IMMOBILIZATION OF COMMERCIAL PORCINE Pancreatic LIPASE IN INORGANIC SUPPORTS – ACTIVATED ALUMINA AND MCM-22 ZEOLITE.

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Inorganic material as zeolites and aluminas present potential applicability as possible support for immobilization of lipases due to the interesting characteristics and properties of these materials. In this work, a MCM-22 zeolite with different Si/Al ratio (15, 25 e 50) an three commercial activated aluminas (acid, basic and neutral) were used as possible supports for the immobilization of a commercial porcine pancreatic lipase, evaluating the effect of the characteristics of these materials on the immobilization yield and enzyme activity. The immobilization process was based on the physical adsorption using a support to enzyme mass ratio of 2:1 and the lipase activity was determined after the immobilization process. The results showed that the composition and the characteristics of the employed material influenced significantly on the immobilization process. Higher yields of immobilization were achieved when neutral alumina and MCM-22 zeolite (Si/Al mass ratio of 25) was used as supports. Higher lipase activities were obtained for the enzyme immobilized in MCM-22-25 Si/Al (378.75U/g). Among the tested aluminas, only the catalyst immobilized on neutral alumina presented activity (173.82 U/g).

Keywords: immobilization, porcine pancreatic lipase, zeolites, aluminas.