

## Detection of *qnr* genes in ESBLs producing and non-producing coliforms

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### ABSTRACT

**Background and objectives:** The discovery of plasmid-mediated quinolone resistance (PMQR) in the late 1990's added a new dimension to quinolone resistance. During the last years, the occurrence of extended-spectrum- $\beta$ -lactamases (ESBLs) and (PMQR) within coliforms group has gained particular attention. The objective of this study was to determine the prevalence of plasmid-mediated fluoroquinolone resistance genes in ESBL-producing coliforms

**Materials and method:** One hundred and seventy three clinical samples collected from both gender , (110) from urinary tract infections ( UTIs ), and (63) from patients with diabetic foot infections ( DFIs ) who visited or admitted to AL- Salam General Teaching Hospital and AL- Wafa'a center for diabetic patients in Mosul city of Ninawah province / Iraq from April 2013 to February 2014. The isolates were identified to species level depended on morphological, biochemical and physiological tests and confirmed by RapID™ ONE system (Remel \ USA).

**Results:** The results showed the majority of them were resistant to most antibiotics. Resistance was observed most often to nalidixic acid (85.9%) followed by norfloxacin (70.5%) and ciprofloxacin (67%). All ciprofloxacin resistant isolates were tested for their ability to produce the extended spectrum  $\beta$ -lactamase (ESBL) enzymes using the double disk synergy test (DDST). Out of the total (57) ciprofloxacin resistant coliforms tested, (66.7%) were ESBL producers. Ciprofloxacin resistant coliforms species were conducted for PCR to investigate the presence of *qnr* genes. Out of (57) ciprofloxacin resistant spp. *qnrB* gene (469 bp) was detected in 14(24.6%) spp. while none of the species had *qnrA* and *qnrS* genes in our study. The results also revealed that *qnrB* gene was found in all (100%) of ESBL-producing *E. coli* and *K. pneumoniae* spp.

**Keywords:** Ciprofloxacin resistance, *qnr* genes, Coliforms

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