

**TITLE:** METABOLIC VERSATILITY OF ACTINOMYCETES FROM CAATINGA (BRAZIL) TO BIOTRANSFORM ANTIPARASITARY COMPOUNDS

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**ABSTRACT**

Leishmaniasis and Trypanosomiasis are diseases caused by protozoa from the genus *Leishmania* and *Trypanosoma*, respectively. Currently, they are classified parasitic infections named as neglected tropical diseases, reaching mainly countries from Latin America, Asia and Africa. Pharmacological treatments normally include the use of drugs with high toxicity. Thus, plant metabolites could be characterized as a promising strategy for development of new, low cost and efficient antiparasitic drugs. Among these, some derivatives of Gibbilibol B isolated from the leaves of *Piper malacophyllum* (Piperaceae) have already been identified with some antiparasitic activities. Comparing these natural compounds with some commercially disposable, these were more efficient considering toxicity parameters, as well increased selectivity to the target. Although some cytotoxicity pattern was remained. One way to reduce cytotoxicity, but maintaining bioavailability of such compounds could be its previous biotransformation by another biological agent. In this sense, the present study is evaluating actinobacteria isolated from Brazilian caatinga, about their ability to biotransform some known natural antiparasitic compounds, in some drugs with low toxicity and high pharmacological efficiency. Five (5) actinomycete isolates from a 173 collection were selected, based on previous studies (data not shown) of enzymatic abilities of them. These actinobacteria were cultured in ISP9 medium supplemented by 1 % (0.4 mg/mL) of a antiparasitic compound named as A1A. The assays were monitored by GC-MS analysis. From these five (5) evaluated actinomycetes, one (1) named as AC159 could survive and biotransform A1A, producing as metabolite a compound very similar to the applied as substrate, but with some interesting functional group modifications, at pharmacological view point. The maximum production of this by-product was after 50 hours of culture, showing the conversion of 12 %, until now. At this moment we are working in the purification and characterization of the microbial product, wich will be followed by antiparasitary analysis to confirm its efficiency and low toxicity.

**Keywords:** actinomycetes; GC-MS; antiparasitic; caatinga; cytotoxicity

**Development Agencies:** CAPES.