Post Doc - Research profile

Plant multi-omics data mining - Pollucom ANR project

Type: Post Doc
Start of the position 06/01/2026
The contract is for 22 months.
Affiliation : Laboratoire BVpam UMR 5079, Université Jean Monnet (UJM),
St. Étienne, France
https://lbvpam.univ-st-etienne.fr/fr/index.html

KEYWORDS
Data science, chemical ecology, fig, lavender, pollination, ozone pollution, global warming

Contact for HR:
Please sent your application to recrutementsujm@univ-st-etienne.fr before the 30th of September 2025. It should include:

- **Letter of motivation**
- **CV (including personal information)**
- **Publication list**
- **Diploma/transcript of Master degree and PhD degree**

Contact for the Laboratory: florence.nicole@univ-st-etienne.fr, sandrine.moja@univ-st-etienne.fr, denis.saint.marcoux@univ-st-etienne.fr

Application deadline: 30th of September, 2025

CONTEXT

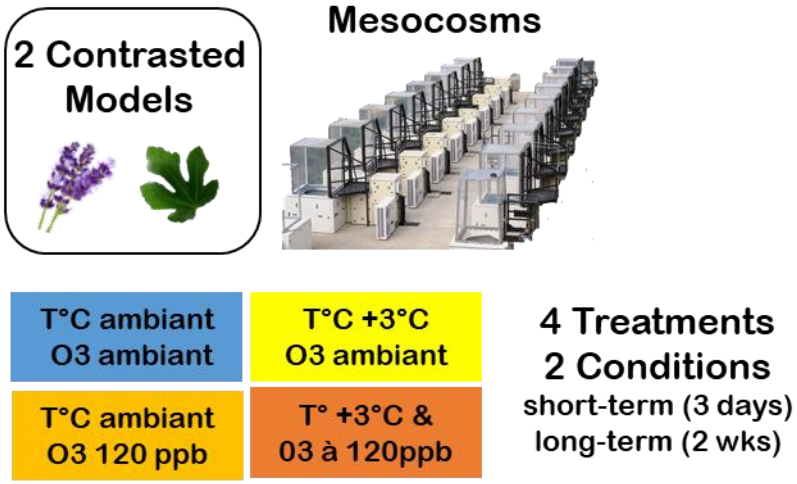
The offered postdoctoral position is part of the ANR project Pollucom "Effects of ozone pollution on plant-pollinator chemical communication under global warming, consequences for their interactions".

Four institutional partners are involved: Centre d'Ecologie Fonctionnelle et Evolutive (CEFE, UMR CNRS 5175 Montpellier, France) - Montpellier European Ecotron (UAR 3248) – Laboratoire de biotechnologies végétales (LBVpam, UMR CNRS 5079, Univ. Jean Monnet, St Etienne, France) - Institut d'Ecologie et des Sciences de l'Environnement de Paris (iEES-Paris, UMR CNRS 7618, Paris, France). The position will be based at LBVpam in Saint Etienne, France.

Today, stability of ecosystems and biodiversity are clearly affected by rapid environmental

changes due to human activities. Unfortunately, all these impacts and the cascades of modifications are not well characterized. Among biotic interactions, pollination is an important service for both natural and agricultural ecosystems. Insect pollinators play major role to maintain more than 75% of angiosperm and food crops reproduction. The vast majority of plant-pollinator interactions are mediated by chemical communication. One way of communication is based on volatile organic compounds (VOCs) produced by plants and attractive for pollinators. These chemicals diffuse into the ambient air and some are detected by pollinators antennas. Because pollinators' recognition of floral odors relies on a mixture of VOCs in specific proportions, any qualitative or quantitative change can result in failure to locate flowers. Among air pollutants, tropospheric ozone, by generating oxidative stress, is one of the most damaging for organisms. Background O_3 levels have now approximately doubled from the early 1900s, and high O_3 peaks are nowadays a frequent occurrence. Despite this potentially dramatic effect, little is known about the consequences of increasing O_3 levels on plant-pollinator interactions. Indeed, a disruption in the capacity of pollinators to locate their host flowers could have dramatic consequences on the fitness of plants and pollinators, altering the functioning of natural ecosystems but also for ecosystem services in agriculture.

The Pollucom project investigates the effect of O_3 and its impact in the context of increasing temperature on plant-pollinator interactions. Two pollination systems are studied: a specialized one, *Blastophaha psenes* (Hymenoptera, Agaonidae) - *Ficus carica* (Moraceae) and a generalized one, *Bombus terrestris* (Hymenoptera, Apidae) - *Lavandula angustifolia* (Lamiaceae). Experimentations will be performed in mesocosms (European Ecotron of Montpellier) where concentration of O_3 and temperature will be controlled.



THE POSITION

We offer a creative and stimulating international scientific environment, and access to state-of-the-art technologies. You will be part of a national collaboration and thus will expand your network as such. LBVpam is a leading laboratory in plant volatile biochemistry and is globally recognized for the excellence of its research in plant VOC biochemistry. We offer a rewarding

and challenging job in an international environment, where English is the daily language in the laboratory. We strive for academic excellence in an environment characterized by collegial respect and personal responsibility.
University Jean Monnet is a multidisciplinary university and is present throughout the city of Saint-Étienne: with its 20,000 students, University Jean Monnet supplies young talent and excellence.

The appointment follows general employment rules for a French University. The period of employment is 22 months fully funded.

ACTIVITIES

We are looking for a highly motivated postdoctoral researcher to characterize the impact of elevated [O_3] and temperature, on the specialized metabolism of VOCs biosynthesis and antioxidant system responses in figs and lavenders.
The successful applicant will generate and annotate transcriptomes and link these with metabolomics studies. The applicant will characterize key molecular processes using multi-omics approaches, such a GNPS networking and similar techniques.
The postdoc will develop QC, processing and analysis pipelines for integrating multi-level biological data (i.e. RNA-seq, metabolomic, measure of oxidative stress, pollinator attractiveness, fecundity) and will generate statistical association analysis and model construction. Thus, the candidate should have strong background in data mining of large datasets with profound knowledge of metabolomics and molecular biology.

PROFESSIONAL SKILLS AND KNOWLEDGE

- PhD in Computational Biology, Systems Biology, Bioinformatics, or closely related areas
- Experience in analysis high throughput data types (particularly metabolomics and transcriptomics)
- Preferably a good background / biological knowledge on plant ecology and VOCs biochemistry
- Good communication skills
- Excellent programming skills using Python or similar. Fluency in R
- The candidate must be able to write and speak English fluently, as this is the language of communication in the laboratory

Qualifications

The applicant must possess a PhD degree and be able to take up the position no later than January, 2026.