

## Extracellular Protein Secreted by *Bacillus subtilis* ATCC21332 in the Presence of Streptomycin Sulfate

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**Abstract :** The extracellular proteins secreted by bacteria may be increased in stressful surroundings, such as in the presence of antibiotics. It appears that many antibiotics, when used at low concentrations, have in common the ability to activate or repress gene transcription, which is distinct from their inhibitory effect. There have been comparatively few studies on the potential of antibiotics as a specific chemical signal that can trigger a variety of biological functions. Therefore, this study was carried out to determine the effect of Streptomycin Sulfate in regulating extracellular proteins secreted by *Bacillus subtilis* ATCC21332. Results of Microdilution assay showed that the Minimum Inhibition Concentration (MIC) of Streptomycin Sulfate on *B. subtilis* ATCC21332 was 2.5 mg/ml. The bacteria cells were then exposed to Streptomycin Sulfate at concentration of 0.01 MIC before being further incubated for 48h to 72 h. The extracellular proteins secreted were then isolated and analyzed by sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE). Proteins profile revealed that three additional bands with approximate sizes of 30 kDa, 22 kDa and 23 kDa were appeared for the treated bacteria with Streptomycin Sulfate. Thus, *B. subtilis* ATCC21332 in stressful condition with the presence of Streptomycin Sulfate at low concentration could induce the extracellular proteins secretion.

**Keywords :** *Bacillus subtilis* ATCC21332, streptomycin sulfate, extracellular proteins, antibiotics

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