

Functionalized mesoporous silica nanoparticles as drug carrier 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.

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