

Enhancement of the Catalytic Performance and Operational Stability of Sol-Gel Entrapped Cellulase by Tailoring the Matrix Structure and Properties

Corina Vasilescu ^{1,2}, Simona Marc ^{1,3}, Iosif Hulka ⁴ and Cristina Paul ^{1,*}

¹ Biocatalysis Group, Department of Applied Chemistry and Engineering of Organic and Natural Compounds, Faculty of Industrial Chemistry and Environmental Engineering, Politehnica University Timisoara, Carol Telbisz 6, 300001 Timisoara, Romania;

² Laboratory of Magnetic Fluids, Center for Fundamental and Advanced Technical Research, Romanian Academy Timisoara Branch, Mihai Viteazu 24, 300223 Timisoara, Romania;

³ Faculty of Veterinary Medicine, University of Life Sciences "King Mihai I" from Timisoara, Calea Aradului 119, 300645 Timisoara, Romania;

⁴ Research Institute for Renewable Energy, Politehnica University Timisoara, Gavril Musicescu 138, 300501 Timisoara, Romania

* Correspondence: cristina.paul@upt.ro

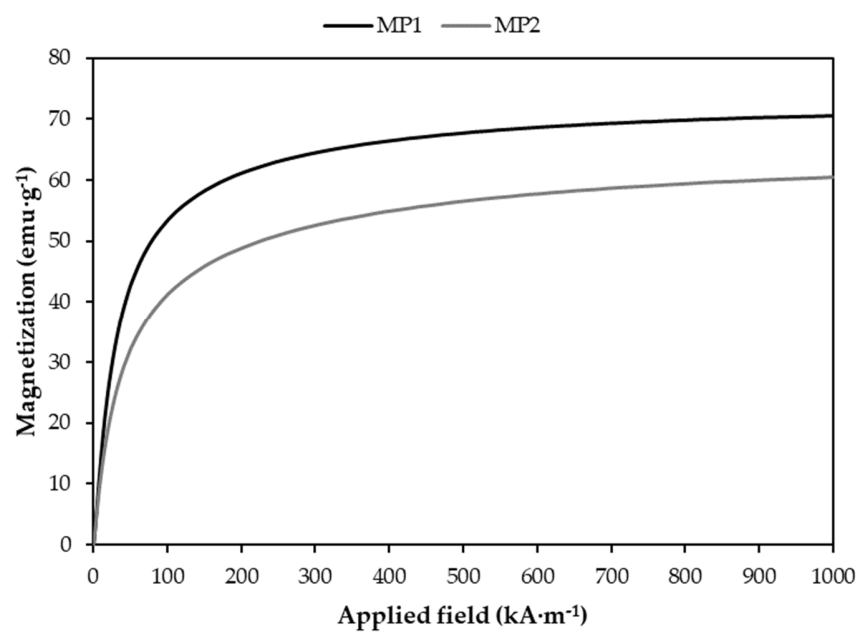


Figure S1. Magnetization curves of the magnetic nanoparticles MP1 and MP2.

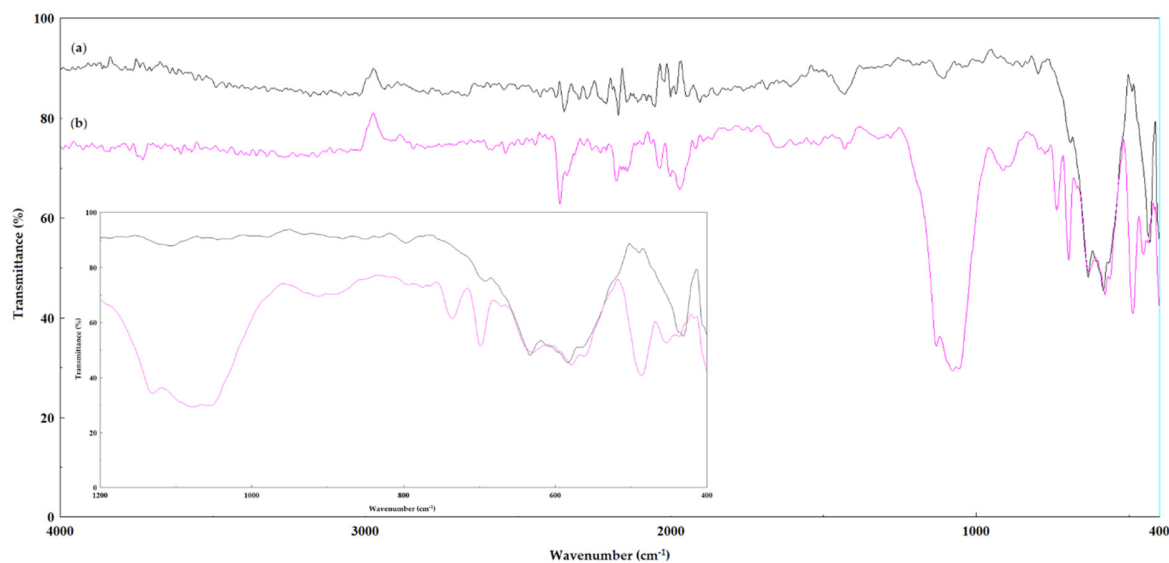


Figure S2. FT-IR spectra of: **(a)** magnetic support MP2 and **(b)** cellulase biocatalyst (M2-SG9), obtained by magnetic sol-gel immobilization method with silane precursors VTMOs: PhTMOs:TMOS (0.4:1.6:1) and MP2. Inset: enlarged picture of the 400-1200 cm⁻¹ region, showing the presence of the absorption bands specific for the maghemite.

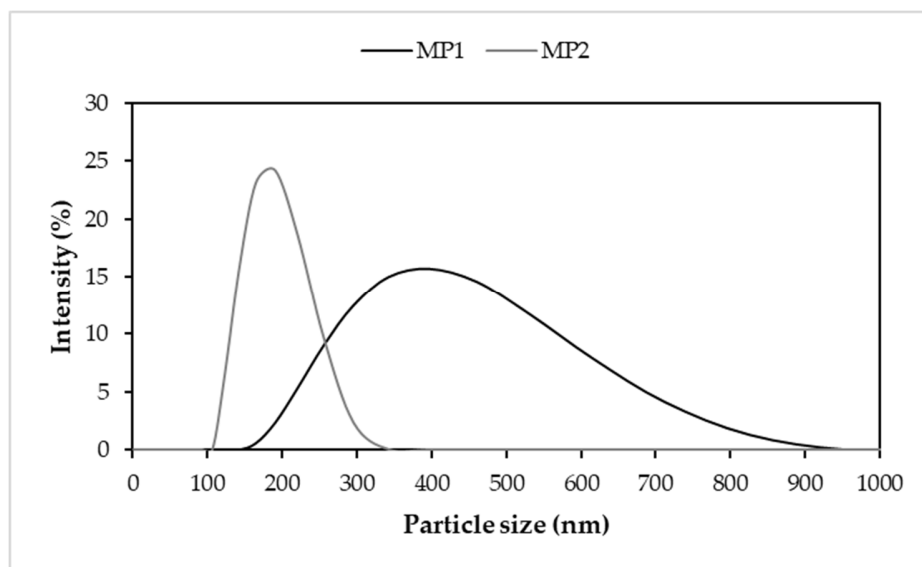


Figure S3. Hydrodynamic size distributions of the magnetic nanoparticles MP1 and MP2 as determined by DLS.