Adailton Pereira dos Santos et al., J Antivir Antiretrovir 2018, Volume:10
DOI: 10.4172/1948-5964-C1-040

Resistance of *Pseudomonas aeruginosa* against beta-lactams

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The emergence and spread of antimicrobial resistance are problems of big global importance. The B-lactamases are enzymes that hydrolyze the β-lactams ring; this prevents the action of β-lactams antimicrobials. The objective of this work was to diagnose phenotypically and molecularly 15 beta-lactamase resistance genes. Sixty samples of *Pseudomonas aeruginosa* were selected, and the antibiogram test was done for resistance test against beta-lactams class. A literature review was performed and discovered many genes that present resistance to beta-lactams in *Pseudomonas aeruginosa* bacteria. After the literature revision, molecular tests of PCR SYBR Green method, to amplify of the genes corresponding to the resistances found in phenotyping were performed. Following the antibiograms of the samples, they found that 24/60 (40%) were resistant to aztreonam, 15/60 (25%) to gentamicin, 6/60 (10%) to ceftazidime, 4/60 (6%), ciprofloxacin, 4/60 (6.6%) to imepenem and 2/60 (3.3%) to piperacillin + tazobactam. No sample showed positive results for ESBL, metallo-β-lactamase neither to carbapenemase. The isolates of P. aeruginosa from our study showed a high production rate of AmpC. Among the preliminary results, we found data of correlation between beta-lactam antibiotics and resistance genes. The *blaVIM*, *blaIMP*, *blaCTX-M*, *blaKPC, blaGIM*, blaSPM genes presented resistant to piperacillin + tazobactan, ciprofloxacin, aztreonam and ceftazidime. According the criteria established by the Institute of Clinical and Laboratory Standards, this work presents the same beta-lactamases resistance shown by literature.

Biography

Adailton Pereira dos Santos has graduated in Biology from the Pontifical Catholic University of Goiás (2002). He has a Specialization in Teacher Training in the area of Environmental Education by the Pontifical Catholic University of Goiás (2002-2003). He currently teaches at Dom Pedro I State College (2014-2017) and Severina Maria de Jesus State College (2003-2017). He has experience in General Biology, with emphasis in General Biology, mainly in the following subjects: Ecotoxicology, Danio rerio, Industrial Effluents and Bioindicators.

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