STUDY AND STABILITY OF TRYPSIN AFTER IMMOBILIZATION ONTO POLYANILINE

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Trypsin (EC 3.4.21.4) is an efficient proteolytic enzyme that has been described as specific for catalyzing the hydrolysis of peptide linkages. This enzyme presents potential utilization in innumerable industrials processes. This study presents the immobilization of trypsin onto polyaniline and the evaluation of immobilized enzyme performance in comparison with the data previously obtained from the free enzyme concerning the operational and storage stability. Besides, tests were applied to verify the hydrolysis capacity of the immobilized trypsin over substrates such as BApNA, BSA, gelatin and skimmed milk. The immobilized trypsin presented advantages compared to free enzyme, mainly considering the stability and the possibility of its reutilization. This study revealed that optimum immobilization conditions were obtained at pH 7.6, reaction proceeding by 60min (12.7% yield). The hydrolytic reaction with trypsin immobilized was optimized at pH 7.6, 45^{o}C, and 20 min. Among several stabilizers tested for immobilized trypsin storage $CaCl_2$ +glycin was the best, with 57.6% activity after 7 weeks. Varying the substrates the immobilized trypsin showed different behavior compared to free enzyme, with best performance for gelatin (15%), followed by casein (12.7%) and BSA (8.4%). The stability acquired by the immobilized trypsin represents an advantages that can be used by the industrial sectors where the trypsin enzyme is employed.

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