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Magnetic nanoparticles preparation by chemical reduction for biomedical applications

Magnetic nanoparticles have been extensively studied in the past half century and continue to maintain interest because of their potential use in areas ranging from storage of high-density data to biomedical applications. In this work, we present magnetic Fe-, Ni- and Co-system nanoparticles prepared by chemical reduction of corresponding salts under a mild condition using hydrazine hydrate as reducing agent. Phase compositions, morphology and size of the nanoparticles were studied by X-ray diffraction, Field-emission SEM and energy-dispersive spectroscopy analysis. For biomedical applications, the nanoparticles were tested against bacteria E.coli and tests were performed using varying concentrations of Fe-, Ni- and Co-system nanoparticles.

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