TITLE: CHARACTERIZATION OF CELLULASES PRODUCTION BY *STREPTOMYCES SP.* USING THE SEMI-SOLID FERMENTATION (FSS).

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ABSTRACT:

In biotechnological processes using enzymes has been gaining attention. The cost of production of enzymes is one of the factors that still limit their greater use. Different approaches are being used to reduce the cost of production of enzymes. Among them is the solid-state fermentation (FSS) or semi solid fermentation. Another approach is to search for new microorganisms that produce enzymes more efficiently. The aim of this work was to study the production of cellulases and xylanases from a novel *Streptomyces sp.* isolate of dry sugarcane bagasse from industries in the state of Goiás, strain grown on by the technique of semi solid fermentation in MM (minimal medium) containing FT (wheat bran) as carbon sources, in duplicated for 24, 48, 72 and 96 hours. Culture supernatants with best performance of enzymatic activity of CMCase and FPase were analyzed for pH and temperature where the extract demonstrated better activity of the respective enzymes. Quantification of the liberated reducing sugar content was conducted by the ADNS method and the substrates used were filter paper (for FPase) and CMC (for CMCase). A unit of enzyme activity (U) was defined as that which liberated one μmol of the sugar corresponding reducer per minute under the conditions of the experiment. Enzymatic activity assays were performed in triplicate on microassay plates. The highest enzyme activities detected were in pH 3.0 (1.70 U / mL) and pH 5.0 (1.48 U / mL) for CMCase, and pH 8.0 (1.40 U / mL) and pH 6.5 (1, 03 U / mL) for FPase. About the temperature, the higher enzymatic activities were observed at 50 ° C (1.58 U / mL) and 60 ° C (1.48 U / ml) for CMCase and 60 ° C (1.33 U / ml) And 65 ° C (1.27 U / mL) for FPase. The profile proteins analyzed by SDS-PAGE demonstrated a set of bands with molecular mass between 15 - 25 KDa, and 30 – 70 KDa 30 and 70 KDa. These results demonstrate that the enzymes produced by this microorganism in semi solid fermentation, have the potential to be used in biotechnological processes.

Keywords: solid-sate fermentation, streptomyces, enzymes, cellulases.