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COMPARATIVE STUDY OF TWO PHASE PRODUCTION OF BIO-FUEL FROM SOLID WASTE AND PARAMETERS OPTIMIZATION

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ABSTRACT

The aim of our project was to study comparatively the activity of enzyme cellulase with the direct inoculation of an organism in the small scale production of bioethanol through laboratory oriented specifications. The project aims at the production of bioethanol by using the agro wastes that may cause environmental pollution .Here we produce the bioethanol in a eco friendly method with very less waste product. Cellulase refers to a suite of enzymes produced chiefly by fungi, bacteria,and protozoans that catalyze cellulolysis.However, there are also cellulases produced by a few other types of organisms, such as some termites microbial intestinal symbionts of other termites. The chemical method of ethanol production consumes lot of chemicals; hence ourproject is an alternative to it. Firstly, we obtained the corn cobs from commercial industries and grined into fine powder. Then collected soil samples and solid wastes, further carried the process of isolation and screening of highly active cellulase producing microbes. Also we isolated different strains of saccharomyces from grapes. Then inoculated with Trico derma viridae organism in CMC media and sabourad broth. Here we selected tricoderma viride because these species are major agents of decomposition and decay thus possess the capacity to produce a broad range of enzymes. Then pretreated the substrate with different concentrations of acid and nitrogen sources and kept it for overnight. After neutralized the samles and inoculated with Tricoderma organism and allowed it stand for 5 days and started checking the O.D of samples at alternative days.For the mass production we pretreated the substrate with 1%ammonium nitrate and0.5% HCl and inoculated with tricoderma culture. Then allowed it for 7 days for first phase fermentation. After 7 days filtered the content and inoculated with saccharomyces for second stage fermentation. Later obtained ethanol by distillation and estimated by potassiumdichromate method. Thus the maximum yield of ethanol was maximum by the inoculation of organism and it reached to a maximum of 47% at an acid charge of 0.5%**.**

KEYWORDS: Activity of Enzyme Cellulose, Trico Derma Viridae Organism in Cmc, Potassiumdichromate Method, Collected Soil Samples and Solid Wastes