

ABSTRACT

The present research work consists of two parts. In part (A) the optimization of culture conditions for the production of L- glutamic acid by *Corynebacterium glutamicum*. Shake flask technique was employed to investigate the optimum conditions for maximum production of L- glutamic acid. Cane molasses (160 g/l) medium containing sugar was used as the fermentation medium. Different cultural conditions such as time, temperature, pH, speed of agitation and inoculum size were optimized for enhanced the production of L- glutamic acid. Maximum amount of glutamic acid was obtained 48 hours after inoculation with the sugar consumption of 8%. The highest L- glutamic acid production was recorded at 8% inoculum size at an agitation speed of 160 rpm and temperature was 30° C and pH was 7.5.

In part (B), Mutation was done by physical (UV) and chemical (MMS) methods. The mutant (F₁₁) of UV irradiation produced high production of L- glutamic acid (6.05 g/l) as compared to chemical mutation (F₇) which produced 5.78g/l L- glutamic acid by using methyl methane sulfonate (MMS).