

Expression of Interest



Contact Person/Scientist in Charge

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Universitat Politècnica de València (UPV)

Department / Institute / Centre

- **Name:** Food Science and Technology Department - Universitat Politècnica de València
- **Address:** Campus de Vera; Camino de Vera, s/n; Valencia (46022)
- **Province:** Valencia

Research Area

- Chemistry (CHE)
- Life Sciences (LIF)

Brief description of the institution:

Universitat Politècnica de València (UPV) is the single Spanish Technical University that features in the main University world rankings. It is within the top 5 Spanish Universities with the highest revenue from both public research and knowledge transfer activities, and a national leader in patent license income and start up creation. Constituted in 1971, it comprises nearly 30.000 students, over 2500 academics, and 17 university research centres of excellence.

UPV has a relevant experience in the participation in international research programmes, with over 100 FP7 projects and 40 H2020 projects in the period 2014-2015. UPV researchers are also actively involved all H2020 life program stages, from workprogramme drafting discussions, to project coordination. It is also taking part in several major partnering initiatives (JTIs, PPPs, KICs...).

Brief description of the Centre/Research Group (including URL if applicable):

Researchers from the Department of Food Technology of UPV have proven experience in different disciplines related to food process engineering, food analysis techniques and food safety. The research group which supports this project is composed by 4 full professor, 4 post-doctoral researchers and 9 PhD candidates. The scientific production implies more than 200 scientific articles published in high rate scientific journals, 35 book chapters and 250 conference contributions. Moreover, 25 PhD thesis have been supervised in this group.

This group is coordinated by José Manuel Barat Baviera, who is member of the scientific committee of the Spanish Agency for Consumer Affairs, Food Safety and Nutrition (AECOSAN) since 2012 and was recently appointed representative of Spain in the Scientific Evaluation Network Risk Nanotechnology in Food and Feed of the European Food Safety Agency (EFSA). José Manuel Barat has managed several research projects supported by public institutions and private companies.

Department of Food Technology has adequate facilities to develop all the research activities established in this project. The analytical laboratories are equipped to perform both routine analysis and specific studies. The department has different physicochemical and microbiological labs, pilot plants, cell culture lab, and testing rooms. Equipment available are texture analysers, spectrophotometers, rheometers, colorimeters, DSC, GC-MS, HPLC-UV, HPLC-UVvis, among others.

More information available:

<http://www.upv.es/entidades/DTEA>

<http://jmbarat.blogs.upv.es/>

Project description:

Use of biocompatible supports for the development of new antimicrobials and control release systems

The use of natural substances with antimicrobial activity as well as the development of controlled release systems are part of the most appealing priorities of the food industry. These developments have some limitations. On one hand, the difficulty of achieving economic capsules and stable during processing, storage and food intake. On the other hand, the use of natural antimicrobials modifies the sensory properties of the product when employed at effective doses.

Our research group has experience in the development of porous silicon oxide particles functionalized with organic molecules acting as molecular gates. This holder allows the encapsulation and controlled release of molecules with interest in the food sector. Our recent studies provide scientific evidences of the effectiveness of the mentioned particles in the protection of encapsulated molecules from degradation during processing and in their release under the appropriate external stimulus.

This project aims the development of particles with antimicrobial activity through anchoring natural antimicrobials and the development of delivery systems through the functionalization with hydrophobic molecules. In both applications, holders would be silicon oxide particles, filosilicates or microcrystalline cellulose. In this project, the antimicrobial activity of the developed particles and their application in the preservation of meat and fish burgers will be studied. Activities to evaluate loading conditions, stability and release of natural antimicrobials, and toxicity of the developed particles will be also studied.

Applications

CV and letter of motivation should be submitted before 1st August