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Different approaches for tumors diagnosis and treatments have been widely studied during the last years. Magnetic nanoparticles provide a new range of ideas as drug delivery systems and hyperthermia agent for treatment^[1,2]. Also these materials can be used as tracers in consolidated methods like Magnetic Resonance Imaging (MRI)^[3] or in an Alternating Current Biosuceptometry (ACB)⁴. In this study, the ferrite nanoparticles with the composition of $Mn_{0.75}Zn_{0.25}Fe_{2.8}O_4$ (ferrite) were synthesized by the co-precipitation and the influence of synthesis parameters on their properties was analysed. The synthesized using concentration higher than 0.1 mol/L of alkaline solution provide materials with spinel structure [ICSD 28515 (PDF - 742 402), space group Fd3m]. The concentration higher than 0,2 mol/L of the alkaline solution leads to the formation of more crystalline materials by providing particles with a significant performance for the ACB technique. Cell viability assays show that all synthesized materials do not exhibit cytotoxicity to 3T3 fibroblast cells.

Keywords: Mn and Zn ferrite, synthesis, coprecipitation

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