**Toxin Antitoxin Systems as a Reliable Antimicrobial Target for Inhibition of Biofilm Formation in *Pseudomonas aeruginosa***

The ability of *Pseudomonas aeruginosa* to produce biofilm made it as a hard crisis to treat with current antibiotics. Some genes in bacteria like toxin antitoxin (TA) loci are responsible for regulating of the other genes like genes involved in biofilm production. So, by disrupting of these TA loci, they can be focused as novel anti-biofilm targets. Therefore, the current study aimed to evaluate different TA loci to find the reliable target for prevention of biofilm production. For this purpose, 30 *P. aeruginosa* clinical isolates were subjected to biofilm production and presence of different TA loci. For target discovery the target should be presence in biofilm producer isolates and should be functional means more express in strong biofilm producer bacteria; finally by knocked out of these TA loci the biofilm producer *P. aeruginosa* should become no biofilm producers. So, among 30 isolates *relBE* TA loci were presented in biofilm producers *P. aeruginosa* and if be presented in no biofilm isolates, it showed no expression. The functionality was confirmed by RT-qPCR, which the results demonstrated that the *relBE* TA loci expression was more in stronger biofilm producer isolates. Also, our findings showed by knocked out of *relBE* TA loci the isolate that be biofilm producer changed to no biofilm producer. The current study defined the role of *relBE* TA loci to regulate the biofilm production and showed *relBE* TA loci as a reliable anti-biofilm target in *P. aeruginosa.*

**Keywords:** *Pseudomonas aeruginosa*; toxin antitoxin systems; target discovery