

TITLE	IMMOBILIZATION OF FLUORESCCEIN ISOTHIOCYANATE ON MAGNETIC POLYMERIC NANOPARTICLE USING CHITOSAN AS SPACER
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ABSTRACT	<p>The nanoparticle with simultaneous combination of magnetic and fluorescent properties was prepared by immobilization of fluorescein isothiocyanate (FITC) onto magnetic polymeric nanoparticle (MPNP). The MPNP with 41% magnetic content was obtained from incorporating Fe_3O_4 magnetic nanoparticles (MNPs) into poly(styrene/divinyl benzene/acrylic acid) via the miniemulsion polymerization. Before labeling with FITC, the carboxylated MPNP was coated with chitosan (CS) having low, medium, or high molecular weight (MW) in order to avoid quenching of the fluorescent by iron oxide. Data obtained from TEM, size and zeta potential measurements clearly indicated the presence of CS as a shell surrounding the superparamagnetic MPNP core. The zeta potential, FTIR, and fluorescent spectroscopies confirmed the attachment of FITC to the MPNP-CS via covalent bonding. The higher MW or longer chains of CS (300kDa) offered the larger spacer with multiple sites for the FITC binding and, thus, provided the higher fluorescent emission intensity. The MPNP-CS immobilized with FITC would be useful for cell-labeling application.</p>