

Research engineer position in Biochemistry - 18 months

Development and scale up of a biotechnological process to produce Cyrene®

URD Industrial Agro-Biotechnologies (URD ABI) - AgroParisTech
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Located in the European Center of Biotechnology & Bioeconomy (CEBB, Pomacle, France), the Industrial Agro-Biotechnologies Research and Development Unit from AgroParisTech (aka URD ABI) has for primary vocation to develop new biotechnological processes (enzymatic, green chemistry) from bio-based building blocks and to demonstrate their feasibility at the laboratory scale. The research activities currently underway within the laboratory deal with both the development of new materials/bio-based polymers from renewable building blocks, and the production of higher added value molecules (e.g., cosmetic and pharmaceutical industries) from biorefinery by-products.

Among the various building blocks valorized at URD ABI, Levoglucosenone (LGO) – a chiral compound deriving from the flash pyrolysis of cellulosic biomass – has been the subject of many research projects and has, among other things, allowed a sustainable access to the green solvent Cyrene™ through a patented biotechnological process. The development and scale-up of this enzymatic synthesis is being part of the BBI H2020 Flagship RESOLUTE project that aims to implement a Cyrene™ production plant in Europe. While the production plant uses a chemical pathway towards Cyrene™, great interest for the biotechnological one has been shown for specific field that require metal-free solvents.

The candidate will join the URD ABI "Green chemistry" team and will be entrusted with the development and scale up of the biotechnological pathway toward Cyrene™. As part of this project, the recruited research engineer will have to:

- Use biotechnological processes (e.g., enzymatic catalysis, whole cell bioconversion) to produce Cyrene™ from Levoglucosenone;
- Optimize the enzyme production and Cyrene™ production through Design of Experiment (DoE) methodology;
- Scale-up the process from 1 Liter flask to 20 Liter fermenter;
- Write reports and publications;
- Present results at conferences...

Profile:

The candidate should have a Master degree in biochemistry, as well as skills in analytical chemistry. Expertise in Design of Experiments and/or chemical engineering (e.g., reaction scale-up) would be a plus. The candidate will have to demonstrate a scientific openness to collaborate with all the stakeholders of the project as well as an appetite for transdisciplinary projects.

Position required for February 2022 for a period of 18 months

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