

### **Biotechnological approaches to extract encapsulating material from agro-food wastes**

The present research project is aimed to the valorization of agricultural-food chain waste and by-products into innovative compounds to be reused as encapsulating material throughout green and highly sustainable approaches.

In this context, within the present research project, different waste from fish processing will be considered and exploited through tailored biotechnological approaches based on safe microorganisms or non-thermal technologies to obtain components such as chitosan for encapsulating solutions.

The biotechnological approaches will be firstly optimized at lab scale in relation to the starting waste/by-products and to the characteristics to be imparted to the final encapsulating material.

#### **Research activities**

- 1) Selection and characterization of the selected starting wastes/by-products in terms of composition and chemico-physical features. This phase will be necessary to select the microbial cultures/the proper non thermal technologies to be used.
  
- 2) Selection of the most appropriate microorganisms with QPS status, belonging to the DISTAL collection and already characterized for some technological features, in relation to their ability to adapt and develop in the starting substrate and ability to hydrolyze the substrate.
- 3) Selection of the most appropriate non thermal technologies (including Pulsed Electric Field) and green solvent for the extraction of chitosan.
- 3) Optimization of the biotechnological processes in relation to chemico-physical variables (pH, temperature, composition of the medium) in order to maximize the yield in chitosan.
  
- 4) Characterization of the encapsulating material
  
- 5) Support in reporting activities



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA

DIPARTIMENTO  
DI SCIENZE E TECNOLOGIE  
AGRO-ALIMENTARI

FORM TO BE FILLED AND ATTACHED TO CV IN THE APPLICATION

This call for a research fellowship is open to candidates in possession of the following requirements:

- to be a citizen and resident of xxxxxx,
- to be refugee from xxxxx
- to be refugee in xxxxx
- to be evacuee from xxxx
- to hold a permanent residence permit in xxxxxx
- to hold a 2nd cycle/specialist degree or degree from previous system or equivalent qualification in xxxxx.

THE UNDERSIGNED

SURNAME \_\_\_\_\_  
NAME \_\_\_\_\_  
BORN IN \_\_\_\_\_ (PROVINCE/COUNTRY \_\_\_\_\_)  
ON \_\_\_\_\_ (fill in exactly the same personal details as shown in the enclosed copy of passport or identity document)  
E-MAIL (compulsory) \_\_\_\_\_

HEREBY APPLIES

for the call for the selection running at DIPARTIMENTO DI SCIENZE E TECNOLOGIE AGRO-ALIMENTARI of the Alma Mater Studiorum - University of Bologna for the award of 1 grant research fellowship, for the execution of research activities, even remotely, within the project entitled "Biotechnological approaches to extract encapsulating material from agro-food wastes", according to the annexed Activity Programme for 12 (twelve) months starting approximately from 01/05/2025

AND DECLARES:

- to be a citizen and resident of xxxxxxxx to be a refugee from xxxxxxxxxxxx
- to be a refugee in xxxxxxxxxxxx
- to be an evacuee from xxxxxxxxxxxx
- to hold a permanent residence permit or international protection in xxxxxxxx

AND ENCLOSES THE FOLLOWING DOCUMENTS:

- scanned copy of the passport or valid Identification Card and, only for non-xxxxx citizens, of the residence permit or international protection in xxxxxxxxxxxx;
- a duly signed declaration indicating the eligibility for one of the above-mentioned categories;
- scientific and professional curriculum vitae also containing scientific productivity.

As required by the call, In the online application, following the web procedure instructions, candidates must indicate, under their own responsibility:

- surname and name;
- date and place of birth;
- nationality;
- residence and chosen address for correspondence for the purposes of this selection;

**Amministrazione – Ufficio Personale e patrimonio**

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- that they do not have a criminal record and are not involved in any current criminal proceedings (or if so, state which);
- that they have the qualification required by art. 2 of the call for applications, specifying the University and year in which it was obtained or that they possess an academic qualification obtained abroad, which is deemed equivalent.

Date, Signature \_\_\_\_\_

Processing of personal data Personal data collected are processed as described in the “Privacy policy for participants in the University's competitive selection procedures” available at: [www.unibo.it/privacy](http://www.unibo.it/privacy)