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Application of high pressure technology for the development of intranasal delivery systems

Catarina M.M. Duarte^{1,2}, Vanessa S.S. Gonçalves^{1,2,3}, Ana A. Matias^{1,2}, Soraya Rodriguez-Rojo³, Pavel Gurikov⁴ and Irina Smirnova⁴

¹Instituto de Tecnologia Química e Biológica António Xavier, Universidade Nova de Lisboa, Av. Da República, 2780-157 Oeiras, Portugal;

²iBET, Instituto de Biologia Experimental e Tecnológica, Apartado 12, 2780-901, Oeiras, Portugal;

³Escuela de Ingenierías Industriales, Universidad de Valladolid, C/Dr. Mergelina s/n 47011 Valladolid, Spain;

⁴Institute of Thermal Separation Processes, Hamburg University of Technology, Eißendorferstr. 38, 21073 Hamburg, Germany

Intranasal route have emerged in recent years as an effective approach, even to brain delivery of drugs, as the brain and the nose compartments are connected to each other via the olfactory/trigeminal systems. With this purpose, biocompatible drug delivery systems (DDS) including polymer-based or lipid-based systems have been studied and many formulations were developed. In the present, new DDS such as multilayered microspheres and hybrid [polymer-lipid] dry forms are considered as alternative. This presentation will focus on the application of high pressure processes (e.g. supercritical fluid technology) as an alternative to conventional precipitation processes, and a precipitation technique that avoids completely the use of organic solvents will be presented. As examples, the results of 2 hybrid delivery systems: [Gelucire 43/01™:PEG 4000] and [Gelucire 43/01™:GMO], produced by PGSS® method (particles from gas saturated solutions) will be shown. Moreover, alginate-based hybrid aerogels (with low methoxyl pectin and κ-carrageenan), in the form of microparticles dried with supercritical CO₂, will be presented as carriers for mucosal administration of drugs. These DDS were designed to allow the improved absorption of low molecular weight drugs or peptides after their administration to nasal mucosal tissue.

Biography

Catarina Duarte has completed her PhD in Physical-Chemistry (1997) from Universidade Nova de Lisboa. She is the head of Nutraceuticals and Delivery Group of iBET, Portugal (since 2003) and Coordinator of R&D activities and responsible for technology transfer between academia and industry. Her research interests include the development of clean technologies for the development of new functional formulations, with application in pharmaceutical, cosmetic and food industries. She is the author of 88 accepted papers in peer-reviewed scientific periodicals, several book chapters and communications in international meetings.

cduarte@ibet.pt

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