

(BL217/2024-IST-ID)

Research Studentships (for Integrated Master students)

Applications are open for 1 Research Studentship, within the framework of project “Alternative Proteins from Microbial Fermentation of Non-Conventional Sea Sources for Next-Generation Food, Feed and Non-Food Bio-Based Applications- PROMISEANG”, with reference 1801P.01327 - PROMISEANG, financed by the European Union, program Horizon Europe 2030, under the following conditions:

Scientific Area: Bioengineering, Biotechnology and Biochemistry

Admission Requirements: *To be enrolled at an integrated master or a master.*

Workplan:

1. Preparation of sugar-rich hydrolysates and peptide-rich hydrolysates from the hydrolysis of the carbohydrate fraction of macroalgae residues and the protein fraction of fish residues, respectively.
2. Fermentation of the hydrolysates produced (*vide* 1.) using lactic acid bacteria or other selected bacteria/yeasts. Characterization of the fermented products regarding protein content, peptide- and amino acid profile.
3. Extraction of the protein fraction of the fermented product. After fermentation, the solid fraction, rich in microbial and marine substrate proteins, and the liquid fraction, rich in soluble proteins (enzymes, active peptides and amino acids) will be separated by centrifugation. After cell rupture, an innovative method using a 3-phase system employing deep eutectic solvents will be developed to extract proteins. Combinations of menthol/octanoic acid, choline chloride/urea or choline chloride/glycerol mixtures will be tested. Extracted and precipitated proteins will be resolubilized and purified, namely by ultrafiltration.

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 Studentships and Fellowships, available on <https://ist-id.pt/concursos/bolsas/>.

Workplace: The work will be developed at Institute for Bioengineering and Biosciences of Instituto Superior Técnico, under the scientific supervision of Dr. Maria Teresa Cesário and of Professor Marília Mateus.

Duration: The research fellowship(s) will have the duration of 3 months. It’s expected to begin in October 2024 and may be eventually renewed up to the maximum of 6 months, including the duration of the initial contract.

Monthly maintenance allowance: The amount of the monthly maintenance allowance is 990,98 €, being the payment method an option of the Fellow by Wire Transfer.

Selection methods:

1. Familiarity with basic laboratory techniques and methods in the area of microbiology, such as the culture of microorganisms and the preparation of culture media and of chemical solutions (total of 20 points);
2. Familiarity with techniques for extracting components from biomass, such as proteins and carbohydrates, as well as with the manufacture of biomass hydrolysates by physicochemical and/or enzymatic methods (total of 20 points).
3. Familiarity with the operation of benchtop bioreactors and respective controls for carrying out fermentations (total of 25 points);

4. Experience in performing chemical and biochemical analyses, namely the analysis of sugars and organic acids by HPLC and the analysis of nutrients by colorimetric methods using spectrophotometry (total of 15 values).
5. Academic career. Attention will be paid to undergraduate degree grades, poster presentations at scientific meetings and/or participation in scientific publications. The intention to continue for a doctorate will be considered an asset (total of 20 values).

The selection will be made based on CV evaluation. Only in the event of tied candidates, or if any doubt arises, the candidate(s) will be interviewed.

Composition of the selection Jury: Doctor Maria Teresa Ferreira Cesário Smolders, Professor Marília Clemente Velez Mateus and Professor Helena Maria Rodrigues Vasconcelos Pinheiro, researchers of the Institute for Bioengineering and Biosciences and professors of the Department of Bioengineering of Instituto Superior Técnico.

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

Application deadline and formalization: The call is open from September 25 until October 1, 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, when applicable; iv) proof of enrollment at an academic degree course (Master, Integrated Master); v) motivation letter;

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