ENZIMATIC POTENTIAL OF ISOLATED BACTERIA IN CAVOUCO STREAM, PERNAMBUCO – BRAZIL.

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Introduction: The genetic and metabolic diversity of micro-organisms has been explored seeking results for biotechnological products. However, there were few studies to the knowledge of microbial biodiversity in aquatic environments impacted. Objective: The aim of this study was to evaluate the potential of production of hydrolytic enzymes (cellulolytics, xylanolytics, amyloytics, proteolytics, lipolytic, l-asparaginolitics) in gram-negative bacteria (Escherichia coli, Klebisiella pnemoniae, Serratia liquefaciens, Sternotrophomonas maltophilia, Pseudomonas purtida), in the isolated microbial community of an impacted urban stream in Recife – PE. Materials and Methods: Isolates were previously collected in five points of Cavouco Stream and qualitatively rated the excretory potential for hydrolytic enzymes. For the enzymatic evaluation, bacteria strains were subcultured in BHI medium, incubated at 30 °C for 24h, they are subsequently inoculated on the agar solid medium which contains 1% of inductor substrate, respectively: xylanase (birchwood xylan), cellulases (carboxymethylcellulose), amylase (starch), protease (gelatine), incubated at 30 °C for 24 h. Subsequently stained with appropriate dyes, these being respectively, to cellulases and xylanases 0.1% solution of Congo red dye, amylases iodine vapors. They also evaluated the lipase activity using agar medium containing olive oil as a specific substrate containing Rhodamine B. All strains were evaluated qualitatively as the ability to produce L-asparaginase, incubated for 24 h at 30 °C in the medium M-9, containing L-asparagine and phenol red. Results: In that work it was found that 78% of the studied strains have the potential to produce L-asparaginolitics enzymes, 61% of lipolytic enzymes, and 58% of proteolytic enzymes, 39% of cellulolytic, 17% of xylan-degrading and 6% Amyloytic. Variability in production of enzymes by species was found. Conclusion: The results presented are indicative of the presence of bacterial populations, but further analysis with molecular markers of diversity should confirm these data. There was a biotechnological potential for the bacterias in the Cavouco Stream.

Keywords: Bacteria, Environment, Hydrolytic enzymes.