

Production of β -Galactosidase Enzyme From *Lactobacillus acidophilus* RK Isolated from Different Sources of Milk and Dairy Products

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Abstract : In this paper lactic acid bacteria were isolated from sheep milk, yoghurt, human milk, pasteurized milk and labneh . The isolate bacterial cells were purified , identified and screened to determine their capability for their production of β -galactosidase. *Lactobacillus acidophilus* RK was the best producer.

In a trial to optimize the cultural conditions for maximum β -galactosidase production, different carbon source (glucose was the most suitable carbon source for both intracellular and extracellular enzyme production), acidifying activity (from 0.4 to 0.8). Compare the enzyme production between using free cells and immobilized cells .the immobilized cells were achieved higher production (1.901 U/ml) compared to the enzyme production by free cells (1.192 U/ml) . Studying the physiological and biochemical parameters that increase the production of β -galactosidase by the immobilized organism , 48h. was the best incubation period for both intracellular and extracellular enzymes respectively (1.724 , 1.562 Unit/ml) . The maximum production for the intera crude enzyme obtained from bacterial cells was at pH 4.8 (1.792 U/ml) , the incubation temperature at 40°C was the most suitable temperature for the production of both intra and extra-cellular β -galactosidase production from immobilized cell of *Lactobacillus acidophilus* RK. (1.886 and 1.271 U/ml) .

Key wards: Isolation, Lactic acid bacteria, 16S rDNA and β -D-galactosidase.

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