

5th Global Experts Meeting on Infectious Diseases

August 08-09, 2022 | Webinar

Shumaila Naz, J Infect Dis Med Microbiol 2022, Volume 06

Detection of virulence genes in antibiotic resistant bacterial pathogens of urinary tract Infections Samples

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Urinary tract infections (UTIs) are common health problems in the community and healthcare-associated centers. UTIs caused by pathogenic bacteria can affect men and children but are more common in women. Biofilm formation plays a vital role in the pathogenicity of disease-causing bacteria. Biofilms involved in poor penetration of antibiotics and the emergence of multidrug-resistant organisms (MDRO) are aided by the horizontal transfer of virulence genes. Knowing the phenomena of biofilm formation and antibiotic resistance in uropathogenic helps to treat the biofilm-associated UTIs. The present study evaluated six bacterial isolates of UTIs for their biofilm-forming ability, antimicrobial susceptibility pattern by microdilution method, and virulence genes detection by PCR followed by phylogenetic analysis. Biofilm formation was observed in all six isolates. Antimicrobial susceptibility showed that the isolates were more resistant to ciprofloxacin and amoxicillin/clavulanic acid than gentamycin and meropenem. The isolate Acinetobacter calcoaceticus (11A) showed resistance to all four selected antibiotics. Molecular characterization showed the presence of Acinetobacter calcoaceticus, Enterococcus gallinarum (11D), and Enterobacter hormaechei (1B) in urinary tract infection samples. The prevalence of papC, fimH, and cnf1 genes was higher than other tested virulence genes among selected bacterial isolates. The virulence gene papC was present in four isolates (4D,11A,11C, and 11D), fimH was present in two isolates (4D and 3B), and cnf1 was observed in one isolate (11A). Treating patients suffering from urinary tract infections becomes difficult due to multiple drug-resistant bodies and virulent genes. The present investigation provides information on bacterial pathogenicity associated with biofilm-forming drug-resistant uropathogens and the presence of virulent genes related to urinary tract pathogenesis.

Biography

Dr. Shumaila Naz is an Associate Professor Qualification: Ph.D. Biochemistry/ Biotechnology, 2009, SBS-University of the Punjab, Lahore, Pakistan. DICE-Innovative Business Plan Award: Head of the Model Project "Aquaponics" Participated and Presented innovative new business plan in a two-day Distinguished Innovation, Collaboration Entrepreneurship (DICE) themed Agriculture and Food Sciences 2017, organized by the ORIC-University of Agriculture, Faisalabad on 7-8th November, 2017. The project team won the 10th position and a cash prize among top 15 best ideas out of 126 Projects. Won the Best Science Model.

Received: July 15, 2022; **Accepted:** July 17, 2022; **Published:** July 20, 2022
