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REMOVAL AND RECOVERY OF LEAD (II) FROM SIMULATED SOLUTION USING ALGINATE IMMOBILIZED PAPAIN (AIP)

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Abstract

Lead (II) can bind with papain at its active site, destroying the enzymatic activity. Papain a sulfhydryl protease has been immobilized in calcium alginate bead for the purpose of removal of lead (II) from industrial waste water. Effect of lead (II) on the enzyme activity of immobilized papain, has been observed. A detailed kinetic study has been carried out and the data are fitted to different kinetic models. EDS (Energy Dispersive X-Ray Spectrometry) and desorption study suggest that metal can be successfully recovered from the enzyme metal complex and the adsorbent can be reused. To check the reusability of the immobilized enzyme, a detailed study has been carried out using Response Surface Methodology.

Key words: immobilization, lead removal, lead recovery, papain, Response Surface Methodology

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