

## Molecular typing of *Escherichia coli* harboring genes encoding major toxins (Stx1, Stx2, eaeA and hly A) isolated from clinical samples using random amplified polymorphic DNA(RAPD)\*-PCR

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A total of 243 samples of *E. coli* were collected from both clinical sources and tested first for the presence of the four major virulence factors; stx1, stx2, eaeA and hlyA and were then subjected to genotyping using the RAPD-PCR methodology. Only 52 isolates contained toxin genes while the rest were non toxigenic. The majority of toxin producing isolates (45 out of 52) were isolated from urine while three isolates were from pus samples, 2 isolates were from eye swabs and one isolate from wound and one from aspirate samples. Interestingly, the only four isolates exhibited the four toxins originated from urine samples and could be of O157:H7 isolates. Other four isolates (3 from urine and one from pus) exhibited 2 toxins [entimine and hemolysin]. The rest of the toxin producing isolates exhibited only entimin eaeA gene. The isolates were typed based on the RAPD-PCR profiles followed by hierarchical cluster analysis to classify the isolates and understand the relationship among them. The dendrogram revealed 99 clusters implying a very high heterogeneity among the isolates. Since most of the isolates came from urine sample, the majority of the clusters contained only *E. coli* isolated from urine while the isolates obtained from none urine samples did not cluster together, they were rather scattered among the urine isolates. This study highlighted the high heterogeneity of the *E. coli* isolates from patient samples. In addition it appears that the majority of the isolates from urine samples might be commensal *E. coli* rather than pathogenic owing to the low numbers of these isolates producing toxins. The RAPD-PCR appeared to be a cheap and easy method for good discrimination among these none related *E. coli* isolates.

### Biography

Ziad W. Jaradat completed his Ph.D. in Microbiology/Biotechnology in 1999 from University of Manitoba, Canada, and worked for 3 years at Purdue University as a postdoctoral research associate and as senior research scientist in SA Scientific for two years. He has moved to Jordan University of Science and Technology to assume a tenure track position in the Department of Biotechnology and Genetic Engineering. Currently he serves as the head of academic affairs at Al Ain Campus for Fatima College of Health Sciences. He has published more than 33 articles, book chapters and books and serving as an Associate Editor-in-Chief for the *International Journal of Life Science and Medical Research* and an Editorial Member on the *Advances in Genetic Engineering/OMICS*.

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