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Immobilization of Olive b-glucosidase on to superparamagnetic nanoparticles and its characterization

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Covalently binding of Olive b-glucosidase that active on the main olive phenolic glycosides, to superparamagnetic magnetite nano- particles via carbodiimide actiyatian was investigated and pre- sented in this study. The properties of immobilized enzyme were investigated and compared to those of free enzyme. b-Glucosi- dase was purified from Edremit variety olive (*Olea europea* spp.) samples using ammonium sulfate precipitation and hydropho- bic interaction chromatography (Sepharose 4B, L-tyrosine, 1-Napthylamine) and magnetic iron oxide nanoparticles were pre- pared by co-precipitation Fe^{+2} and Fe^{+3} ions in an ammonia solution at room temperature. Characterization of superparamag- netic particles was carried out by X-ray diffraction (XRD) and the magnetic measurements showed that the nanoparticles are magnetite and superparamagnetic, respectively. The immobilized enzyme showed higher activity than non-immobilized enzyme. The effects of various parameters such as pH, temperature, and storage stability on kinetic parameters of the immobilized enzyme immobilized enzyme were also investigated. Kinetic parameters of the immobilized enzyme were also evaluated. Thermal and storage stability experiments were carried out. It was observed that the immobilized enzyme had longer storage stability and % of its initial activity during 30 days.