

TITLE: ANALYSIS OF THE ANTIMICROBIAL POTENTIAL OF *MICROCOCCUS LUTEUS* FROM PARAIBA SEMIARID SOIL

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ABSTRACT:

Over the years, due to incidence of multidrug-resistant pathogenic strains (MDR), the interest for the discovery of new antimicrobial compounds has increased. Therefore, bacteria from semiarid regions may represent an important source of these findings, considering that the microorganisms from adverse environments can activate different metabolic pathways when subjected to harsh conditions, renewing the possibility of exploitation of new bioactive products. Thus, in this work, the antimicrobial potential of metabolic fluid of fourteen *Micrococcus luteus* from Paraiba semiarid soil were tested against *Escherichia coli*, *Staphylococcus aureus*, *Salmonella enterica subsp. enterica serovar Typhimurium*, *Salmonella enterica subsp. enterica serovar Enteritidis* and *Listeria monocytogenes* using diffusion disk assays. These tests were carried out on petri dishes containing Tryptone Soy Broth (TSB) supplemented with agar (1.5%) incubated at 37°C and the diameter of the inhibition zones was measured after 24/48 hours and expressed in millimeters. Our results revealed that the isolates FT 9.7, FT 9.10, FT 9.11, FT 9.12, FT 9.13 e FT 9.15 (42.85%) were active, particularly against *Staphylococcus aureus*. Although, only one out of the six isolates (FT 9.12) showed moderate activity (diameter of the inhibition zones between 11 and 14 mm), whereas, the others five presented low activity (diameter of the inhibition zones between 7 and 10 mm). However, our screening was done with metabolic fluid, thus, the antimicrobial activity of this isolates may be greater and more efficient when analyzing the crude extract. So, we might suggest that these six isolates of *Micrococcus luteus*, mainly the FT 9.12, are potential sources for the development of antimicrobial agents against *Staphylococcus aureus* (MRSA), which have been identified as one of the main clinical and epidemiological problems in nosocomial infection.

Keywords: Bioprospection, Actinobacteria, Caatinga

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