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Optimization of the operating parameters for beta galactosidase production on cheese whey

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Beta-galactosidase belong to the group of enzymes able to cleave β linked galactose residues from various compounds and is commonly used to cleave lactose into galactose and glucose. The objective of this study was to enhance the sweet cheese whey for beta galactosidase production by using an Algerian strain of lactic acid bacteria, *Streptococcus thermophilus*. Firstly, different physicochemical analysis of cheese whey were carried out including ash, protein, fat and lactose. Secondly, the operating parameters such as temperature, pH, inoculum size and incubation period were optimized. Finally, the production of beta galactosidase was carried out in the optimized conditions. The results of physicochemical analysis of sweet cheese whey have shown that it has an adequate quality given it high nutrient materials such as: Lactose (37.24 g/l), ash (8.32 g/l), protein (3.11 g / l) and low fat amount (0.4 g / l). Moreover, the results of the optimisation of beta galactosidase production indicated that the optimum values of temperature, pH, inoculum size and incubation period were found to be 40°C, 6.5, 10% (v/v) and 18 h respectively. Under these optimal conditions, the production of β -galactosidase has presented a maximum specific activity of 314, 91 IU/g.

Biography

Khaled Boudjema is preparing his PhD at university of Boumerdes, Algeria. He is an assistant-teacher in department of Biology and researcher in research laboratory of food technology at the same university.

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