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Juliana Maria Juarez

Nanotec

UTN

I am pleased to inform you that your contribution "**Preparation, Characterization and Mathematical modeling of keterolac release contained In LP-SBA-15 Host.**" by *Jorgelina Cussa, Juliana Maria Juarez, Marcos B. Gómez Costa, Oscar Anunziata*, has been **accepted** in symposium **E4, Nanomaterials for Drug Delivery, Imaging and Immuno-Engineering** at the XXIX International Materials Research Congress, to be held in Cancun in August 15 - 20, 2021.

The presentation has been accepted in the **Poster** modality. Remember that in order to include your abstract in the congress program you must confirm your participation no later than May 21 by choosing the modality you will present your abstract(s); you can do this from your IMRC account.

Organizers of the Symposium

"Nanomaterials for Drug Delivery, Imaging and Immuno-Engineering"

Juan Vivero Escoto, Tzarara Lopez Luke, Daniela Salado, Eduardo Ruiz Hernandez



Preparation, Characterization and Mathematical modeling of ketorolac release contained In LP-SBA-15 Host.

Jorgelina Cussa¹, Juliana Maria Juarez¹, Marcos B. Gómez Costa¹, Oscar Anunziata¹

¹UTN, Nanotec, Argentina.

Drug-controlled release systems can keep the level of drugs in precise doses in the body above the optimal level and with low toxicity. We propose the LP-SBA-15 nanomaterial as a promising new host for drug delivery systems because of its high biocompatibility, in vivo biodegradability, and low toxicity. Ketorolac-LP-SBA-15 was prepared and characterized by XRD, FTIR, *UV-Vis DRS*, TEM, and texture analysis, determining the adsorption capacity and its release, achieving the required therapeutic efficacy. The host shows ordered mesoporous nanochannels with a diameter of 11-12 nm, maintaining the structure with the incorporation of Keto. The mechanism of drug release the LP-SBA-15 host was evaluated. Different mathematical models were used to adjust the experimental data, being the Ritger-Peppas model followed by the Weibull model the best ones. In this work, we show a promising drug storage material for effective encapsulation and controlled release of KETO, achieving the required therapeutic efficacy. Studies indicate that KETO was adsorbed on the channel surface of LP-SBA-15 without affecting the structure or chemical composition of KETO. Controlled drug delivery systems can achieve precise delivery at the time and place of destination, keeping the concentration of the drug at points in the body within the optimal range and below the toxicity threshold. The study also demonstrates the storage capacity and release properties of LP-SBA-15 containing KETO. The release of KETO contained in LP-SBA-15 can offer a significant improvement in the controlled release of the drug and the analgesic and anti-inflammatory effects, positively influenced, by the links formed between the host and drug molecules and by diffusion through the host porosity. The promising results we obtained for the release of the drug thoroughly using the new material, reaching a rapid initial release rate, and maintaining a constant rate afterward, allow us to maintain the concentration of the drug in the therapeutic efficacy range, applying it largely to the treatment of diseases that require a rapid response.

Keywords: ketorolac-LP-SBA-15, nanostructured host, drug-delivering device

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Presenting author's email: jcussa@frc.utn.edu.ar