ABSTRACT

Influence of Palm Kernel Cake Concentration

To Mannanase Activity From *Bacillus subtilis* ATCC 6633

Mannanase is an hydrolytic enzyme that can hydrolize both the polysaccharide mannan and manno-oligosaccharides linked by a β-1,4 mannosidic bond. Mannanase can be applied to animal feed industry, paper, pharmacy, food, detergent and oil and gas. Plants and microorganisms especially bacteria Gram positive like *Bacillus* subtilis can produce mannanase by fermentation process using palm kernel cake (PKC) as a substrate. In this research, a *Bacillus subtilis* ATCC 6633 used as mannanase resource fermented in agar media containing PKC. This research was carried out to find the ability of *Bacillus* subtilis ATCC 6633 to produce mannanase by fermentation process using PKC as a subtrate and concentration of PKC which can produce maximum mannanase activity. The research is conducted in several steps, as follows: reduction of PKC particle size, inoculation of *Bacillus* subtilis ATCC 6633, growth test of *Bacillus* subtilis ATCC 6633 and activity test of mannanase using locust bean gum (LBG) and PKC as a subtrate. The fermentation was performed using agar-well difusion method at 120 hours and 37 °C.The results showed that mannanase activity appears as clear zone obtained around the bacterial colonies. Diameter of clear zone is converted into mannanolytic index. Mannanase activity at 0,5% LBG produced mannanolytic index of 2,6 ± 0,22 and 0,25% BIS produced mannanolytic index of 4,0 ± 0,98.

Keywords: Mannanase, Enzyme, Mannan, *Bacillus subtilis* ATCC 6633, Palm kernel cake