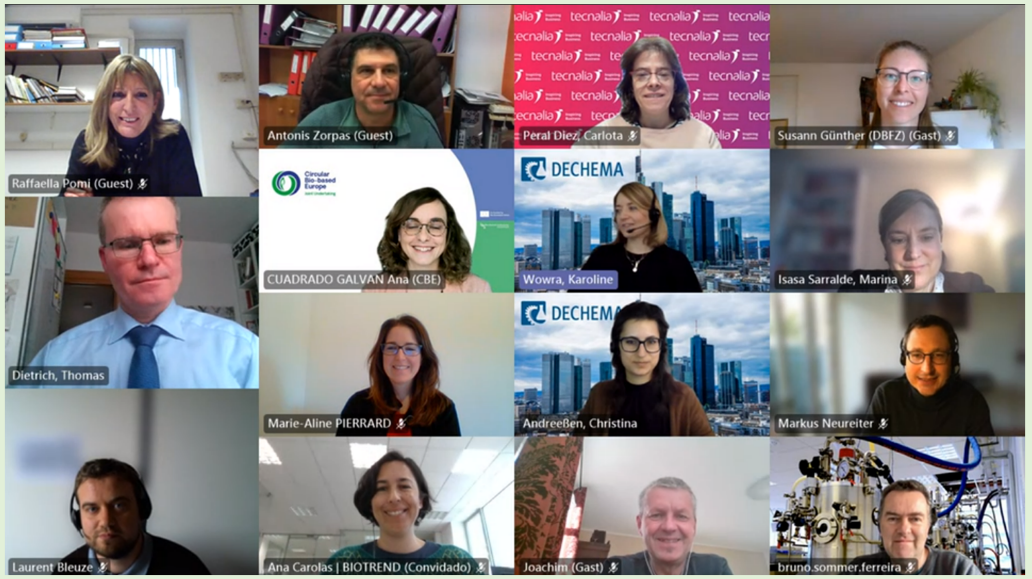
In **part 1 "How to pre-treat biowaste"** our partners TECNALIA, IDELUX Environnement, OWS RF and DBFZ introduced the overall CAFIPLA concept and technologies and talked about different feedstocks suitable for these new biowaste-based value chains.

Part 2 "How to valorise biowaste" then closed the loop by introducing the CAFIPLA products polyhydroxyalkanoates (PHA), microbial protein (MP), medium chain carboxylic acids (MCCA) and natural fibres. The corresponding project partners TECNALIA, ATB, UGent, Avecom, Biotrend, FRD and DECHEMA presented how these bioproducts are made from organic waste feedstocks and what the economic potential and markets look like. If you missed the webinars, you can still find the recordings here:

CAFIPLA Webinar recordings

2. Reporting period 1 successfully completed

Full day Review meeting with the whole consortium



In March, the CAFIPLA project successfully completed the first reporting period in a day-long Review meeting with our project officer from the Circular Bio-based Europe Joint Undertaking (CBE JU) and two experts, who **critically reviewed the progress** and results obtained within the project within the first 18 months. Instead of travelling to Brussels and meeting the partners, our PO and the reviewers in person, the event took place online. Nevertheless, it was an **interactive full day of presentations**, at which the partners reported about all work packages, summarised the highlights, challenges, and achievements of the first CAFIPLA reporting period of month 1 to 18 of the project. These activities were before also compiled in the **first periodic report** that was to be revised in order to ensure high quality research and targeted activities. The CAFIPLA team thanks our project officer and the CBE JU Communications team for this day of fruitful discussions, constructive feedback and lastly, the **approval of the first CAFIPLA period.**

3. 24th Month Meeting of the CAFIPLA partners

5th General Assembly took place in Vitoria-Gasteiz, Spain

Finally in June, it was the time for the CAFIPLA consortium to **meet in person** for the very first time being two years into the project. Our coordinator Thomas Dietrich from TECNALIA therefore invited all partners to their home city of **Vitoria-Gasteiz in the north of Spain**, which is also the European Green Capital 2012. The whole team came together for their 5th General Assembly and made the very best use of these two days with presentations, exchange, and **networking activities – all in 3D**. Many thanks again to our coordinator and the whole team for organising this wonderful meeting!

4. From pasta waste to lactic acid - first paper!

We are excited to present the first scientific publication from the CAFIPLA consortium by ATB and IDELUX!

Pablo López-Gómez and Joachim Venus from ATB together with Marie-Aline Pierrard from IDELUX Environnement published this article in **Food and Bioproducts Processing**. The partners at IDELUX collected the residual pasta generously provided by Ter Beke in Belgium in order to send it over to Potsdam, where our partner ATB then studied the pasta samples as fermentation substrate. Pasta waste is an interesting but currently underused sidestream, as the **global pasta production generates about 376 kilo tonnes of pasta waste** every year.

