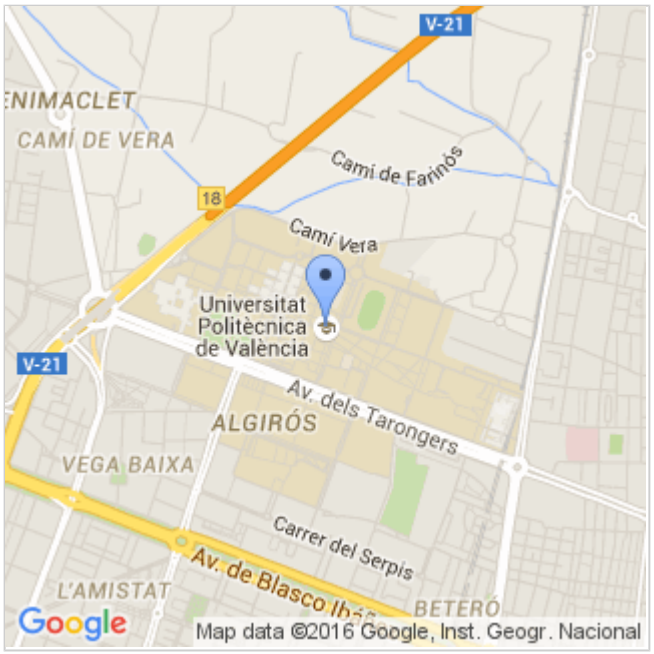
Expression of Interest



Contact Person/Scientist in Charge

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Universitat Politècnica de València (UPV)

Department / Institute / Centre

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

Research Area

- Information Science and Engineering (ENG)
- 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):

The research group of Food Microstructure and Chemistry carries out its research activity in the Department of Food Technology of the Universitàt Politecnica de Valencia (Spain). The group is composed of four researchers and Prof. Isabel Hernando is its coordinator. The main research expertise are: (i) optimization of formulation and processing for obtaining healthy foods (ii) structure and physicochemical studies to evaluate shelf-life in foods, (iii) changes in food structure during in vitro digestion (iv) microstructure-rheology- perception relationships (v) extraction of bioactive compounds using non-thermal technologies. One of our main expertise is in the field of Food Microstructure. We have studied different type of foods (bakery products, dairy products, meat, fish, sauces, fruits and vegetables...) during their processing, cooking and digestion using techniques as: Light Microscopy, Confocal Laser Scanning Microscopy, Scanning Electron Microscopy or Transmission Electron Microscopy.

Project description:

Functionality of hydrocolloids in the reduction of in vitro lipid digestibility of food emulsions.

The aim of this project is to design hydrocolloid-based emulsions resistent to lipid digestion and also suitable as fat substitutes in foods. In this way, the amount of fat in the formulated foods will be reduced while, at the same time, these foods will have optimum physicochemical and sensorial quality.

In the struggle against obesity and all of its derived illnesses, it is important to reduce the amount of fat contained in the food consumed. This can be achieved either by directly reducing the amount of fat or by making the fat less digestible. Bearing these two courses of action in mind, this project proposes the design of hydrocolloid-based emulsions with a moderate/high fat content whose structural changes during digestion significantly limit fat lipolysis. Research into the structural changes undergone by semi-solid emulsions stabilised by means of surfactants and polymeric matrices of differing characteristics during in vitro digestion in mouth, stomach and intestine will allow the sometimes unpredictable relationships which exist between the degree of structuring/destructuring of the emulsions and fat lipolysis to be determined. It will also make it possible to rationally design emulsions of low digestibility. The functional, physicochemical, sensorial and stability characteristics of the designed emulsion will also be similar to those of the fats most commonly used in the food industry, permitting its inclusion within the category of “real” foods that actually reach the consumer.

Applications

- CV of the candidate

- Letter of motivation

- 2 letters of recommendation