

POST DOC POSITION IN MICROBIAL ECOLOGY

- Recruitment grade: young researcher (i.e. with PhD)
- Location: Pau, France
- Duration: 12 months, starting February 1st 2021 (to be renewed upon additional funding)
- Deadline: December 4th, 2020
- Gross Salary Range: 2999 euros / month

Context and aims

In Europe, the protection of inland waters is ensured by the implementation of the water framework directive, which requires the assessment of the chemical and ecological quality of natural ecosystems. The ecological status is evaluated through the use of biological indices. These indices compare the abundance and diversity of diatoms, phytoplankton, macrophytes, invertebrates and fish species upstream and downstream along the water course. Although very informative, this approach is costly and time-consuming, making genomics tools attractive for environmental risk assessment stakeholders. Although still facing numerous challenges (such as bias in DNA extraction procedure, amplification and species identification), environmental genomics have been proved very promising, notably for the detection of rare species.

In the present project, we aim to evaluate the use of metagenomics to determine variations in the abundance and diversity of microorganisms exposed to chemical compounds (metals and polycyclic aromatic hydrocarbons). The microorganisms of interest will be prokaryotes, algae, fungi and meiofauna living in biofilms, *i.e.* communities growing on freshwater substrata in running waters. Our interest to focus on those four major groups is to further develop networks connecting key species in each group and to build integrative indices of water quality in freshwater.

Tasks and proposed methodology

Biofilms will be exposed to increasing concentrations of metals and organic compounds, alone and in mixtures, using microcosms and artificial rivers situated at *Pole d'Etudes et de Recherche de Lacq*, a TOTAL facility. Quantitative PCR will be used to quantify bacteria, algae, fungi and meiofauna DNA whereas taxonomic analyses will be performed using metabarcoding. Statistical approaches and diversity indexes will then be calculated to differentiate exposed and reference systems. Co-occurrence between indicator species at the bacteria, alga, fungi and meiofauna will also be built.

Funding

This post doc position is funded by the project E2S-UPPA (Energy Environment Solutions) whom core scientific domain focuses on Environment and Energy to meet challenges related to the energy transition, geo-resources, aquatic habitats and the environmental effects of natural and anthropogenic changes (<https://>

[//e2s-uppa.eu/en/index.html](http://e2s-uppa.eu/en/index.html)).

Supervision and Contact

Supervisory team:

Dr Séverine Le Faucheur, holder of the research partnership chair e2s-UPPA-Total-Rio Tinto, IPREM, Université de Pau et des Pays de l'Adour

Dr Marisol Goñi Urriza, HDR, Environmental Microbiology, IPREM, Université de Pau et des Pays de l'Adour (<https://scholar.google.com/citations?user=vnjFzi0AAAAJ&hl=fr>)

For additional information and proposal, please contact:

Dr Séverine Le Faucheur, severine.le-faucheur@univ-pau.fr

Young Researcher skills required

The candidate should be a good molecular biologist with solid ecotoxicology or microbiology background. He/she should master barcoding approaches and data mining analysis.

Salary

The salary of the successful candidate will be based on level chart for teaching and research personnel in the salary system of French universities. The salary will be 2999 euros/month (gross salary), including allowance for 64 hours teaching per year.

Applications and deadline

Please submit your application by email to severine.le-faucheur@univ-pau.fr and marisol.goni@univ-pau.fr. Please attach the following documents as a single pdf file: cover letter, CV and contact details for two referees.

The deadline for submitting the application is December 4th, 2020.