

# **Evaluation of Aminoglycoside Resistance and Frequency of aac (6') -I and ant (2'') -I Genes in Clinical Strains of Pseudomonas aeruginosa in Guilan**

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**Introduction:** *Pseudomonas aeruginosa* is a gram negative, an aerobic, non-fermented, positive oxidase and positive catalase bacteria of the *Pseudomonas* spp. Their size is between 1.3-1.5 microns and has a simple and minimal nutrition. This bacteria is non-spore and motile. Its optimum growth temperature is 37° C. Nevertheless, it can grow at 42 ° C, but can not grow at temperatures below 4° C.

**Materials and methods:** In this study, 94 samples of *Pseudomonas aeruginosa* isolated from Rasht-based hospitals were laid out on the basis of the CLSI table standard antibiogram test on Gentamicin and kanamycin antibiotics, and then for the 16 Gentamicin resistant specimen, the MIC test was performed. Finally, for the detection of the prevalence of aac (6') - I and ant (2'') - I genes for 30 resistant polymerase chain reaction tests, PCR was performed.

**Results:** In these studies, it was found that 94 isolates in this study, 100% of the samples were resistant to kanamycin and 1,54% of the samples were resistant. Of the 16 samples for which MIC testing was performed, the minimum inhibitory concentration for 4 samples (25%), 2000 µg / ml and 5 samples (31.25%), 1000 µg / ml, 2 samples (12.5%), 500 µg/ml, 1 sample (6.25%) 250 µg / ml and 4 samples (25%) 62.5 µg / ml. The PCR test was performed for 30 samples, according to Table 4-4, the frequency of the gene aac (6') - I Among our samples, 8 isolates (26.6%) and ant (2'') - I gene among Our samples were 27 isolates (86.6%).

**Discussion and Conclusion:** According to the results, it is possible that with the increase in the frequency of aminoglycoside-modifying genes, the resistance to gentamicin is increased.

**Keywords :** Antibiotic resistance, Aminoglycosides, *Pseudomonas aeruginosa*, Aac

**(6'), I gene, ant (2"), I gene**

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