

Frequency of AlgD and PslA in isolates of Pseudomonas Aeruginosa Biofilm with Multiple Antibiotic Resistance

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Abstract Background: *Pseudomonas aeruginosa* is a gram-negative bacterium and one of the most promising opportunistic pathogens that causes infectious diseases, which usually results in simultaneous multi-drug resistance. One of the reasons for antibiotic resistance is the bacterial protection within biofilms. Among the genes important in the production of algD and pslA biofilm polysaccharides. The aim of this study was to investigate the antibiotic resistance, biofilm production capacity and the frequency of effective genes algD and pslA in the formation of biofilms in *Pseudomonas aeruginosa* isolates isolated clinical specimens in Rasht. **Material and method:** In this study, 40 strains of *Pseudomonas aeruginosa* isolated clinical specimens were collected in Gilan hospitals and all samples were identified based on biochemical methods. A disc diffusion method was used to determine the strain resistance patterns and drug sensitivity and to identify strains of broad-spectrum beta-lactamase producing strains, a combined disc method was used according to CLSI guidelines. After the phenotypic identification of strains with multiple antibiotic resistance, biofilm production capacity, the presence of algD and pslA genes in resistant strains was investigated. **Results.** In this study, the highest percentage of resistance was observed for cefocytosine and cefotaxime antibiotics and the highest susceptibility to amikacinopyracilin antibiotics. Of the 40 examined strains, 37 strains had multiple antibiotic resistance. Also, the results of the study Based on the growth of isolates on the congo red Agar medium, 67.25% were identified for positive biofilm formation. All biofilm isolates showed multiple antibiotic resistance. 66 and 63% of the isolates identified the presence of algD and pslA genes. **Conclusion:** The results of this study indicate that *Pseudomonas aeruginosa* isolates are highly resistant to multiple drug resistance patterns in Rasht clinical isolates and high levels of algD and

PsIA genes in these resistant isolates. Therefore, considering the clinical importance of these resistant strains, rapid identification of biofilm producing organisms and the use of appropriate infection control tools are necessary to prevent further release of these organisms.

Keywords : Key words: Pseudomonas aeruginosa, Antibiotic resistance, algD, psIA

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