TITLE: ANTIMICROBIAL ACTIVITY SCREENING OF ISOLATED MARINE MICROORGANISMS OF THE CORAL *Siderastrea stellata* AGAINST PATHOGENIC BACTERIA

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ABSTRACT:

The Siderastrea stellata coral is endemic to Brazilian waters and is widely distributed throughout the coast of the state of Bahia. The symbiotic microorganisms of marine invertebrates stand out because they have characteristics that make them survive extreme conditions. The exposure of coral to pathogens stimulates the associated microorganisms to produce important enzymes. Sixty-eight bacterial strains isolated from this coral were analyzed against ten pathogenic microorganisms. Antimicrobial activity against a Gram-positive microorganism, Staphylococcus aureus INCQS 00186 and nine Gram-negative microorganisms, Escherichia coli EHEC INCQS 00171, Escherichia coli EPEC INCQS 00181, Escherichia coli ETEC INCQS 00218, Escherichia coli EIEC INCQS 00170, Escherichia coli EAEC INCQS 00180, Escherichia coli INCQS 0310, Salmonella entérica subsp. enterica serovar Enteritidis phage type 4 (S. Enterica PT4); S. Enterica PT11; S Typhi ATCC 5339. For this, the marine isolates were grown in liquid sea water (AM) or solid (AAM) and the agar diffusion method was used by the well technique for antimicrobial screening. It was observed that eight isolates (SB15, 77, AC4, A55, 51, 85, 38 and 69) produced bioactive compounds and were able to perform their antimicrobial activity against at least two of the ten pathogenic bacteria. When the isolates were cultured in Mueller-Hinton Broth it was observed that the biocidal spectrum varied by demonstrating that the culture medium interferes directly in the production of bioactive molecules. The DNA of the eight isolates that showed antimicrobial activity were sequenced and compared to the GenBank database through the Basic Local Allignment Search Tool (BLAST) program. With the results obtained from the sequencing of the 16S rDNA of the positive isolates it was possible to identify them as of the genus Bacillus.

Keywords: Bacillus, marine, 16S rDNA, sea water broth, sea water agar.

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