

STUDY OF *AEROMONAS VERONII* RESISTOME ISOLATE FROM RIO DE JANEIRO COSTAL WATER

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Resumo:

Superbugs, or multidrug-resistant bacteria, represent one of the major problems of public health. Carbapenemase-producing gram-negative bacteria are noteworthy in this scenario, especially those producing carbapenemases belonging to the KPC family (*Klebsiella pneumoniae* carbapenemase). Although these bacteria are mainly detected in hospital dependences, KPC-producing bacteria have been recovered from different environments. Rivers and coastal waters may represent an important reservoir and vector of antimicrobial resistance genes of medical relevance, potentially threatening the health of individuals in contact with these waters. Recently a KPC-producing and multidrug-resistant *Aeromonas* sp. BT04 strain was isolated from Botafogo beach, RJ, Brazil. As many genes coding for bacterial antibiotic resistance are harbored in mobile genetic elements, BT04 strain may contribute to dissemination of antibiotic resistance genes in the environment. Based on this, the aim of this work was to sequence and analyze the whole genome shotgun (WGS) of *Aeromonas* sp. BT04. For that, BT04 DNA was extracted and the sequencing was performed using Illumina MiSeq platform. A total of 2918470 paired-end reads with average length of 268.13 bp was obtained. The reads were assembled with SPAdes 3.5.0 software and the contigs (about 5,6Mb) were analyzed using Artemis software. In overall the result showed that BT04 belong to *Aeromonas veronii* specie. The resistome characterization of BT04 showed the presence of genes related to bacterial resistance to 7 different antibiotics family: B-lactams, quinolones, macrolides, tetracycline, sulfonamide, aminoglycoside and rifampicin. In addition, this results suggested that *bla*_{KPC-2} gene is located on a plasmid related to pNJST258C2 from a KPC-producing *Klebsiella pneumoniae* (30684/NJST258_2). These results demonstrated the potential of *A. veronii* BT04 to disseminate antibiotic resistance genes in the aquatic environment.

Palavras-chaves: *Aeromonas veronii*, *Klebsiella pneumoniae* carbapenemase, KPC, resistance, draft genome, coastal water.

Agências Fomento: CNPq, CAPES, FAPERJ