Cellulase Activity of Modified Effective Microorganisms

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Effective microorganism (EM) is a consortium of more than 80 microorganisms that can be found in nature. It degrades biomass but its cellulase activity is very low. It is believed that cellulase-producing microorganisms are inhabited in EM solution such as Streptomyces. Streptomyces were isolated from EM by HV media and tested qualitatively and quantitatively by using Iodine reagent and Filter Paper/CMC-ase assay, respectively and the highest activity was chosen as PS3. The additional microbes out of EM were added which are Trichoderma reesei and Streptomyces griseus IFO3588 which it is called as modified EM. The different combinations, concentrations, and substrates were used to know the best combination for all parameters on cellulase activity. It showed that modified EM with ratio value 1 and wheat bran as the substrate can increase cellulase activity about 5 and 7 times of pure EM for CMC-ase and FP-ase activity, respectively. The specific activity was measured by dividing the cellulase activity with protein concentration. Besides, the EM decreased the pH of the initial pH (5.5).