

TITLE: GENETIC CHARACTERIZATION OF *Klebsiella* sp. ANTIBIOTIC-RESISTANT STRAIN ISOLATED FROM ÁGUA PRETA LAKE, FOUNTAIN FROM BELÉM, PARÁ.

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ABSTRACT:

Klebsiella is an important member of the Enterobacteriaceae family. Bacteria belonging to this genus are classified as bacilli Gram-negative bacteria, and are isolated from diverse environments, such as soils, sewage, and even mammalian mucosae. Among its component species, the most prominent ones are *K. pneumoniae* and *K. oxytoca*. They are important human pathogens associated with numerous infections in hospital environment. Urinary tract infections, pneumonia and other respiratory tract infections, as well as bloodstream infections are examples of diseases that can be caused by these bacteria. The bacteria was isolated from a fountain which supplies the metropolitan area of Belém – PA. The genome of the bacteria was sequenced in the Ion Proton™ P1 chip platform, followed by assembly of the genome by the software MIRA 4:02 and Lasergene 11.2.1. Manual annotation was performed using Artemis program. Gene abbreviations, product nomenclatures, conserved protein domains and motifs were identified by similarity search with public databases such as UniProt (<http://www.expasy.uniprot.org/>), Pfam (<http://www.sanger.ac.uk/Software/Pfam/>) and InterPro (<http://www.ebi.ac.uk/interpro/>). The genome showed 5055 CDS', being 33 pseudogenes. Blast results showed 93% of similarity with *Klebsiella pneumoniae* subsp. *pneumoniae*. Resistance genes *bla*TEM, *bla*SHV, *bla*CTX, *bla*VIM and integron *int1* were identified by PCR. Antibiogram tests showed positive results related to resistance to the following antibiotics: Nalidixic Acid, Amoxicillin/Clavulanic Acid, Ampicillin, Aztreonam, Cefepime, Ceftazidime, Cephalothine, Cefotaxime, Ciprofloxacin, Chloramphenicol, Kanamycin and Sulfamethoxazole/ Trimethoprim. Therefore, this research contributes to future studies on this important medical-veterinary field of antibiotic resistant strains.

Keywords: antibiotics, genome, *Klebsiella*, resistance.

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