



Hydrothermal Synthesis of Magnetite Nanoparticles with Controlled Magnetic Properties for Bio-Applications

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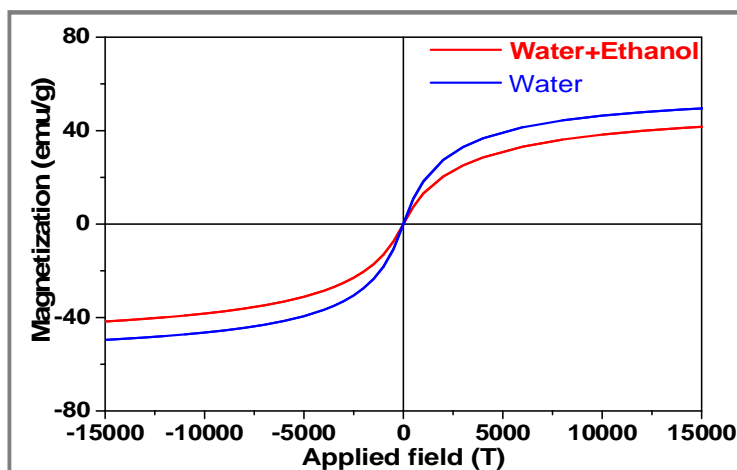
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ABSTRACT

Super paramagnetic iron oxide (Magnetite) nanoparticles were prepared by hydrothermal method in aqueous medium. The nanoparticle size is well controlled by changing the composition of the reaction medium. It was found that the size of the nanoparticles was decreased by adding the ethyl alcohol into the reaction medium and also the size distribution was also good. Additionally, the room temperature magnetization curves for the prepared samples have shown the super paramagnetic nature. It is attributed that the size effects the magnetic properties of the prepared ferromagnetic materials. This behavior is advantageous and is having many applications such as waste water treatment, catalysis, and bio applications.

Graphical Abstract



Magnetization curves of S1, S2 samples.

Keywords: Superparamagnetic iron oxide, Hydro-thermal method, Size, Magnetic properties.