ANTIMICROBIAL AND ENZYMATIC POTENTIAL OF ACTINOBACTERIA *STREPTOMYCES* SP. AM1 FROM THE AMAZON GUARANA RHIZOSPHERE

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One of the main causes responsible for limiting the yield crops are the diseases. Currently, the disease management with pesticides is the most effective in the phytopathogens control. However, this practice is harmful to the environment and human health. In addition, the pathogens can acquire resistance to the pesticide active principle. Thus, it is necessary to search alternatives such as bioactive compounds isolated from microorganisms, because it can be used in integrated pest management. This work aimed to evaluate the fungitoxic and enzymatic activity of the actinobacteria *Streptomyces* sp. AM1, isolated from the Amazonian guarana rhizosphere. To evaluate the antimicrobial activity, paired culture test with the isolated AM1, on PDA, against 15 plant pathogens of economic importance, was performed. To this, 7 mm diameter disks of the actinobacteria were inoculated in one of the plate edges, after 3 days, plant pathogens disks were inoculated in another edge and incubated in BOD at 28 °C for a seven days period. Additionally, the enzyme potential was qualitatively evaluated by the production of amylases, cellulases, pectinases, lipases, esterases, proteases and chitinases, in a specific medium for each enzyme. The enzymatic assay was expressed as enzyme index (SI) by the relation between the average diameter of halo degradation and the average diameter of the colony. As a result, actinobacteria AM1 presented antimicrobial potential in all testes, in which the highest percentages of inhibition were checked against *Cercospora* sp. (47.5%), *Colletotrichum siamense* (44.6%), *Colletotrichum graminicola* (40.6%) and *Colletotrichum gloeosporioides* (40.1%). In the enzymatic assay, it was observed that AM1 produced the following enzymes: lipases, esterases, pectinases and amylases, not being detected the production of proteases, cellulases, and chitinases, the last one involved in the antagonism process. Thus, it is concluded that the antagonistic activity of AM1 is not due to the synthesis of the hydrolytic enzymes, but it produce fungitoxic compounds in paired cultivation. Future studies will be conducted with the aim of proving the antifungal potential of the isolated AM1 and subsequently chromatographic techniques will be employed for purification of the active fractions.

Key-words: antagonistic activity, bioactive compounds and secondary metabolites

Research funding agency: CNPq- Processo 165534/2014-1