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PROCEEDINGS

EXPLORING THE RELEASE OF ACYCLOVIR FROM CHITOSAN-BASED MICROSTRUCTURED SYSTEMS

Bruno Batista da Silva¹, Jorge Eduardo Menezes², Mardoqueu Martins da Costa², Laurita dos Santos, Rafaela Cristina Sanfelice³, Adriana Pavinatto⁴, Paulo Sergio Cardoso da Silva¹

¹Instituto de Pesquisas Energéticas e Nucleares, ²Universidade Brasil, ³Universidade Federal de Alfenas, ⁴Universidade Brasil (*Engenharia Biomédica*)

e-mail: sb.bruno85@hotmail.com

Herpes simplex virus (HSV) infections is endemic worldwide and a frequent public health concern [1], configuring one of the most prevalent in the world with 640,000 new cases/year in Brazil [2]. Acyclovir, the drug which acts inhibiting its viral DNA polymerase, requires frequent application to achieve the desired efficacy, due to its low permeation. In this context, the use of biomaterials such as chitosan as a carrier is an alternative, once can improve permeation and avoid toxic effects [3]. In this work, chitosan-based membranes, capsules, and membrane/capsule microstructures were produced, characterized, and used for Acyclovir encapsulation/release. The membranes and capsules were produced using the casting and ionotropic crosslinking techniques, respectively. The physicochemical and mechanical microstructures properties were obtained, and release tests were performed. The better stability in drug encapsulation were observed for capsules and membrane/capsules systems. Regarding to release assay, the membrane/capsules system modulates the acyclovir release in 1 hour and 20 minutes, with peak concentration at 2 hours, meanwhile, the membrane and capsule systems, presented a conventional release profile with all drug concentration being released in 15 - 20 minutes. All obtained structures are promising to act as conventional and controlled release systems. The differential of these microstructures is the combination of healing properties, tissue repair, biocompatibility, biodegradability, and physicochemical and mechanical properties evaluated, associated with the selective action of the Acyclovir in the treatment of lesions caused by the HSV.