

**TITLE:** BIOPROSPECTION OF BACTERIAL ISOLATES FROM WETLANDS OF THE CONSERVATION UNIT IMPERATRIZ LEOPOLDINA SÃO LEOPOLDO/RS, ON THE PRODUCTION OF ANTIMICROBIAL COMPOUNDS

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### ABSTRACT

The wetlands are common formations in the pampean landscape of Rio Grande do Sul, these environments present high energy concentration, producing large amount of biomass due to the abundance of nutrients present in this ecosystem. Microorganisms in wetlands play important roles in biogeochemical processes and their activities are fundamental to the functions of these ecosystems. In view of the above, the objective of this research was to isolate and characterize bacterial strains from the sediment of a wetland of the Imperatriz Leopoldina Municipal Park Conservation Unit in São Leopoldo / RS and to test the production of antimicrobial compounds by these isolates. Sediment collection was performed in December 2016 and this sample was submitted to the analysis of physicochemical composition, quantification of heterotrophic bacteria and selection of microorganisms with different morphotypes. The isolates were identified by Matrix Associated Laser Desorption-Ionization-Time Off Flight (Maldi-Tof) and tested for the production of antimicrobial compounds by the preliminary overlay test. As for the physical-chemical composition of the sample, the pH was 6.0, carbon was 4.8%, nitrogen 0.48% and humidity 56%. The quantification of the heterotrophic bacteria was  $5.4 \times 10^5$  CFU / g of sediment. From different morphotypes, it was possible to select thirteen bacterial isolates, of which 70% were identified by Maldi-tof, as belonging to the bacterial genera: Bacillus, Paenibacillus, Arthrobacter, Aeromonas and Chryseobacterium. From the overlay test it was observed that 30% of the isolates presented some antimicrobial activity against the strain *Listeria monocytogenes* ATCC 7644. With this it is observed that moist areas are interesting sites for the prospection of bacteria with potential to produce new antimicrobial compounds.

**Keywords:** antimicrobial compounds, *Listeria monocytogenes*, Maldi-Tof, sediment.

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