

TITLE: MORPHOLOGICAL, BIOCHEMICAL AND ENZYMATIC CHARACTERIZATION OF *Streptomyces* sp ISOLATED FROM AN AMAZON AQUIFER

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ABSTRACT:

Few researches are known about the distribution of this group of actinobacteria in the Amazon biome, especially in the area in the largest aquifer of the planet. Therefore, the elucidation of the biotechnological potential of actinobacteria isolated from the region is of great importance, since it can be a source of bioactive molecules of microbial origin with varied industrial application. In this study was performed the morphological, biochemical and enzymatic characterization of one strain of actinobacteria from the freshwater sediment of the Alter do Chao Aquifer, Santarem, Para-Amazon. Strain AQUA 17 presented rough bacterial colonies, convex and circular, dry surface and better sporulation ISP2 medium, light gray aerial mycelium with brown diffuse pigment production. Microscopy analysis showing presence of spherical spores chain type retinaculum apertum, typical morphology of the genus *Streptomyces*. This strain used all the carbon and nitrogen sources tested and presented tolerance to the medium containing 3% - 7% NaCl, besides producing several enzymes such as gelatinase, esterase, L-glutaminase, caseinase, catalase and hemolysin. Actinobacteria are recognized for their ability to produce various bioactive metabolites, and most of the isolates are from the soil, but the isolation of strains from other well-exploited habitats, such as freshwater sediment, is extremely important in attempt to isolate and identify actinobacteria with biotechnological potential. The morphological characteristics observed in *Streptomyces* sp. AQUA17 are strongly related to the family Streptomycetaceae, in particular the classical morphology of the genus *Streptomyces* when comparing them with those described in *Bergey's Manual of Systematic Bacteriology*. These data serve to confirm the presence of actinobacteria group in this bioma, and the showing strain *Streptomyces* AQUA17 like a natural resource with enzyme potential promising for the biotechnology industry, produce several extracellular enzymes of great industrial interest with action Hydrolytic, proteolytic and anti-tumor.

Keywords: Actinobacteria, Amazon biome, Enzyme, *Streptomyces*