

Magnetic nanoparticles and electromagnetic waves impact on red blood cells

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Biocompatible magnetic nanoparticles were prepared by co-precipitation technique from iron ferrous and ferric salts being further stabilized with organic molecules in aqueous suspensions to ensure their specific properties preservation for the optimal interaction with cells and tissue. Microwaves of low power density were supplied from specialized laboratory source. Total human blood samples of 8 ml volume were treated with equal concentrations of magnetic nanoparticle suspension of 120 microliter per liter to investigate possible magnetic contamination from environmental sources. Haemolysis extent assessed by spectral assay was found increased especially for longer exposure time of samples loaded also with magnetic nanoparticles suggesting red blood cell membranes disorganization. Possible side effects of magnetic nanoparticles utilization in biomedicine appeared to be a research issue to be further approached through our project.