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REPEATED BATCH FERMENTATION FOR THE SYNTHESIS OF L-GLUTAMINASE BY AN IMMOBILISED *Pseudomonas aeruginosa* KRS7

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ABSTRACT

L-Glutaminase, a therapeutically and industrially important enzyme was produced from *Pseudomonas aeruginosa* KRS7 by means of novel immobilization process. The new immobilization method offer several advantages over conventional system such as high specific activity for the target product. It was found that Ca-alginate gives the best immobilized biocatalyst, which was then coated with chitosan to further improve its mechanical strength and swelling-resistance properties. Entrapment-encapsulation immobilization was compared with that of flocculation process and further optimized medium was used for repeated batch fermentation and the reuse cycles were calculated. The enzyme activity obtained by entrapment-encapsulation was 315 IU which is higher than the free cell production. Further optimized medium yielded the glutaminase activity of 720 IU. Aqueous two phase extraction (ATPS) provides alternative extraction process to conventional method for purification of biomolecules. Polyethylene glycol (PEG)/salt system are particularly useful because of their low cost and ease of handling. Yield % of 82.9 was obtained by the partially purified product.

Keywords: *L-Glutaminase, Pseudomonas aeruginosa* KRS7*, entrapment-encapsulation, flocculation, repeated batch fermentation, aqueous two phase extraction (ATPS)*