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Magnetic Nanoparticles for Protein C Purification

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Abstract : In this study is to synthesis magnetic nanoparticles for purify protein C. For this aim, N-Methacryloyl-(L)-histidine methyl ester (MAH) containing 2-hydroxyethyl methacrylate (HEMA) based magnetic nanoparticles were synthesized by using micro-emulsion polymerization technique for templating protein C via metal chelation. The obtained nanoparticles were characterized with Fourier transform infrared spectroscopy (FTIR), transmission electron microscopy (TEM), zeta-size analysis and electron spin resonance (ESR) spectroscopy. After that, they were used for protein C purification from aqueous solution to evaluate/optimize the adsorption condition. Hereby, the effecting factors such as concentration, pH, ionic strength, temperature, and reusability were evaluated. As the last step, protein C was determined with sodium dodecyl sulfate-polyacrylamide gel electrophoresis.

Keywords : immobilized metal affinity chromatography (IMAC), magnetic nanoparticle, protein C, hydroxyethyl methacrylate (HEMA)
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