International Conference on
Biomedical Engineering, Bioscience,
Bioinformatics, Biochemistry Cancer Biology,
Molecular Biology and Applied Biotechnology
(BCM-2019)

Studies on Urinary Tract Infection (UTI) Isolates and Detection of Virulence Factors

Suhela Agarwal[1], Nifiya Girdhar[1] and Abhishek Roy[*]

[1]Dr. B. Lal Institute of Biotechnology, 6-E, Malviya Industrial Area, Jaipur
*Email: *abhishek@blalbiotech.com*

Abstract—*UTI has been a grave cause of concern affecting aged, young and infants. The causative organisms for this disease include E. coli, Pseudomonas, Proteus vulgaris and Proteus mirabilis as well as others. E. coli is the most common bacterium that is causative for this infection. Uropathogenic strains of Escherichia coli are characterized by the expression of distinctive bacterial properties, products, or structures referred to as virulence factors because they help the organism to overcome host defenses and colonize or invade the urinary tract. Virulence factors of recognized importance in the pathogenesis of urinary tract infection (UTI) involve adhesins (P fimbriae, certain other mannose-resistant adhesins, and type 1 fimbriae), the aerobactin system, hemolysin, K capsule, and resistance to serum killing. E. coli is found to be triggering relapse of infection in women. The Ciprofloxacin-resistant (cipro^r) Gram-negative bacteria, extended-spectrum-beta-lactamase (ESBL)-producing Enterobacteriaceae have further compounded the menace. The present study investigates the antibiotic resistance of bacteria, utilizing drugs like Gentamycin, Piperacillin, etc. Nitrofurantion, the preffered drug for treatment, has also been used. PCR technique has been used to detect nfsA gene in bacteria isolates. The nitroreductase activity of nfsA is required for action of Nitrofurantoin. The present study is directed to understand the spread of antibiotic resistance among bacteria. The genetic basis of drug susceptibility resistance has also been probed.*