IMMOBILIZATION OF ALPHA-AMYLASE ENZYME ON MESOPOROUS SBA-15

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The successful use of biological catalysts in industrial processes is that enzymes have certain characteristics which give them advantages over the use of chemical catalysts, as is the high catalytic activity of the enzymes, enzyme-substrate specificity and require moderate conditions of temperature and pressure, the latter being of great importance as it involves a decrease in the cost of the process where they are used. Amylases today constitute the most important group of enzymes in biotechnology because of its wide area of application, including most industrial application and greater market volume are alpha-amilase and glucoamylase. Alpha-amilase enzyme catalyzes the hydrolysis of random alpha-1,4 glycosidic bonds in the central region of the amylose and amylopectin chain except near molecules branch, and obtaining as result maltose oligosaccharides of different sizes.

This paper focuses on the study of the immobilization of the alpha-amilase from Bacillus licheniformis in a mesoporous support siliceous SBA-15 type. It was determined that the optimal pH is 5-6 for immobilizing alpha amilase in SBA-15. Kinetic parameters were behaved as expected, since the maximum reaction rate was for the free enzyme with a value of 0.0093 g/Ls, while the affinity constant (Km) increased significantly for the immobilized enzyme in SBA-15.

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References:


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