

# Evaluation of gyrA Genemutation in Quinolone Resistant E.coli Isolates

Akram Sanakhan Rezaeyeh\*,

**Background:** *Escherichia coli* is one of the most common causes of urinary tract infections. Group quinolone antibiotics to treat these infections usually fluoroquinolones, such as ciprofloxacin, particularly prescribed. Incidence of drug resistance in these bacteria by different mechanisms including DNA Mutations in genes encoding enzymes Zhyraz observed. The aim of this study gyrA gene mutation in quinolone-resistant *Escherichia coli* isolates them. **Materials and Methods:** This cross-sectional study was conducted September to January 1395. After collecting 51 isolates of *Escherichia coli* isolated urinary tract infections the various hospitals in Rasht, was confirmed with additional biochemical tests. After confirming the identity of bacteria, antibiotic resistance pattern of *E. coli* isolates by disk diffusion method by seven antibiotics ciprofloxacin, levofloxacin, ampicillin, amikacin, imipenem, ceftazidime and gentamicin were based on CLSI protocols . Also broth macrodilution method isolates resistance to antibiotics ciprofloxacin was determined according to the CLSI standard. Then all isolates resistant to ciprofloxacin DNA was extracted by boiling method for gyrA gene PCR was performed under optimal conditions and sequenced. **Results:** Of the 51 isolates of *E. coli* studied 36 isolates (6/70%) were resistant to ciprofloxacin disk diffusion method. The frequency of isolates resistant to levofloxacin (8/60%), ampicillin (9/58%), amikacin (19.6%), imipenem (3.35%), ceftazidime (3.35%) and gentamicin (3.35%), respectively. Results for antibiotic ciprofloxacin MIC, showed the greatest strength of 1024 micrograms per ml and 32 micrograms per ml of least resistance. After PCR and electrophoresis, 25 isolates were sequenced and 17 isolates showed mutations Ser83Lue bad means bad mutations, of which 11 isolates means Asp87Asn also showed at the same time. native *E. coli* gyrA gene mutation in resistance to ciprofloxacin role effectively. The high prevalence of ciprofloxacin-resistant *E. coli* can be used as a warning for the treatment of infections caused by this bacterium in patients admitted in hospitals of Rasht is raised.

---

**Keywords : E. coli, quinolone resistance gene gyrA**

[Islamic Azad University, Rasht Branch - Thesis Database](#)  
[دانشگاه آزاد اسلامی، واحد رشت - سامانه بانک اطلاعات پایان نامه ها](#)