

Immobilized Invertase onto Ferromagnetic Diatoms

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The diatomite consists mainly of fossilized rest of diatom, unicellular microscopic alga. It is an inert material, highly available, of low cost, high porosity and thermal resistance, with negative electrical charge, that contains group's silanol. Diatomite was silanized with aminopropyltriethoxysilane and magnetized by co-precipitation with Fe²⁺/Fe³⁺. Magnetized diatomite was then used as matrix for the covalent immobilization of invertase (β -D-fructofuranosidase, E.C.3.2.1.26) produced by *Saccharomyces cerevisiae* (Sigma-Aldrich). This enzymatic magnetic particle presented the advantages of being easily synthesized using inexpensive reagents and quickly separated from the reaction mixture by using a magnetic field. The derivative showed to be capable to hydrolyze saccharose into glucose and fructose; this presented a 83% of immobilization. The optimal conditions of operation were found to be pH 5.5 and 45°C that yielded a derivative with. The materials were characterized by FTIR, ATD-TG, X-ray diffraction and SEM.

Key words: Diatomite, Invertase, Immobilization, Magnetic Particles

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