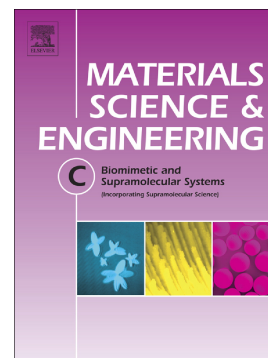


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*Fabrication of a New Superparamagnetic Metal-Organic Framework with Core-shell
Nanocomposite structures: Characterization, Biocompatibility, and Drug Release Study*

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Abstract

The Superparamagnetic CoFe₂O₄NPs@Mn-Organic Framework core-shell nanocomposites that had potential application in targeted drug- delivery were synthesized by layer to layer method. The structure and composition of the obtained microspheres were characterized by SEM, TEM, DLS, XRD, VSM, FTIR, and TG analysis. Results showed that the structures have a high degree crystalline, high temperature stability, magnetics and core -shell nanocomposites. Therefore, it is an excellent candidate for drug delivery systems. Afterwards, Daunorubicin (as a drug model) was laden in the MOFs by a Simple stirring. For comparison of magnetic properties of MOFs for drug delivery, an external magnetic field applied to the plate to evaluate the efficiency. The external magnetic field significantly increases anti-tumor activity of formulation (drug+ MOFs). The results showed that MOFs are biocompatible, which endue MOFs great potential in targeting drug-delivery systems with enhanced efficiency.

Keywords: Metal-Organic Framework, CoFe₂O₄NPs, targeted drug-delivery, CoFe₂O₄NPs@Mn-Organic Frameworks, core-shell nanocomposites

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