Study of cultural conditions on product polysaccharide of Grifola frondosa

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ABSTRACT

ABSTRACT The aim of this study was investigated the effect of culture conditions on cell growth and polysaccharide production of Grifola frondosa. （1）The mycelia from slant culture had successes to grow the fruiting body after 57 days solid-state cultivation in Polypropylene bottle. The intracellular polysaccharides from fruiting body was determinted as 0.018±0.002 g/g. （2） Different air change was controlled by using different flask plug,and the best cell growth was found with the cotton plug at 2.8 g/L.（3）Effect of oxygen concentration of 5-L jar fermentor on fungus growth and polysaccharide product, the 21 %oxygen has better cell growth than 40 %oxygen. With 1 % olive oil addition the 21 %and 40 %oxygen have cell concentration increased from 9.29 g/L to 10.05 g/L and from 6.34 g/L to 14.89 g/L, respectively. The production of extracellular polysaccharide were also increased from 0.92 g/L to 2.39 g/L and from 0.8 g/L to 3.00 g/L for 21 %and 40 %oxygen, respectively. （4）In fed-batch fermentation of glucose was controlled at the range of 5 g/L to 10 g/L. The production of polysaccharide was also forward increased from 2.04 g/L to 4.31 g/L. However, the cell concentration was not show significant difference. The molecular weight of intracellular polysaccharides determined by GPC (gel permeation chromatography) was 17,272 KDa to 948 KDa. Key Words : Grifola frondosa, exopolysacchride, fed-batch fermentation, molecular weight

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