

Investigation mexY gene expression in drug resistant strains of Pseudomonas aeruginosa treated by Curcumin-Encapsulated nanomicell (OA400)

Sanaz Jafarzadeh*, Dr. Najmeh Ranji, Majid sadeghizadeh,

Introduction: *Pseudomonas aeruginosa* is one of the common antibiotic resistant Gram-negative bacteria that can bring about serious illnesses especially hospital-acquired infections. MexXY pump exports many antimicrobial compounds and it seems to be involved in antibiotic resistance. The mexY gene encodes a proton-drug antiporter in MexXY pump. The aim of this study was investigated the ciprofloxacin resistance and mutant pattern of mexY gene associated with efflux pumps mexXY in ciprofloxacin resistant isolates curcumin-Encapsulated nanomicell (OA400) clinical specimens. **Material and Methods:** This descriptive study was performed on *P. aeruginosa* isolates various hospitals in Guilan province. After determine minimum inhibitory concentration (MIC), isolates treated by ciprofloxacin solitary and ciprofloxacin enriched by curcumin-Encapsulated nanomicell (OA400). After the exposure of 48 hours, antibacterial features of curcumin were measured by OD in 625 nm. Beside, Mutations in the quinolone resistance-determining regions (QRDR) was investigated in chromosomal mexY gene in quinolone-resistant *P. aeruginosa* isolates, by PCR amplification of mexY gene and sequencing. **Results:** Based on the results of MIC, ciprofloxacin mixed by curcumin-Encapsulated nanomicell reduce significantly the number of bacteria over the period of 48 hours. Also, according to the Real Time PCR method, the expression of mexY gene diminish obviously in bacteria treated by curcumin-Encapsulated nanomicell in comparison with controls. **Conclusion:** In conclusion, curcumin can reduce the the expression of mexY gene in the presence of ciprofloxacin. It is suggested that, curcumin with ciprofloxacin can be used for treatment of infections that caused by *Pseudomonas aeruginosa*.

Keywords : Keywords: Pseudomonas aeruginosa, ciprofloxacin, mexY gene, curcumin.

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