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# Job offer

JOB

PORTUGAL

[Faculdade de Ciências da Universidade de Lisboa](#) | Posted on: 19 March 2025

## RESEARCH GRANT FOR ONE FELLOWSHIP (BI) FOR MSC STUDENT (Ref.<sup>a</sup> BI-MESTRANDO-DroughtResist)

Apply now [✉ \(mailto:candidaturas@ciencias.ulisboa.pt?subject=RESEARCH GRANT FOR ONE FELLOWSHIP \(BI\) FOR MSC STUDENT \(Ref.<sup>a</sup> BI-MESTRANDO-DroughtResist\)\)](mailto:candidaturas@ciencias.ulisboa.pt?subject=RESEARCH%20GRANT%20FOR%20ONE%20FELLOWSHIP%20(BI)%20FOR%20MSC%20STUDENT%20(Ref.%20BI-MESTRANDO-DroughtResist))



19 Mar 2025

## Job Information

Organisation/Company	Faculdade de Ciências da Universidade de Lisboa
Research Field	Other
Researcher Profile	First Stage Researcher (R1)
Positions	Bachelor Positions
Country	Portugal
Application Deadline	2 Apr 2025 - 23:59 (Europe/Lisbon)
Type of Contract	Other
	Other

## Type of Contract Extra Information

<b>Job Status</b>	Full-time
<b>Is the job funded through the EU Research Framework Programme?</b>	Not funded by a EU programme
<b>Is the Job related to staff position within a Research Infrastructure?</b>	No

## Offer Description

At the Faculty of Sciences of the University of Lisbon (FCUL), a call is open for the attribution of 1 (one) research grant for Master Student, financed by Programa Regional de Lisboa (LISBOA 2030), within PORTUGAL 2030, through FEDER funds, under the scope of the Project “DroughtResist - Consórcio de biofábricas bacterianas: um bio-estimulante para o aumento da tolerância das plantas ao stress hídrico face à crise climática” (LISBOA2030-FEDER-01172400), according to the following conditions:

### Work plan:

- Scientific-technological state of the art, an intensive review of scientific and technological literature will be carried out based on articles and patents published in repositories such as Web of Science, Scopus, Google Scholar, Repository of the University of Lisbon among others. The collection of documents to be analyzed (including patents) will be based on keywords including (among others) in Portuguese and English: biostimulant, PGPR, microorganism, microorganisms promoting drought tolerance, biostimulant formulation, ionic liquids in formulation of biostimulants, microencapsulation of biofertilizers. Works that have not been peer-reviewed or published in journals without an impact factor will be excluded from the collection. The CORDIS database will also be consulted to consult projects approved by the EU, which in some way relate to the topic. The websites of each project will be consulted and the teams of the projects most related to the proposal will be contacted if there are no published results. The results of identifying the state of the art will be shared and discussed among the co-promoters to identify the most interesting results and fine-tune the detailed objectives of the project. A document will be prepared that summarizes the state of the art (Activity A1T1).
- Selection and omics characterization of strains under water stress conditions, taking as a reference the product and process specifications (Activity 1) and the characteristics of bacteria that promote plant growth under stress conditions, 5 to 8 bacterial strains with potential will be selected to function as promoters of plant development under water stress conditions (strains belonging to the genera *Streptomyces*, *Bacillus* and *Pseudomonas*). A multi-omics approach will be carried out on these selected strains: genomics using complete genome sequencing using NGS (Next Generation Sequencing) technology of each of the selected strains; metabolomics using the metabolic map expressed under water stress conditions by each of the strains using mass spectrometry associated with FT-ICR; and phenomics using the utilization profile of single carbon sources (Biolog characterization) along a water stress gradient induced by the addition of polyethylene glycol. The genomes and metabolomes obtained will be annotated using bioinformatics tools and using public databases and others developed by CIÊNCIAS to identify genes and metabolites, respectively, potentially involved in promoting tolerance to water stress. When designing consortia of microorganisms, it is necessary to evaluate the compatibility of strains and potential synergism between strains when present together. In this way, the pairwise interaction between the strains under water stress conditions (addition of PEG to the growth

medium) will be studied in vitro, and it will be determined whether there is inhibition of the growth of each strain in the interaction, as well as the resulting metabolome will be analyzed by method described previously. At the end of this task, a database will result with the characteristics of each of the strains and their interactions (Activity A2T1).

