

Extractive purification of recombinant thermostable lipase from fermentation broth of *Escherichia coli* using an aqueous polyethylene glycol impregnated resin system

ABSTRACT

This study aimed at recovery of thermostable lipase from *Escherichia coli* BL21 using porous glass beads grafted with polyethylene glycol (PEG) in aqueous impregnated resins system (AIRS). The influencing parameters such as concentration and pH of extraction solution, concentration of NaCl, size of the beads, and pH of the desorption solution on the partition behaviour of lipase were evaluated. Smaller adsorbent (4 mm) had a 65.5% of recovery yield with approximately two-fold higher purification factor compared to that obtained with the larger adsorbent. Recombinant lipase was purified successfully using AIRS with a purification factor of 7.6 and yield of 78.4% under optimum conditions of 18% (w/w) PEG 4000, 10% (w/w) of potassium citrate at pH 9 with 3% (w/w) of NaCl. Optimum desorption was obtained with 4.0 mm of porous glass beads at pH 9.

Keyword: Aqueous impregnated resins system; Aqueous phase; Lipase; Purification; Recovery