

VI. Symposium of Young Researchers on Pharmaceutical Technology, Biotechnology and Regulatory Science

January 24-26 2024 - Szeged, Hungary

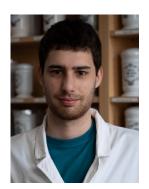
FP-10

DOI: 10.14232/syrptbrs.2024.59

Mesoporous silica nanoparticles as drug delivery systems

Flórián Benkő, Katalin Kristó, Tamás Sovány

Institute of Pharmaceutical Technology and Regulatory Affairs, University of Szeged, Szeged, Hungary



The aim of this review is to help understand the potential of mesoporous silica nanoparticles (MSNs) as drug delivery systems [1]. MSNs have diverse properties that enable their wide use in the field of pharmaceutical technology. Due to their highly porous surface, they have high adsorption capacity. The transport of the active ingredients is achieved by adsorption as a result of the huge specific surface area [2]. This is an interesting and important topic because these carrier systems can improve the effectiveness of drug therapy by improving the bioavailability of the formulations [3]. The most commonly used solid drug form is the tablet. It can be produced easily, quickly, and cost-effectively in large quantities. Therefore, the goal is to produce tablets from the MSN-drug complex with uniform API content and desired release kinetics, in order to offer a reliable alternative to traditional drugs [4]. This is a complex and rapidly developing field of science, so it is necessary to constantly follow the latest results, which can help to understand the benefits of these types of drug carriers.

References:

- 1. S. Porrang, S. Davaran, N. Rahemi, S. Allahyari, and E. Mostafavi, *International Journal of Nanomedicine*, vol. 17. Dove Medical Press Ltd, pp. 1803–1827, 2022.
- 2. M. Farzan, R. Roth, J. Schoelkopf, J. Huwyler, and M. Puchkov, *European Journal of Pharmaceutics and Biopharmaceutics*, vol. 189. Elsevier B.V., pp. 133–151, Aug. 01, 2023
- 3. M. M. Abeer *et al., Journal of Controlled Release*, vol. 326. Elsevier B.V., pp. 544–555, Oct. 10, 2020.
- 4. A. Baumgartner and O. Planinšek, *European Journal of Pharmaceutical Sciences*, vol. 167. Elsevier B.V., 2021.