Detection of phospholipase and type IV pili genes in clinical isolates of multidrug-resistant *Pseudomonas aeruginosa*

Monazami A (B.Sc)
Haghi F (Ph.D)

1M.Sc Student in Microbiology, Department of Microbiology, Biology Research Center, Zanjan Branch, Islamic Azad University, Zanjan, Iran. 2Associate Professor, Department of Microbiology and Virology, Zanjan University of Medical Sciences, Zanjan, Iran.

Abstract

**Background and Objective:** *Pseudomonas aeruginosa* is an opportunistic pathogen with numerous virulence factors such as phospholipase and type IV pili. The emergence of multidrug resistant *Pseudomonas aeruginosa* has become a serious public health threat worldwide. This study was done to determine the frequency of plcH, plcN, pilA and pilB genes in multi-drug resistant *Pseudomonas aeruginosa* isolated from clinical samples.

**Methods:** In this cross-sectional study, 93 isolates of *Pseudomonas aeruginosa* collected from different clinical samples from hospitals of Zanjan, Iran during 2013-14. After identification of isolates by biochemical tests, antibiotic susceptibility testing (Kirby-Bauer) was performed according to CLSI guidelines. Total DNA extracted and PCR was done to detect of plcH, plcN, pilA and pilB genes.

**Results:** Among 93 of *Pseudomonas aeruginosa* isolates, the highest antibiotic resistance related to Erythromycin and Cefoxitin (95.6%) and the lowest resistance related to Amikacin (26.8%). 80.6% of isolates were multidrug resistant (MDR). Out of 75 MDR isolates, the frequency of plcH, plcN, pilA and pilB genes was 97.4%, 49.3%, 26.6% and 17.3%, respectively.

**Conclusion:** According to high frequency of phospholipase C gene (plcH) in MDR *Pseudomonas aeruginosa* isolates which isolated from different clinical samples, presumably this virulence factor plays an important role in pathogenesis of this bacterium.

**Keywords:** *Pseudomonas aeruginosa*, Antibiotic resistance, Phospholipase C, Type IV Pili

* Corresponding Author: Haghi F (Ph.D), E-mail: haghi@zums.ac.ir

Received 30 Apr 2016  Revised 28 Aug 2016  Accepted 5 Sep 2016