Immobilization of pepsin on magnetically separable polyethyleneimine magnetite

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Pepsin is produced in the mucosal lining of the stomach and degrades proteins. Pepsin is an endopeptidase with a broad specify. Pepsin is most efficient in cleaving bond involving aromatic residues (phenylalanine, tryptophan and tyrosine). Pepsin has a molar mass of 34,644 g mol−1 and a single polyprptide chin containing 327 amino acid residues. Pepsin and other proteolytic enzymes are widely used in the laboratory analyses of various proteins.

Recently, pepsin was immobilized on various support materials and the activity, stability and kinetic parameters have been studied by various authors. For example, pepsin was immobilized on chemically modified poly methyl methacrylate (PMMA) microspheres to investigate Km and Vmax values for free and immobilized enzyme[2]. It was also reported that pepsin was immobilized on activated Sepharose 4B for affinity chromatography and pepsin was completely adsorbed to affinity columns.

The present study, aimed to investigate immobilization of pepsin on magnetically separable polyethleneimine magnetite and to find kinetic parameters, thermal stability, storage stability, pH stability for immobilized and free pepsin.