ABSTRACT

Day by day increasing demands for ethanol, different enzymes such as Amylase, Lipases and CMCase and limited sources is alarming. Moreover the increase in agricultural waste is causing a lot of problem. Environmental pollution and increasing expenses for their disposal or recycling made it necessary to search out alternative use of these wastes. Cellulose was converted to hemicelluloses by chemical digestion. H_2SO_4 treatment was found to be the best as 40 % sugars were produced. Microbial production of ethanol using sacchrified agricultural waste such as carrot waste is promising alternative for these threats. Enzymes i.e. Amylase, Lipases and CMCase and Ethanol made by fermentation of sugars obtained from the hydrolysis of cellulosic biomass are a promising candidate to be used in different industries especially in dairy and pharmaceuticals. *Bacillus licheniformis* (DSM 1969), *Bacillus thuringiensis* and *Saccharomyces cerevisiae* were used in the present study for simultaneous production of Lipases, amylase, CMCase. Carrot waste used as the substrate was pre-treated (H_2SO_4 / NaOH) and cellulase enzyme hydrolyzed cellulose into glucose which was estimated. Enzyme was produced on this substrate by *Bacillus licheniformis* and *Bacillus theuringiensis*. Maximum production of protease (1.16U/ml), carbomethoxy cellulase (3.23 U/ml) and amylase (3.1 U/ml) were observed by *Bacillus licheniformis* where as maximum production of protease (1.3 U/ml), carbomethoxy cellulase (2.69 U/ml) and amylase (4.4 U/ml) were noticed for *Bacillus Licheniformis* (DSM 1969).