



We offer a one-year contract for a motivated graduate student who wants to perform their PhD Thesis in the [Plant Bio-factories group](#), in the project “**Generation of plant bio-factories for the sustainable production of mosquito repellents and other high-value compounds**” at the National Center of Biotechnology-CSIC in Madrid, directed by Eduardo González Grandío. The PhD candidate should apply to PhD fellowships such as La Caixa INPhINIT, FPU, Comunidad de Madrid, etc. to obtain further funding (the contract may be extended until a fellowship is obtained). The expected start date is March 2024.

## RESEARCH LINE

Plants have played a vital role in human history providing us with food and medicine. Even nowadays, some of the most efficient treatments against certain diseases are obtained from plant extracts. However, the natural low yield of these compounds presents a challenge for their widespread use. Thanks to recent advances in plant synthetic biology, we can now turn plants into bio-factories, enhancing the accumulation of natural compounds or even producing new-to-nature molecules, such as human vaccines.

Plant bio-factories have several advantages over classical bacterial or yeast bioreactors. However, to date, no plant bio-factory chassis into which different metabolic pathways can be inserted has been established. **The aim of this project is to develop a plant bio-factory platform for sustainable production of terpenoids**, the largest family of plant secondary metabolites, with many uses in medicine, fragrance and flavor industries. As a proof of concept, **we will use these plants to produce an insect repellent** that is currently synthesized chemically from citronellal, a plant monoterpene. This process generates hazardous waste and is not environmentally-friendly. We will produce an alternative, sustainable source of this repellent. This project involves transcriptomic and metabolomic approaches, gene editing by CRISPR/Cas and has a high biotechnological application potential.

## CANDIDATE PROFILE

- University Degree and Master's Degree in Life Sciences (Biology, Biotechnology, Biochemistry or similar).
- Grade point average higher than 8.5/10.
- English level certificate.

Experience and training to be valued:

- Knowledge of basic molecular biology techniques (PCR, cloning, etc.), bioinformatics, statistics.
- Ability to communicate and present scientific data.
- Ability to work in a team and autonomously, with initiative, motivation and commitment.

## CONTACT

If you want to know more about the project, contact us at: [eduardo.gonzalez@cnb.csic.es](mailto:eduardo.gonzalez@cnb.csic.es)

Please send us your CV and academic record in your e-mail.