

(BL25/2025-IST-ID)

Research Studentships (for students of a course that does not award an academic degree)

Applications are open for 1 Research Studentship, within the framework of the project “**Pacto da Bioeconomia Azul**” (**Blue Bioeconomy Pact**) – 1801P.01241 at Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (IST-ID) (reference C632741873-00467082, investment project n.º 16), financed by European funds and by national funds through the “Instituto de Apoio às Pequenas e Médias Empresas e à Inovação” (IAPMEI) and the Plano de Recuperação e Resiliência (Recovery and Resilience Plan), under the following conditions:

Scientific Area: Bioengineering, Biotechnology and Biochemistry

Admission Requirements:

- a) to hold a master degree in Biological Engineering, Biotechnology, Microbiology, or related areas and
- b) be enrolled at a course that does not award an academic degree and it is integrated in the educational project of a higher education institution, performed in association or cooperation with one or several R&D units;

Workplan:

1. Preparation of a hydrolysate rich in sugars from the hydrolysis of the carbohydrate fraction of a selected macroalgae.
2. Use of the hydrolysate produced in the previous step as a substrate for growth and production of PHAs by a selected halophilic bacterium.
3. Operation of a benchtop bioreactor (2L) in fed-batch mode. Determination of operating conditions that allow achieving high productivities and polymer yields using the selected bacteria and the seaweed hydrolysate.
4. Determination of the monomeric composition of the polymer produced as well as the average molecular weight, mechanical and thermal properties

The objectives to be achieved fall within the scope of “Workpackage” 1 (“WP1 – Biomaterials”) of the aforementioned project and will contribute to the production of green polymers (PHAs) from macroalgae biomass, a natural resource that exists in large quantities in the Portuguese coast. The PHAs will be used to manufacture biodegradable polymer blends and composite materials within the scope of the Innovation Pact for the Blue Bioeconomy.

Legislation and Regulations: Statute of Scientific Research Fellow, approved by Law nr. 40/2004, of August 18, as worded by Decree-Law nr. 123/2019, of August 28; IST-ID Regulation for Research Fellowships, available on <https://ist-id.pt/recursos/documentos/recursos-humanos/bolseiros/#1690453819726-6707f7f2-ce04>.

Workplace: The work will be developed at Instituto de Bioengenharia e Biociências (iBB) do Instituto Superior Técnico, Universidade de Lisboa under the scientific supervision of Dr. Maria Teresa Ferreira Cesário Smolders.

Duration: The research fellowship(s) will have the duration of 10 months. It is expected to begin in March 2025, and may be eventually renewed up to a maximum of 2 months in case of an eventual project extension.

Monthly maintenance allowance: the amount of the monthly maintenance allowance is €1 259, 64, being the payment method of the Fellow by wire transfer.

Selection methods: The selection methods will be the following: *Curriculum evaluation with individual interview if necessary. The curriculum evaluation criteria will be the following:*

- 1. Familiarity with basic laboratory techniques and methods in the field of microbiology, eg. culture of microorganisms and preparation of culture media and chemical solutions (total of 25 values);*
- 2. Familiarity with the operation of benchtop bioreactors and their control (total of 25 points);*
- 3. Experience in biochemistry and analytical chemistry techniques e.g. in the analysis of sugars and organic acids by HPLC, analysis of nutrients by colorimetric methods using spectrophotometry, use of gas chromatography (GC) for e.g. quantification of PHAs, techniques for extracting metabolites from bacterial cultures (such as PHAs) and macroalgae fractions (such as proteins, carbohydrates), obtaining macroalgae hydrolysates by physicochemical and/or enzymatic methods (total of 30 values);*
- 4. Academic path. Bachelor's and Master's grades and indicators proving the qualifications mentioned above (eg. quality of the Master's thesis), poster presentations at scientific meetings and/or participation in scientific publications. The candidate's willingness to pursue a PhD will also be considered a positive factor (total of 20 points).*

Composition of the selection Jury:

Dr. Maria Teresa Cesário (Departamento de Bioengenharia, Instituto Superior Técnico)

Prof. Rodrigo da Silva Costa (Departamento de Bioengenharia, Instituto Superior Técnico)

Prof. Pedro Carlos de Barros Fernandes (Departamento de Bioengenharia, Instituto Superior Técnico)

Announcement/ notification of the results: The final evaluation results will be communicated to all applicants by email.

Deadlines and procedures of complaint and appeal. A complaint may be lodged from the final decision, or an appeal to the Executive Board of IST-ID, within 15 working days counted from the respective notification.

Application deadline and formalization: The call is open from February 27 until March 20, 2025.

It is mandatory to formalize applications with the submission of the following documents: i) B1 Form – Fellowship application (<https://ist-id.pt/concursos/bolsas/>); ii) *Curriculum Vitae*; iii) academic degree certificate; iv) proof of enrollment at a course that does not award an academic degree (only necessary in the moment of contract celebration; v) motivation letter; vi) declaration of honour that the applicant does not exceed with this contract an accumulated period of two years in this type of studentship, continuously or with interruptions.

Applications must be submitted to the email: teresa.cesario@tecnico.ulisboa.pt