

POST-DOC POSITION IN FUNCTIONALIZATION AND CHARACTERIZATION OF BIOMOLECULES FROM SPENT COFFEE GROUNDS

(18 months)

Hosting laboratory

URD ABI, located at the heart of the Pomacle-Bazancourt biorefinery, is a research and development unit dedicated to valorization of agrosources and biorefinery by-products. With expertise in white biotechnologies, green chemistry, and process engineering, the team works on multi-disciplinary research projects aiming at the development of new industrial processes allowing integrating the transformation of by-products of agriculture into high value-added chemicals such as polymers, fine chemicals, functional additives or cosmetics.

Context and objectives:

The proposed 18-month post-doctoral research project aims to explore the functionalization of extracted molecules from spent coffee grounds, with a focus on sustainability and potential applications in the cosmetics and pharmaceutical industries, as well as the plastics and/or materials industries. This collaborative effort between URD ABI and the start-up VERA Biotech seeks to contribute to the development of innovative, eco-friendly molecules for utilizing coffee waste to high added-value bioactive compounds with potential industrial applications. The project aligns with the goals of both academia and industry to advance green technologies and promote sustainable practices.

Objectives:

- Literature survey to identify molecules of interest in spend coffee ground and design synthetic pathways for their functionalization.
- Synthesize the targeted molecules at gram-scale.
- Characterize the obtained compounds (1D and 2D NMR analysis, HRMS, UV, FTIR, melting point...).
- Analyze the bioactivities and assess the potential applications of synthesized molecules, with a focus on the pharmaceutical, cosmetics and nutraceutical fields.
- Green up and scale-up (0.1-1 kg) the synthetic pathway toward the most promising compounds.

Candidate profile:

The candidate should hold a PhD in chemistry and demonstrate expertise in (green) organic chemistry, as well as experience in structure elucidation (NMR analysis, mass spectroscopy). A good command of analytical chemistry and experience of experimental design will be a plus. In addition, the candidate needs to demonstrate a strong affinity for laboratory work and an ability to integrate harmoniously into a dynamic, multidisciplinary team.

Location: European Center for Biotechnology and Bioeconomy, 3 Rue des Rouges-Terres, Pomacle (51110), France. The position is available as soon as possible.

To apply, please send a CV and a cover letter to amandine.flourat@agroparistech.fr