UCA Universidad de Cádiz

Vice Rectorate for Scientific and Technological Policy

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Formulario EOI - EXPRESIONES DE INTERÉS

Contact Person / Scientist in charge (Datos del IP del grupo de investigación o responsable cientifico)	
Name and Surname:	Clara Pereyra López
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Department / Institute / centre (Datos del departamento donde estaría ubicado el investigador a contratar)	
Name:	Chemical Engineering and Food Technology
Address:	Science Faculty. University Campus of Puerto Real. University of Cádiz (Cádiz. SPAIN)

Project Description(max. 1800 characteres)
The study of the processes for the impregnation of pharmacoactive substances in different materials and the analysis of the biocompatibility of the products generated has been a central aim for the scientific community in the last decade. In this context, the present project proposes to study the application of supercritical technology to the generation of functionalized polymeric structures impregnated with natural extract to be use in biomedicine as scaffolds or stents. The current trend for the development of these devices is associated to the use of biodegradable polymers that, thanks to their porosity and 3D conformation, present a high compatibility with the host. The analysis of the "foaming" and the study of the proliferation of epithelial cells on the surface of the polymers allow us to determine the biomedical potential of these devices. For better results, the trend is to use a combination of polymers that would result in a product with improved properties. Polyaniline and polypyrrol as conjugated polymers, and polylactic acid and polycaprolactone as non-conductive polymers are proposed. In addition, the polymers will be impregnated with pharmacological substances and their release kinetics will be studied. The supercritical extract from different raw material obtained from agricultural by-products (mango leaf, olive leaf or grape pomace), are proposed as bioactive product to be impregnated in this study. This extract exhibits anti-inflammatory, anticarcinogenic and antimicrobial properties of a great interest for the generation of the biomedical devices. Additionally, the effect of hydrothermal techniques as a previous treatment of the polymers will be analyzed with the aim of optimizing the impregnation process and the final properties of the 3D material.

Research Area (select)	
X	Chemistry (CHE)
	Social Sciences and Humanities(SOC)
	Economic Sciencies (ECO)
	Information Science and Engineering (ENG)
	Environmetal Sciences and Gelogy (ENV)

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	Life Scientes (LIF)
	Mathematics (MAT)
	Physics (PHY)

Applications: documents to be submitted and deadlines
Examples: Expression of interest, CV