

Isolation of Methionine Amino Acid Producing Bacteria and Increased Its Yield

Maryam Ejadpanah-Saravi*; Hossein Hanifi

Iranian Academic Culture for Education, Culture and Research-Branch of Mazandaran, Iran

saravi.maryam@yahoo.com

Background & Objectives: Amino acids are structural units of proteins. From 20 kinds of amino acids, 8 amino acids are not synthesized in humans and monogastric animals. Methionine is an essential amino acid in diet of humans and livestock. The main use of these amino acids is as feed additives for livestock and poultry. In addition to it used as food supplement in human diet and pharmaceutical and cosmetic industries applications.

Methods: In this study the amino acid producing microorganisms were screened and isolated from soil. After microscopic examination and biochemical tests *Corynebacterium glutamicum* bacteria was selected to increase the methionine amino acid production. The culture media of this strain was optimized with carbon sources like glucose, sucrose, Molasses, and a mixture of both and different nitrogen sources. Then an optimized minimal media was chose for amino acid production. This bacteria has a metabolic pathways for methionine biosynthesis and other essential amino acids. In order to achieve an appropriate strain for methionine amino acid production NTG, UV radiation and nitros acid was used. Since no wild strain capable to produce large amount of methionine, mutants that are resistant to methionine analog was used. Mutant bacteria in optimized culture media inoculated in to 5 L fermenter and amount of amino acid production and growth rate were assayed at different time interval.

Results and Conclusion: In this project primly amount of amino acid production of wild type bacteria increased from 0.1 to 6 geram per liter of culture media by means of mutation methods and optimization of culture media.

Keywords: Methionine Amino Acid; *Corynebacterium glutamicum*; Mutation