



Optimization Of Human Lysozyme Production From Acid Whey (Poster - Abstract Only)

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Abstract

Acid whey is a byproduct from the production of fermented dairy products, such as Greek yogurt and sour cream. The sharp increase in consumption of Greek-style yogurt in recent years has challenged dairy producers in terms of what to do with large volume of acid whey as the waste. Acid whey contains far less lactose than sweet whey and has therefore been mostly overlooked in terms of concentrating or utilizing its nutrients for secondary use. This study aimed to utilize acid whey for the production of value-added product, human lysozyme, which has many applications as antimicrobial compound in food and pharmaceutical industries. In the first phase of the study, the effect of sterilization process on human lysozyme production by *Kluyveromyces lactis* K7 was evaluated. No significant difference has been found in the production of human lysozyme in sterile acid whey and non-sterile acid whey ($p > 0.005$). Then, to find the optimum combination of nutrient supplementation need to maximize the human lysozyme production, three factors Box-Behnken design was used and different concentrations of lactose (0-13 % w/v), yeast nitrogen base (0-1.5 % w/v), and casamino acid supplementation (0-1.5 % w/v) were tested. Because acid whey can be economical fermentation medium, the results of this study could be used for the development of the large-scale production of human lysozyme by using acid whey from fermented dairy products.

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