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Abstract
Hyaluronan(HA) , a negatively charged , linear and unbranched polysaccharide , it possesses water retention capacity and viscoelastic and is a common biopolymer used in the medicine and cosmetics. HA can be produced from various source and more recently HA from microbial source is receiving attention, HA fermentation has been performed mostly by streptococci.In this study Streptococcus zooepidemicus was used to investigate the protein profile under the influence of high oxygen concentration. S.zooepidemicus is a coccus of hyluranon capsule producing , aerotolerant anaerobes bacteria. It is a pathogen which has wide host range and can infect horses、pig、sheep..etc., Recently S. zooepidemicus has used in fermentation industry to produce hyaluronic acid, In the previous study conducted by Dr.Teh-Liang Chen laboratory, Department of Chemical Engineering, National Cheng-Kung University, higher amounts of hyaluronic acid were produced at the aeration(1 vvm, 600rpm) when compared to those at the anearation (600rpm). In order to explore the effect of oxygen on the synthesis of hyaluronic acid in S. zooepidemicus, the protein profiles of S. zooepidemicus at the aerations and anearation were compared using two-dimensional gel electrophoresis(2-DE) to search key proteins which might influence hyluronan biosynthesis. S.zooepidemicus is grown in batch culture with complex medium cotaining 20g glucose, 10g yeast extract, 2.5g K HPO , 2g NaCl and 1.5g MgSO per liter at 37 .In this study, The 2-DE gels were compared by Image Mastersoftware and nine differentially expressed protein spots were found. These proteins were identified by Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC-MS/MS). The differentially expression proteins included UDP-N-acetyl-glucosamine pyrophosphorylase, putative dihydrolipoamide dehydrogenase, putative acetoin dehydrogenase, putative dihydrolipoamide S-acetyltransferase and lactate dehydrogenase. According to these proteins, the glycolytic pathway could be a key
point in the HA synthesis.
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