







IRTA is a research institute owned by the Government of Catalonia ascribed to the Ministry of Climate Action, Food and Rural Agenda. IRTA is one of the CERCA centers of excellence of the Catalan Research System. Our purpose is to contribute to the modernization, competitiveness and sustainable development of agriculture, food and aquaculture sectors, the supply of healthy and quality foods for consumers and, generally, improving the welfare and prosperity of the society. We are granted by the EU with the [HRS4R](#) distinction for "HR Excellence in Research" and thus we offer a rich environment for knowledge development and exchange where to develop a scientific career, and possibilities for professional promotion according to the attained achievements. Check our initiatives [here](#).

PhD candidate for the Sustainability in Biosystems and Sustainable Plant Protection Programs

[ref. CPI1522]

IRTA is currently seeking an enthusiastic and motivated PhD candidate to join the team of our Research Programs of [Sustainability in Biosystems](#) and [Sustainable Plant Protection](#). We invite applications from ambitious candidates with relevant research experience and passion to conduct research and innovation activities on the **valorization of organic fertilizers and enhancement of soil functions through novel fungal-based biofertilizers**.

-  Supervisor/s: Dr [Francesc Prenafeta](#) and Dr [Carme Biel](#)
-  Job location: [IRTA Marimon](#) / [IRTA Cabriels](#)
-  Full-time position (37.5 h/week)
-  Terms of appointment: The duration of the PhD Candidate contract will be for one year, extendible by yearly periods to a maximum of (3) years.
-  Salary: Salary: The financial remuneration will be €1,236.39/gross per month (€17,309.45/gross per annum) for the first and second years. For the third year, it will be €1,324.10/gross per month (€18,545.84/gross per annum) which will be subject to the corresponding withholdings, pursuant to prevailing regulations, and to the collective employment agreement of IRTA. ⁽¹⁾
-  Employee Benefits: 22 vacation days, 3 days of family & work conciliation, 45h of personal days, Friday afternoon off, Compressed Summer schedule from 15/06 to 15/09, Conciliation schedule.

Tasks and Responsibilities:

This PhD thesis will study and validate new added-value biofertilizers manufactured from organic wastes and by-products from the agri-food sector, inoculated with fungi known as dark septate endophytes (DSE). Such novel biofertilizers may contribute to reduce the dependence on the use of mineral fertilizers and pesticides and the associated environmental emissions, they might improve soil health and quality, including an increase in soil organic carbon (SOC), while maintaining and even favouring increasing crop productivity. However, little is known on the biodiversity, ecophysiology, and potential applications of DSE, which will be the main research topics of this dissertation.

In order to achieve the research objectives, the candidate will be responsible for planning a research strategy and perform the necessary laboratory and field experiments in order to:

- Isolate and characterize a DSE strain collection with suitable biofertilizer traits. This will require the development of specific isolation methods, molecular identification, and physiological tests in the lab.

- Select DSE strains that can viably be inoculated and thrive on different organic fractions (e.g., compost and digestate), and in combination with other beneficial soil microorganisms, such as arbuscular mycorrhizal fungi (AMF).
- Produce selected biofertilizers and validate their performance through assays on model horticultural crops.
- Gain a deeper understanding of the interaction between the inoculated DSE and AMF, the rhizosphere autochthonous microbial populations, and the host plant.
- Study the nutrients' dynamics (N and P) and determine the C sequestration potential associated with the application of fungal-based biofertilizers.
- Present and discuss the obtained results in accordance with the existing literature, and justify the main achievements, shortcomings, and remaining challenges.
- Write the main research results in at least four scientific articles to be published in indexed peer-reviewed journals.

Required qualifications and experience

- Candidates must hold one of the following degrees: Biology, Biotechnology, or Agronomy.
 - a) A Master's in Soil Science/Microbiology or Plant Physiology, or similar.
 - b) To be in a position to access a doctoral program according to the requirements of Catalan universities, e.g. accrediting between 60 and 120 ECTS credits at the official university master's degree level or equivalent.
- The candidate must not have a PhD.

Desirable requirements

- Laboratory experience in environmental chemistry and/or microbiology.
- Experience in research planning and implementation.
- Basic knowledge of bioinformatics and/or statistical methods.
- Good communication skills.
- Driving license

Languages

- Proficiency in English
- Catalan and Spanish are valued

Application process

If you wish to be considered for this position, please, apply via our [Recruitment Platform](#) to the job post with reference CPI1522 and upload your CV and motivation letter. All information will be treated in the strictest confidence.

Deadline for application: 13/06

Timings in the Selection Process of ref. CPI1522 **PhD candidate for a project about innovative biofertilizers**

30 natural days	Publication and diffusion of the job advertisement on IRTA's website, EURAXESS Jobs, social media and other specific recruitment places.
5 following working days	Distribution of the pre-selected CVs which matching eligibility criteria to the Recruitment Committee. Communication via e-mail with the not pre-selected candidates who will not be further included in the process.
20 following working days	Recruitment Committee: - Communication via e-mail with the not-selected candidates by the Recruitment Committee. - Interview with selected candidates by the Selection Committee. - Accord of the Recruitment Committee stating the selected candidate and detailed reasoning for the decline of the rest of the candidates. - Communication via e-mail with the interviewed and not-selected candidates
10 following working days	Provision by the selected candidate of requested legal and official documentation to the HR department to coordinate the start of the candidate.
Third Trimester 2022	Start of employment

IRTA guarantees an open, transparent, and merit-based recruitment process (OTM-R) to all registered candidacies avoiding thus any bias on gender, origin, age, ideology, or other circumstances that could be discriminatory. Candidates in a situation of social exclusion will be considered in the first place.

Please know that if you are the chosen candidate and you are from a country which does not belong to the UE, IRTA's Human Resources Department will support you to get the residence and working permits.

⁽¹⁾ The financial remuneration of the PhD Candidate contract may not be less than 56% of the salary established for the category of Research Collaborator F of the Collective Agreement of the IRTA during the first two years, 60% in the third year and 75% in the fourth.