

TITLE: BIOPROSPECTION OF ANTIBIOTIC PRODUCING BACTERIA ISOLATED FROM THE MANGROVE

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Mangroves are transitional coastal ecosystem between marine and terrestrial environments. They are biologically and economically important because include the wide diversity of organisms found belonging to the animal, plant and protist kingdoms. Due to the accumulation of carbon and decomposing organic matter, it favors the growth of several bacterial groups. Over the last years, several ecosystems such as mangrove were urbanized suffering damage and uncontrolled pollution. These pollutants interfered in microbial metabolic pathways that in order to survive, degrade them. So, it was formed new biomolecules and many of these have been described as antimicrobial, antifungal and antitumors. Currently multiresistant bacteria are the worst threat to the health system, since many of them have no treatment and lead the patient to death. Thus, this work had the objective of bioprospecting mangrove bacteria located in three distinct areas of the state of Sergipe: Mangrove of the Parque Eólico, Praia Formosa e Vaza-Barris, and analyzes antimicrobial potentials. The collection sites were selected according to human interference and the mangrove of Praia Formosa was the most contaminated. The isolated strains were fermented for 24 hours in Nutrient Broth at 37°C. After growth, they were centrifuged and the fermented broth applied by agar-well diffusion methods in pathogenic strains of *Pseudomonas aeruginosa*, *Escherichia coli*, *Staphylococcus aureus* e *Enterococcus faecalis*. Positive for inhibition halo formation were identified by biochemical, molecular (rDNA16s) and biotype (Maldi-TOF) tests. In all, 234 strains were isolated, which 30 were from the Parque Eólico, 116 from Praia Formosa and 88 from Vaza-Barris. Of these, 16 produced some type of antimicrobial against the pathogenic strains. After the biochemical, molecular and biotype identification the strains were classified in em *Alcaligenes faecalis*, *Bacillus pumilus*, *Bacillus safensis*, *Bacillus licheniformis*, *Bacillus paralicheniformis*, *Bacillus altitudinis*, *Cellulosimicrobium cellulans*, *Bacillus cereus* and *Bacillus subtilis*. All strains, except *B. cereus*, were isolated from Praia Formosa. This is the first work that reports *Cellulosimicrobium cellulans* as a producer of antimicrobial compounds. It is concluded that the genera which produced the best antimicrobial agents were *Bacillus* and *Alcaligenes* isolated from the Sergipe mangrove.

KEYWORDS: Bioprospecting, Mangrove, Antimicrobes, Antibiotics.

DEVELOPMENT AGENCY: CAPES, PROMOB-FAPITEC, CNPq, PBI.