

Antibiotics and Heavy Metal Resistance of Three Strains of *Pseudomonas Aeruginosa* Isolated from Different Ecological Areas

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Abstract

Background and Objective: most of environmental microorganisms have the genes resistance to antibiotics and metals. The aim of the current study was to survey resistance pattern to some antibiotics and heavy metals in three *pseudomonas aeruginosa* isolated from different ecological areas. **Material and Methods:** first, the isolates were identified by biochemical methods and phylogenetic analysis. Then, the evaluation of antibiotic resistance was conducted by disc diffusion and that of Heavy metal resistant by agar dilution, in a range of 50-500 µg/ml.

Results: The results showed that all three isolates were resistant to beta lactam antibiotics. Although these isolates were highly resistant to heavy metals, no relationship was observed between ecological sources and the resistance pattern in ICT1 and Abt2 strains. However, strain Q isolated from digestive system of *Parmacella Iberica* showed high resistance to antibiotics and low resistance to heavy metals.

Conclusion: given that environmental bacteria have a high potentiality for carrying resistance genes and this can be an advantage environmentally, they could be used to remove heavy metals from polluted areas. On the other hand, resistance genes medically are a concern due to probability of transferring to pathogen strains.

Keywords: Antibiotic Resistance, Heavy Metal Resistance, *Pseudomonas Aeruginosa*