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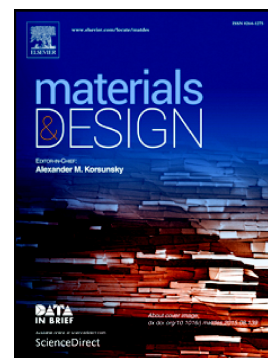
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S.A. Maboudi, S.A. Shojaosadati, A. Arpanaei

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Synthesis and characterization of multilayered nanobiohybrid magnetic particles for biomedical applications

Maboudi S.A.^a, Shojaosadati S.A.^{b,*}, and Arpanaei A.^{c,*}

^a Nanomaterials Group, Faculty of Engineering, Tarbiat Modares University, Tehran, PO Box: 14155-114, Tehran, Iran.

^b Biotechnology Group, Faculty of Chemical Engineering, Tarbiat Modares University, Tehran, PO Box: 14155-114, Tehran, Iran.

^c Department of Industrial and Environmental Biotechnology, National Institute of Genetic Engineering and Biotechnology, PO Box: 14965-161, Tehran, Iran.

shoja_sa@modares.ac.ir

arpanaei@yahoo.com

Abstract

In this study, new magnetic nanobiohybrid particles with a multilayered structure were prepared. 7 ± 1 nm oleic acid modified magnetite nanoparticles (MNP) were synthesized via the chemical coprecipitation method. Then, magnetite nanoparticles clusters were coated with a thin silica shell (MS) by the sol-gel approach. The as-synthesized MS particles have a spherical shape and an average size of 147 ± 20 nm according to SEM images. Then, bovine serum albumin was conjugated 9-10 wt% to aminated particles through glutaraldehyde activation (BSA-MS). BSA-MS particles were then compared with MS particles as a platform for precipitation of subsequent protein shell which was imprinted by desolvation method (BSA shell-BSA-MS & BSA shell-MS particles, respectively). TGA data revealed that an albumin shell of about 17 and 31 wt% has been formed on MS and BSA-MS particles, respectively. VSM analysis results indicated the

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