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Research topics

Design, preparation and morphological characterization of complex hydrogels made from cellulose or polysaccharides-based mixtures (cellulose, dextran, pullulan), with biomedical applicability.

In-depth morphological and topographical investigation of various types of materials (polymers, composites, minerals; coatings, fibers, hydrogels, paper, powders) by Scanning Electron Microscopy (SEM) and Scanning Transmission Electron Microscopy (STEM); qualitative elemental analysis and elements' map distribution by Energy Dispersive X-ray Spectroscopy (EDX). SEM plays a major role in materials' assessment, since a large part of their behaviour is directly related to the three-dimensional, surface or bulk organization. The SEM-accessible intimate details of a material's architecture are closely related to other important properties and directly responsible for their biomedical performance.

Scientific research

Co-author of 33 ISI articles (18 in Q1, 9 in Q2), 2 book chapters, 1 national patent, 2 proceedings, 7 oral communications, 8 posters; 2 research stages abroad; team member in 2 national research grants; 231 citations (without self) (HI = 9).

Visibility

Brainmap ID: U-1700-036H-7602; <https://orcid.org/0000-0003-3560-4835>

Web of Science ResearcherID: DQW-7514-2022

Relevant publications

1. D. Ciolacu, **D. Rusu**, R. N. Darie-Nita, D. Timpu, F. Ciolacu, **Influence of gel stage from cellulose dissolution in NaOH-water system on the performances of cellulose allomorphs-based hydrogels**, *Gels* 8(7) (2022) 410. **Q1** (IF₂₀₂₃ = 5) <https://doi.org/10.3390/gels8070410>.
2. R. Nicu, D. Ciolacu, A. R. Petrovici, **D. Rusu**, M. Avadanei, A. C. Mihaila, E. Butoi, F. Ciolacu, **3D matrices for enhanced encapsulation and controlled release of antiinflammatory bioactive compounds in wound healing**, *Int. J. Mol. Sci.* 24(4) (2023) 4213. **Q1** (IF₂₀₂₃ = 4.9) <https://doi.org/10.3390/ijms24044213>
3. D. Ciolacu, R. Nicu, D. Suflet, **D. Rusu**, R. N. Darie-Nita, N. Simionescu, G. Cazacu, F. Ciolacu, **Multifunctional hydrogels based on cellulose and modified lignin for advanced wounds management**, *Pharmaceutics* 15(11) (2023) 2588. **Q1** (IF₂₀₂₃ = 4.9).