

IRTA

INSTITUT DE RECERCA I TECNOLOGIA AGROALIMENTÀRIES

OFFERS A PHD CANDIDATE CONTRACT

SPONSORED FELLOWSHIP – SCIENTIFIC INITIATIVES

Among other duties (Act 4/2009), IRTA is responsible for organising scientific and technical training programmes within the scope of its strategy, alone or in collaboration with other entities and bodies, in particular with Catalan universities, professional agricultural organisations and sector groups or associations.

Given that within the framework of the research activities of the IRTA for the Area of Food Industries (IRTA Monells - Girona) there exists a specific budget provision, a decision have been taken to train researchers in this Area.

As a result, it has been agreed:

1. To offer a PhD Candidate contract Sponsored Fellowship to participate in a project about obtaining nutritive proteins with functional properties from alternative sources (PROFUN).
2. To approve the terms of employment attached as a schedule.
3. To manage this offer and to resolve any disputes which might arise, and administering the resources allocated.

Mrs. Montserrat Satorra
Human Resources Manager - IRTA

SCHEDULE

CONDITIONS FOR THE OFFER OF A PHD CANDIDATE CONTRACT SPONSORED FELLOWSHIP – SCIENTIFIC INITIATIVES-, FOR THE AREA OF FOOD INDUSTRIES

Ref.: CPI2322

1. Scope of application

Animal welfare, environmental and health concerns are pushing consumers towards replacing meat from animal origin with proteins from alternative sources. Indeed, it is expected that novel vegan meat analogues will contribute 25% of the global meat market value in 2040. This paradigm shift is pressing the food industry to find proteins from sustainable sources and to develop food products with the appropriate sensory properties. However, the replacement of animal meat entails challenges from the technological, sensory and nutritional points of view. First, an optimal design of the protein extraction is required. Extraction yield can be enhanced by ultrasounds (US) or microwaves (MW), which facilitate the release of proteins from the matrix and their solubilization in alkaline medium. Anyhow, the technofunctional properties of proteins from sources other than meat are usually distant from the ones required for making texturized meat analogues. In this sense, conformational changes in proteins induced by extrusion or high-pressure processing (HPP) have a promising potential. Another drawback is the nutritional value, which is usually lower than meat, as shown by lower digestibility indispensable amino acid scores (DIAAS). Given that amino acid profiles differ within species, it is possible to improve the amino acid score by mixing protein isolates from different sources. In this sense, lupin and fava bean (legumes), buckwheat (pseudocereal) and microalgae such as *Spirulina* are sustainable sources from very different origins. Another concern is the presence of antinutritional factors, such as phytate, alkaloids, tannins and saponins, that hamper the absorption and bioavailability of indispensable amino acids and can induce deleterious effects on health. Furthermore, the formation of process-induced advanced glycation end products (AGEs) and protein cross-links such as lysinoalanine (LAL) and lanthionine (LAN) also contribute to the decrease in protein digestibility and may affect human health. Even if meat alternatives will ride the wave at the food industry in the years to come, the formation and fate of such compounds remain largely unknown.

The present PhD research project proposal pursues the following main objectives:

- To improve protein extraction from lupin, fava bean, buckwheat and microalgae, as alternative sources of proteins, by using US and MW and optimizing technological parameters.
- To obtain protein ingredients with tailor-made techno-functionality, by using extrusion and HPP, and high nutritional value, by mixing proteins from different origins.

- To develop alternative meat analogues with improved sensory and nutritional properties.
- To determine the effect of extraction methodologies (US, MW), extrusion and HPP on the nutritional and antinutritional properties of protein isolates and meat analogues.

Co-supervisors: Pere Gou, Albert Ribas

Place where the PhD candidate contract will be carried out:
IRTA, Monells (Catalonia, Spain).

2. Requisites for applicants

The fellowship may be requested by candidates meeting the following requisites:

2.1. Candidates must hold one of the following degrees: Food Science & Technology, Food Engineering, Chemistry, Biotechnology, or similar.

2.2. a) A Master's in Food Science & Technology, Food Chemistry, Biotechnology or similar **b)** To be in a position to access a doctoral programme according to the requirements of Catalan universities, *i.e.* accrediting between 60 and 120 ECTS credits at the official university master's degree level or equivalent

2.3. Not to have a PhD.

2.4. Any prior experience in matters of food technology or chemistry will be viewed positively.

2.5. Candidates must provide a signed letter declaring their undertaking to register on a doctorate programme within the Catalan university system.

2.6. Candidates who have been chosen for an interview with the Selection Committee, should bring –for the interview- a certified copy of the degree and/or master, as well as the academic record showing the marks of all subjects studied.

2.7. Foreign candidates who have been chosen for an interview with the Selection Committee should bring –for the interview- a certified copy and certified translation of the degree and/or master obtained at a foreign university, as well as an academic record showing the marks of all subjects studied.

3. Duration

Notwithstanding the provisions of Point Nine of this offer, IRTA will subscribe with training research staff holding the Master's a temporary employment agreement linked to a specific service by virtue of which the researcher will be employed by the

IRTA, with both parties assuming the contractual obligations arising therefrom and which, in any case, will be in line with the content of the application.

The duration of the PhD Candidate contract will be for one year, extendible by yearly periods, subject to the issuance by the doctoral candidate of the report corresponding (from the Candidate and from the Doctoral School) to the yearly period completed. Under no circumstances may the accumulated duration of the initial PhD Candidate contract plus the extensions exceed three (3) years.

