

## Evaluation of Streptokinase Production Potential by Group C Streptococcal Strain H46A in Batch Culture and Bactericidal Effect of Hexyl Resorcinol

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### ABSTRACT

**BACKGROUND AND OBJECTIVE:** Streptokinase (SK) is a microbial plasminogen-activator that is used in the treatments, especially at Acute ischemic stroke, declotting of dialysis shunts and inflammatory antibiotic-resistant prostatitis. The aim of this study was production of streptokinase in batch culture system and evaluation of some effective factors on SK production. Moreover, the effect of Hexyl Resorcinol as a bactericidal material on *Streptococcus equisimillis* H46A is determined.

**METHODS:** We used *Streptococcus equisimillis* strain H46A. The log phase of bacterial growth and streptokinase production for two inoculation conditions, 1% and 10% were determined at an interval of 4 hours by turbidity test at 600nm and colorimetric assay using S2251 chromogenic substrate, respectively. Moreover, effective factors on bacterial growth and streptokinase yield were evaluated by using a manual fermentor designed in our laboratory.

**FINDINGS:** Bacterial cells proliferated logarithmically in the first four hours and after that, the rate of proliferation decreased. It means bacterial cells are being entered to the stationary phase, this condition extended to the 8th hour. Streptokinase production increases up to 3-fold with use of 10% inoculum, adding glucose and adjusting pH simultaneously. In addition, Hexyl Resorcinol bactericide effective dose is reported to be 2 mg/ml.

**CONCLUSION:** Because of high sensitivity of streptokinase to pH and temperature change, some produced streptokinase is degraded at the same time. Therefore, conditions that decrease lag phase period and increase the growth rate of logarithmic phase, results in higher SK yield.

**KEY WORDS:** *Streptokinase, Streptococcus H46A, Batch culture, Hexyl resorcinol.*

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