Postdoctoral Scientist in plant apoplast metabolomics

Host institution: IJPB-Plant Sciences
Duration: 18 months
Start date: Beginning of 2026 (Ideally from February 1st, 2026).
Location: based in Versailles (France)
Application deadline: open until a suitable candidate is identified
Project Title : Elicitation of defenses under abiotic stress – modulation of the apoplastic fluid to enhance plant defenses and reduce pathogen virulence

About the Lab

The **Institute Jean-Pierre Bourgin for Plant Sciences (IJPB)**, is a large research unit (UMR 1318) funded by INRAE and AgroParisTech which conducts research in all areas of plant biology. The IJPB is renowned for its unique combination of experimental resources and multidisciplinary expertise in biology, chemistry and applied mathematics. Our research aims to develop concepts and tools that extend our fundamental knowledge about plant biology and agronomy towards innovative solutions for complex scientific and social challenges. In addition to scientific discovery, our remit also includes transfer and sharing through teaching, training, outreach and partnerships. The Physiology and Interactions division (PHI aims to gain a better understanding of **plant physiology in interaction with their biotic and abiotic environment**, in order to identify genetic and agronomic levers for crops that are more robust in the face of climate change. The Nitrogen-Pathogen Interactions (NPI) team specifically focuses on the **impact of abiotic stress**, such as nitrogen or water limitation, **on plant-pathogen interactions**. The team focuses on necrotrophic pathogens and studies both partners of the interaction using omics, genetics and molecular biology. This knowledge serves as a basis for developing innovative, specific, sustainable, and environmentally friendly control strategies.

Project Summary

- Elicitors activate the immune system of plants, leading to the production and accumulation of defense compounds. Most of these molecules are found in the apoplastic fluid, making them an important lever that plants can modify to avoid attacks by pathogens.
- While a large number of elicitors have shown promising results under controlled conditions, the literature shows that environmental fluctuations can impact plant immunity and, by extension, elicitation mechanisms. Although this has been described in *A. thaliana*, little is known about tomatoes.
- A collaborative project between the IJPB (INRAE) and a private company is proposed to evaluate how abiotic stresses impact tomato leaf diseases through the study of apoplastic fluid composition. The modulation of pathogen growth and virulence under abiotic stress conditions will also be observed.

Expected profile

We are seeking a motivated researcher to join the NPI team. The candidate should have solid expertise in plant physiology, including skills in metabolomics. Experience in plant-microbe interactions would also be appreciated. Applicants should also demonstrate an interest in applied research.

Employer: INRAE
location: UMR IJPB-Plant Sciences, Versailles, France
duration: 18 months
Application: CV, motivation letter and recommendation letter to be sent to : mathilde.fagard@inrae.fr
Application deadline: open until a suitable candidate is identified
Salary: depending on past experiences

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