4. Suspension of the PhD Candidate contract

The suspension of the PhD Candidate contract on the grounds established under articles 45 *et seq.* of the Workers' Statute will not imply any extension to the duration of the PhD Candidate contract except for situations of temporary incapacity, risk during pregnancy, maternity, adoption or fostering, risk while breastfeeding and paternity during the duration of the PhD Candidate contract, which will interrupt the calculation, pursuant to the provisions of Article 11.1.b) of the Consolidated Text of the Workers' Statute Act.

5. Financial remuneration⁽¹⁾

The financial remuneration for the PhD Candidate contract will be €1,247.52/gross per month (€17,465.28/gross per annum) for the first and second years. For the third year, it will be €1,336.63/gross per month (€18,712.82/gross per annum) which will be subject to the corresponding withholdings, pursuant to prevailing regulations, and to the collective employment agreement of IRTA.

IRTA will also pay the annual fees of the doctoral school when receiving the enrolment.

6. Applications

Interested parties should be registered at the Employment Service's website of IRTA <http://www.irta.es/en/work-at-irta/> adding his/her *Curriculum vitae*

7. Application period

The period for submitting applications opens as of the date of the offer and ends on October 23, 2022

8. Assessment and selection

The selecting of candidates will be carried out by an *ad hoc* committee consisting of the Head of the Program and two researchers (level D or higher) appointed by him/her.

9. Acceptance of PhD Candidate contract and payment

When accepted, the applicant must sign a document undertaking to comply with all the conditions of the PhD Candidate contract established in these terms, and in particular, with the following:

(a) To join the centre within one month of notification and to have exclusive dedication to the training programme proposed, in accordance with the internal rules of the centre. Failure to join could be considered to be a waiver of the right to financial aid.

(b) To present to the tutor appointed by the IRTA and HR, each year, 30 days before the renewal date of the agreement, a report on the work carried out to date in accordance with the model to be provided by the HR Department.

(c) To send to the tutor appointed by the IRTA a copy of any publications, articles and studies which might arise from the training programme carried out and the results obtained.

(d) To refer, in any written production arising from the training programme carried out, to the present PhD Candidate grant.

The non-fulfilment of any of the conditions of these terms without justification may imply the revocation of the PhD Candidate contract.

10. Assessment and continuity of the PhD Candidate contract

Based on the report drawn up by the interested party (mentioned in Point 9 (b) of this offer), the tutor(s) must prepare therein a report based on the tasks performed by the doctoral candidate and recommend the continuity or revocation of the PhD Candidate contract for the forthcoming yearly period. In the event of a negative assessment, grounds must be given.

To proceed with the continuity of the contract it will be necessary as well to present a copy of the registration to a pertinent PhD course and the corresponding evaluation report from the Academic Committee of the PhD program or from the PhD School.



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11. Intellectual property

The IRTA is exclusive holder of the intellectual and industrial property rights which might arise as a result of the activity carried out by the candidate or technologist during the training programme, notwithstanding recognition of authorship when necessary.

The publicising of any information obtained by the candidate in the form of scientific or informative articles, presentations for meetings and conferences or any other means or format may be carried out where necessary at the initiative and with the consent of the director(s) assigned by the IRTA to each of them.

12. Incompatibilities

This PhD Candidate contract will be incompatible with any other activity related to the research and training purpose of the same.

13. Waiver of the PhD Candidate contract

In the event the beneficiary should waive their right to the PhD Candidate contract, they must provide IRTA with a report on the tasks performed up to the time of their experimental waiver, notwithstanding the prior notice established by legal regulations. All data obtained during the training programme will be returned to IRTA.

14. Confidentiality undertaking

The beneficiary of this contract agrees to keep any data or information to which it might have access as a result of their relationship with IRTA strictly confidential, whatever the form of access to such data or information and the format in which they appear, it being totally prohibited to make copies without prior consent.

The access to and processing of data of a personal nature as a result of the relationship established with the IRTA will be carried out in accordance with the purposes established in the agreement, with the duty of secrecy continuing even after such relationship has concluded.

15. Data protection

Any data provided by candidates will be recorded in a file of IRTA in order to manage the process.

Pursuant to the provisions of the Spanish Organic Law 15/1999, of 13 December, on the protection of data of a personal nature, any interested parties may exercise their rights to and rectification before the Human Resource Department of the IRTA.

TIMING PHD CANDIDATE CONTRACT: (CPI2322)	
Deadline: October 23rd 2022	Process
30 days	Publication and diffusion of the job advertisement on IRTA's website, EURAXESS Jobs, social networks and other specific recruitment places.
2 following working days	To send, for its study, the pre-selected CV which match eligibility criteria to the Selection Committee. To send an automated e-mail for those who have not been pre-selected and cannot continue the process.
10-15 following working days	Selection Committee: .Interview with preselected candidates. .To send an e-mail for those who have not been selected by the Selection Committee. .Committee Selection Agreement with the selected candidate, giving reasons for the rest to be excluded. . Notification by e-mail to the candidates who have been interviewed but not selected.
12-16 following working days	To send to HR all the needed official documentation in order to make the work contract and co-ordination for establishing the start of the employment.
December 2022	Start of employment.

(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 (Act 14/2011 of 1 June).