- - Microencapsulation of metabolites and microorganisms with the purpose of encapsulation is to increase the stability of living cells, delay the release mechanism, stabilize metabolites and create a physical barrier against biotic and abiotic stress. Considering what is tested for increasing the shelf-life of biostimulants with isolates from the genera *Bacillus*, *Streptomyces* and *Pseudomonas*, we will test two encapsulation methods, extrusion and emulsification. Extrusion is a technique based on physics principles for encapsulating live microbial cells using changing the material of the wall and active part using high pressure. It is a simple and cheap method that increases the lifespan of microorganisms. Live microorganisms in solution will pass through a calcium chloride solution (hardening solution) through a high-pressure nozzle (syringe needles). Syringe needles with various dimensions and various viscosities of the solution and concentrations of the type of coating material (polysaccharide) will be used as a way of regulating the size of the microparticles to be obtained (visualization under a microscope). 4 polysaccharides (sodium alginate, starch, carrageenan and chitosan) will be tested (CIÊNCIAS and ASFERTGLOBAL). Emulsification consists of two immiscible fluids: usually water and oil. Oils of vegetable origin (sunflower and canola) and commercially obtained emulsifiers will be used.
- **Fellowship duration:**
  - The grant is expected to start on May/June 2025. The contract, with a duration of twelve (12) months, on an exclusive basis, with the possibility of renewal for twelve (12) additional months.
- **Form of presentation of applications:**
  - Applications may be sent by e-mail, to the address [candidaturas@ciencias.ulisboa.pt](mailto:candidaturas@ciencias.ulisboa.pt), with the reference " Ref.<sup>a</sup> BI-MESTRANDO-DroughtResist", under penalty of not being considered for the competition.
  - Applications must be accompanied, compulsorily and under penalty of exclusion, by the following documents. No document, which must be submitted at the time of application, may be submitted after the deadline for submission:
    - Personal data form and declaration of consent for communication of results via e-mail;
    - Declaration under oath;
    - Proof of enrolment in a Master's programme with a strong biotechnology component, in the academic year 2024/2025;
    - Detailed and updated Curriculum Vitae;
    - Photocopy of the qualification certificate(s) of the academic degree(s) required – first degree;
    - If the academic degree, required in the present announcement as an admission requirement for the type of scholarship in question, was obtained abroad, you must submit one of the following documents: (See also the NOTES below)
      - Document proving the granting, by a Portuguese Institution, of the recognition or equivalence or registration of the academic degree;
      - Document proving that you have already applied for the recognition of the degree, which application must be submitted by the deadline for receipt of applications, inclusive.
  - **Notes:**
    - 1) The presentation of the proof of obtaining the recognition or equivalence or registration of the academic degree is a mandatory condition for signing the contract;
    - 2) For academic degrees obtained in foreign countries, which have not yet obtained either recognition or equivalence or registration of the degree, it is necessary to recognise it, under the terms provided for in Decree Law no. 66/2018, of 16 August, combined with Ordinance no. 33/2019, of 25 January, as currently amended.

# Where to apply

E-mail

candidaturas@ciencias.ulisboa.pt

## Requirements

Research Field

Other

Education Level

Bachelor Degree or equivalent

### Skills/Qualifications

**Candidates must fulfil the following mandatory requirements:**

- Knowledge of English
- Experience in laboratory working

If the academic degree required by the present announcement as an admission requirement for the type of grant in question was obtained abroad, the requirements mentioned in point "Form of presentation of applications" of this announcement regarding the qualification certificates shall be taken into consideration.

