TITLE: PROSPECTION OF ENZIMES OF BIOTECHNOLOGICAL INTEREST PRODUCED BY ACTINOMICET ISOLATED FROM SILAGE OF Sorghum sp.

AUTHORS: SILVA, A.L.; OLIVEIRA, S.M.; SOUSA JÚNIOR, J.J.V.; SILVA, D.F.; SANTOS, I.N.; PONTES, A.F.; DIAS, A.L.; AQUINO, V.H.R.; LIBERAL, T.C.F.; ESCHER, S.K.S.

INSTITUTION: UFOPA – UNIVERSIDADE FEDERAL DO OESTE DO PARÁ (RUA VERA PAZ S/N – SALÉ – SANTARÉM-PA– BRASIL)

ABSTRACT:

Actinomycetes are a diverse group of Gram-positive filamentous bacteria that can be found in different habitats. These bacteria are notable for their high potential in the production of secondary metabolites with diversified biological action, such as the production of important enzymes of biotechnological and industrial application, mainly in food industry, such as amylase, lipase, esterase, protease and pectinase. This study aimed to determine the enzymatic potential of *Streptomyces* sp. SIL17 isolated from the *Sorghum* sp. silage biomass, this being a product resulting from the bacterial anaerobic fermentation in a controlled environment, called a silo, where lactic acid and other organic acids are produced. This bacterial action causes the reduction of pH and the preservation of the biomass and its original nutritional quality. Qualitative and semi-quantitative assays were performed for the production of the enzymes amylase, caseinase, catalase, gelatinase, lipase, esterase, pectinase and hemolysin in solid media containing the specific inductive substrate. The production potential was determined by the enzymatic index (EI) by the ratio of the diameter of the hydrolysis halo (mm) to the diameter of the colony (mm). The lineage produced all enzymes evaluated in this study, thus presenting a great metabolic versatility. Catalase and gelatinase were produced in the qualitative assays. In the semi-quantitative analysis, amylase production (EI = 4.97), followed by pectinase (EI = 3.25), lipase (EI = 2.79), caseinase (EI = 2.41), EI esterase = 2.37) and hemolysin . The high EI presented for the production of amylase has become an interesting fact, since it is among the most important hydrolytic enzymes widely used in biotechnological processes because it represents one of the three largest groups of industrial enzymes.

Keywords: *Streptomyces* sp., Enzimatic Potential, secondary metabolites