

HYDROXYAPATITE NANOPARTICLES: A REVIEW OF THEIR EMERGING ROLE IN DRUG DELIVERY APPLICATIONS

Diana-Georgiana PADURARU (FILIP)¹, Andrei-Viorel PADURARU²,
Ecaterina ANDRONESCU³, Adrian-Vasile SURDU⁴

REVIEW

Abstract. *This literature review assesses existing research on hydroxyapatite-based drug delivery systems, with a focus on evaluating their effectiveness. Researchers are actively exploring strategies to enhance drug loading capacity, involving surface modifications of nanoparticles and the innovation of novel drug encapsulation techniques. Elevating drug loading has the potential to clearly increase the therapeutic efficacy of these systems. Stability issues also present a challenge in the clinical translation of nanoparticle-based drug delivery systems. Furthermore, scientists are underway to minimize potential side effects by judiciously selecting biocompatible materials for nanoparticle synthesis and conducting comprehensive toxicity studies before advancing to clinical trials.*

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1. Introduction

Hydroxyapatite (HAp), a widely recognized biomaterial, has experienced significant evolution, from a simple biocompatible material to an advanced

¹Eng., Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Chemical Engineering and Biotechnologies, National University of Science and Technology Politehnica, Bucharest, Romania (filip_diana05@yahoo.com)

Senior/Junior Researcher etc., affiliation: Faculty, Chair, Institute, University, City, Country, full/corresponding member of the Romanian Academy - if the case (e-mail: abc@def.net).

²Eng., PhD., Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Chemical Engineering and Biotechnologies, National University of Science and Technology Politehnica, Bucharest, Romania, National Centre for Micro and Nanomaterials, National University of Science and Technology Politehnica, Bucharest, Romania (andrei93.paduraru@yahoo.com)

³Prof., Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Chemical Engineering and Biotechnologies, National University of Science and Technology Politehnica, Bucharest, Romania, National Centre for Micro and Nanomaterials, National University of Science and Technology Politehnica, Bucharest, Romania, member of Academy of Romanian Scientists, Bucharest, Romania (ecaterina.andronesco@upb.ro)

⁴Eng., PhD., Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Chemical Engineering and Biotechnologies, National University of Science and Technology Politehnica, Bucharest, Romania, National Centre for Micro and Nanomaterials, National University of Science and Technology Politehnica, Bucharest, Romania (adrian.surdu@upb.ro).