The paper describes how pasta waste can serve as substrate for *Bacillus coagulans* to produce lactic acid, a **precursor for polylactic acid**. Pablo and his colleagues detail how enzymatic hydrolysis led to a sugar yield of 0,81 g per g dry pasta waste, which was then used to screen *B. coagulans* strains for most efficient **pasta hydrolysate utilization**. After

scaling up the process to 50L, lactic acid concentrations of almost 50 g/L and a yield of 0.67 g per g dry pasta waste were reached.

Read on how the process was developed and which were the optimisation approaches. Find the entire article "**Upgrading pasta wastes through lactic acid fermentations**" here:

Full article in Food and Bioproducts Processing

5. CAFIPLA Workshops in Belgium and Germany

Not only communication within the consortium is crucial for an optimal steering of the project, but also external **input by expert stakeholders** of the CAFIPLA concept is a key factor to ensure a close-to-market development of the technology. This year, the CAFIPLA project hosted **two workshops** and invited selected groups of experts, e.g. in the fields of biogenic residual materials or novel biogas plant concepts.

The first workshop "**Assessment of the opportunities for an innovative biogenic waste processing concept**" was held in June at the IDELUX waste treatment plant in Tenneville, Belgium, which is also the test plant for the CAFIPLA pilot. There, around 30 experts in various aspects regarding biomass or biogenic waste, e.g. from the waste treatment and food industries, came together to discuss opportunities and challenges of the innovative CAFIPLA valorisation approach. The day started with presentations by the CAFIPLA partners introducing the project, followed by interactive discussion sessions to collect and jointly discuss the valuable input and questions of all participants. Concluding, Marie-Aline Pierrard and Jérôme Maus provided a guided tour of the treatment plant as a first-hand experience to the overall process and explained the envisioned pilot implementation on site.

The second workshop "**Better ways for biowaste - How to improve valorisation processes for biobased products**" took place in August at ACHEMA 2022 in Frankfurt and attracted approximately 50 participants. The program again started with short pitches on the CAFIPLA concept, followed this time by two impulse talks given by Arne Gröngröft from **DBFZ** and Markus Schule Vels from **REMONDIS** and showing alternative approaches to utilize and valorise biogenic residues, before the participants were invited to take part in two rounds of **table discussions** on topics around the five areas of POLCY, SUPPLY CHAIN, TECHNOLGOY, MARKET and SOCIETY.

Pictures by: DECHEMA/Pietro Sutera

A huge **thank you to all participating stakeholders and to our speakers** for inspiring discussions and lots of valuable input. The workshop materials and outcome including the presentations and discussion summaries (available soon for workshop #2) is provided on

the CAFIPLA Stakeholder platform.

CAFIPLA Stakeholder platform

6. Current progress in CAFIPLA

Insights into ongoing work at UGent in WP2 and WP5

CAFIPLA partner Ghent University (UGent) is specialized in the study and application of mixed microbial communities to better understand ecological processes and enable biotechnological applications. With their expertise, UGent's main role in the CAFIPLA project is to **characterize, monitor and steer microbial communities for optimized production** as well as investigating the application potential.

Currently, UGent is working on **converting lactic acid (LA) into caproic acid (CA)**. For that, they are focusing on two aspects: On the one hand, UGent is studying the **microbial communities used during waste fermentation** at other project partners, to relate changes in the community structure to changes in operational parameters and process performance. On the other hand, they are working on **lactic acid chain elongation**, which is a fermentation process for **medium-chain carboxylic acid (MCCA) production** from LA. For that, UGent is screening the process parameters for optimal production and product recovery, while using lactic acid-rich substrates that are produced by the CAFIPLA partners. It is expected that the activities performed by UGent will both provide the basis for a **microbiology-based monitoring tool** to ensure stable process performance, and optimized CA production and recovery from organic waste.

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Consortium

The consortium consists of 6 SMEs and 6 research institutes:

Enterprises

- Idelux Environnement
- Biopract GmbH
- Fibres Recherche Developpement (FRD)
- Organic Waste Systems Research Foundation (OWS RF)
- Biotrend – Inovação e Engenharia em Biotecnologia, S.A.
- Avecom

Research institutes

- Fundación Tecnalia Research & Innovation
- Deutsches Biomasseforschungszentrum Gemeinnutzige GmbH (DBFZ)
- Universität für Bodenkultur Wien (BOKU) - Department of Agrobiotechnology IFA-Tulln
- Leibniz Institute for Agricultural Engineering and Bioeconomy e.V. (ATB)
- UNIVERSITEIT GENT - Center for Microbial Ecology and Technology (CMET)
- DECHEMA e.V. - Society for Chemical Engineering and Biotechnology

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BBI JU

Bio-based Industries
Consortium

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