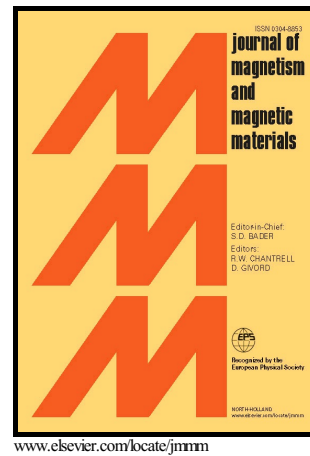


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Interaction of magnetic nanoparticles with lysozyme amyloid fibrils

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Abstract

This work is devoted to the structural study of complex solutions of magnetic nanoparticles with lysozyme amyloid fibrils due to possible ordering of such system by applying the external magnetic field. The interaction of magnetic nanoparticles with amyloid fibrils has been followed by atomic force microscopy and small-angle X-ray scattering. It has been observed that magnetic nanoparticles (MNPs) adsorb to lysozyme amyloid fibrils. **It was found that MNPs alter amyloids structures, namely the diameter of lysozyme amyloid fibrils is increased whereas the length of fibrils is decreased. In same time MNPs do not change the helical pitch significantly.**

Keywords: magnetic nanoparticles, lysozyme fibrils, SAXS, AFM

1. Introduction

Amyloid fibrils have an important role in nanotechnology and biomaterials applications due to their unique physical and mechanical properties [1, 2]. Also amyloid fibrils, highly ordered nanoscale assemblies of protein protofibrils

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