### Specific Requirements

**Preference will be given to candidates with the following requirements:**

- Domain of the English language
- Experience in Laboratory work

Languages

PORTUGUESE

Level

Excellent

Languages

ENGLISH

Level

Good

Research Field

Other

### Internal Application form(s) needed

**Formulários\_1.pdf**

**English** (503.16 KB - PDF)

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## Additional Information

**Benefits**

## **Monthly allowance and social security:**

- The fellowship amount corresponds to € 1040.98 (one thousand and forty euros and ninety-eight cents), according to FCT Regulation for Research Fellowships, published by Regulation no. 950/2019 in the Diário da República, 2nd series, no. 241, of 16th of December, amended by Regulation No. 643/2021, published in the Diário da República, 2nd Series, No. 135, of 14 July., and available in the site of FCT, I.P.

It will be paid monthly by bank transfer;

- The candidate to be hired may exercise his right to social insurance by joining the voluntary social insurance scheme, under the terms of the Statute of the Research Fellowship. The financing entities assume the costs resulting from the contributions provided for this Social Insurance, according to the Statute of the Research Fellowship.

## **Selection process**

### **Selection criteria:**

The applicable selection methods will be curricular evaluation and, eventually, a selection interview.

If the jury chooses to conduct a selection interview, it will be conducted with the three (3) candidates with the best classification in the curricular assessment.

In the event that the selection interview is held, the final evaluation will be obtained considering the following weightings: 50% for the curricular evaluation and 50% for the selection interview.

The selection methods are eliminatory, and candidates who obtain a score of less than 9.5 in one of the selection methods or stages of the procedure will be excluded, and the next method or stage will not be applied to these candidates.

### **Selection committee:**

Cristina Maria Nobre Sobral de Vilhena da Cruz Houghton (President), Luís Miguel Moita Carvalho (1st Effective Member), Hugo Alexandre Teixeira Duarte Ferreira (2nd Effective Member), Patrícia Ferreira Correia (1st Alternate Member) and Maria Teresa Machado Dias (2nd Alternate Member).

### **Form of publication/notification of results:**

This competition is advertised on the Sciences ULisboa and Euraxess websites.

All candidates will be notified of the final result of the evaluation, sent to the email address used for sending the respective application, or by post, to the address given in the Personal Data Form, through a sorted list, in descending order of the final evaluation obtained.

## **Additional comments**

### **Legislation framework:**

- Research Fellowship Holder Statute - Law no. 40/2004, of August 18, amended by Decree-Law No. 202/2012, of August 27, by Decree-Law No. 233/2012, of October 29, by Law No. 12/2013, of January 29, by Decree-Law No. 89/2013, of July 9, and by Decree-Law No. 123/2019, of August 28;
- FCT Regulation for Research Fellowships - Regulation no. 950/2019 in the Diário da República, 2nd Series, no. 241, of 16 of December, amended by Regulation No. 643/2021, published in the Diário da República, 2nd Series, No. 135, of 14 July.

To see the full offer please check the following link:

[www.ciencias.ulisboa.pt/concursos?id=](http://www.ciencias.ulisboa.pt/concursos?id=4891) **4891**

**Workplace:** The work will be developed at the Campus of the Faculty of Sciences of the University of Lisbon, located in Campo Grande, 1749-016 Lisbon.

**SCIENTIFIC SUPERVISION:** Cristina Maria Nobre Sobral de Vilhena da Cruz Houghton

Website for additional job details <https://ciencias.ulisboa.pt/concursos?id=4891>

## Work Location(s)

Number of offers available	1
Company/Institute	Faculdade de Ciências da Universidade de Lisboa
Country	Portugal
State/Province	Lisboa
City	Lisboa
Postal Code	1749-016
Street	Campo Grande
Geofield	

## Contact

State/Province	Lisboa
City	Lisboa
Website	<a href="https://ciencias.ulisboa.pt/concursos?id=4891">https://ciencias.ulisboa.pt/concursos?id=4891</a>
Street	Campo Grande
Postal Code	1749-016

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