

## LEVAN–MAGNETITE COMPOSITE PARTICLES AS SUPPORT FOR ENZYME IMMOBILIZATION

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Levan is a fructose polymer of microbial origin composed of  $\beta$ -(2,6)-fructosyl-fructose linked. Magnetite particles were synthesized in the presence of this polysaccharide. The absorption spectrum in infrared and elementary analysis confirmed the presence of the polymer in composite formed. A periodate oxidation method was used to activate the magnetic levan, forming magnetic polyaldehyde-levan. Oxidated levan-magnetite composites were utilized as support for immobilization of enzyme. The proteolytic enzyme trypsin was used for immobilization on this support. Immobilized trypsin showed significantly higher stability in conditions of increased temperature (40°C and 50°C). Using N- $\alpha$ -benzoyl-D,L-arginine- $\gamma$ -nitroanilide as substrate, the immobilized apparent  $K_m$  ( $0.257 \pm 0.04$  mM) was approximately 2 fold lower than that found for the soluble enzyme ( $0.528 \pm 0.268$  mM). The pH range for optimal activity of immobilized trypsin (8.5 – 9.0) was higher than that found for the soluble trypsin (8.0 – 9.0). The immobilized enzyme exhibited good re-usability (after 10 uses it showed a specific activity of 89%).

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