

HEPARIN-MAGNETIC COMPOSITE PARTICLES FOR AFFINITY SEPARATION

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Heparin affinity chromatography is a well-known tool for protein separation, especially of antithrombin. For that reason, this work was intended to propose ferromagnetic Polyethyleneterephthalate (Ferromagnetic-PET), a matrix developed in our lab, for heparin immobilization and to use for affinity separation. Elemental analysis for carbon, hydrogen, nitrogen, and sulfur was carried out. However, the latter could not be detected in the derivative, maybe due to the detection limit of equipment, given that sulfur constitutes approximately 11% of heparin mass. This analysis showed 35.85% carbon and 6.03% nitrogen, which compared to those of the bare support (36.30% carbon and 7.99% nitrogen) presented a considerable increase in the mass ratio of carbon to nitrogen (1.3). Based on calculation from this increase, it is presumed that heparin was in fact immobilized once that heparin presents a ratio of 10. Infrared spectra showed bands at 1653 cm^{-1} (amide I) and 1547 cm^{-1} (amide II) which are characteristic of amide bond that should be originated by heparin coupling to the matrix. The derivative containing heparin showed higher capability to adsorb methylene blue than the bare support. Collectively these results corroborate the successful of heparin immobilization and at the moment this derivative are being tested for protein affinity separation.

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