Submerged cultural fermentation for chlamydospore of Trichoderma virens using winery waste

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ABSTRACT

The main purpose of this study was to investigate the influence of different additives on the production of mycelium and chlamydospore in submerged culture of Trichoderma virens incubated with thin stillage. On the cell growth, the pH4 was found to be better than other pH condition and the 80 % of thin stillage as the main media was also found the higher cell dry weight（7.2 g/L）after three days cultivation. The effect of addition of carbon source was shown that the 3 % glucose have the best growth of cell in the thin stillage. On the other hand, the effect of addition of nitrogen source was not shown significant difference of cell growth between the organic nitrogen and inorganic nitrogen . In the aspect of chlamydospore the 60 % thin stillage at pH4 was found higher spore production 1.69×107 chlamydospore/mL after 6 days cell cultivation.The medium contains V8 juice and other additives such as Tween 80 and glycerol can increase the production of chlamydospore. In same manner of addition of carbon source or nitrogen source in thin stillage 1 % glucose addition was found to produce higher chlamydospore than other additive sugars. However, the addition of organic or inorganic nitrogen source was not significant increase the spore production. After two or three days' cultivation, the concentration of glucose in the broth was increased to 8 % by addition concentrated sugar solution. The mycelia was found become thinner and without any increase of spore production.

Keywords : Trichoderma virens ; Thin stillage ; chlamydospore ; Oxygen uptake rate

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