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Amine incorporated organo-functionalized mesoporous silica nanoparticles; Synthesis, characterization and application as controlled drug release system

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Amino-functionalized ordered mesoporous SBA-15 silica nanoparticles were synthesized and characterized. The materials were examined to verify the structural properties, using Elemental analysis, Infrared spectroscopy, Nuclear Magnetic Resonance, X-ray diffractometry, Nitrogen sorption/desorption and Transmission electron microscopy. The functionalized mesoporous silica demonstrated ordered structure with incorporation of organic moieties on surface. Initially the materials were tested for the controlled release of Ibuprofen. The results show that the loading and in vitro release kinetics was affected by the surface properties of the mesoporous silica materials. The results suggest that functionalization of inorganic surface of mesoporous silica could be a simple, efficient, cheap and suitable method to prepare potential formulations with an efficient controlled drug delivery system.

Biography

Fozia Rehman is TWAS/ CNPq Ph.D Scholar in State University of Campinas, Sao Paulo, Brazil. Her research project is 'Synthesis and modification of mesoporous silica and application of prepared materials for controlled drug release and for the removal of toxic metals and dyes from waste water.

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