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Molecular characterization of Extended Spectrum Beta Lactamases (ESBLs) produced by clinical isolates of *Acinetobacter baumannii* in Saudi Arabia

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Acinetobacter baumannii is a common opportunistic pathogen that causes major nosocomial infections in hospitals. In this study, we hypothesized a high prevalence of *A. baumannii* ESBL (Extended Spectrum Betalactamase) among all collected isolates. *A. baumannii* isolates (n=107) from ICU (Intensive Care Unit) of local hospitals in Makkah were phenotypically and genotypically characterized. The identity and antibiotic susceptibility of *A. baumannii* strains were determined using the Vitek-2 system. The identified ESBL producers were further analyzed by PCR and sequencing followed by MLST typing. blaTEM, blaSHV and the blaCTX-M group genes 1, 2, 8, 9 and 25 were investigated. Furthermore, blaOXA51 like and blaOXA23 like genes were also examined in the carbapenem resistant *A. baumannii* isolates. Our data indicated a high prevalence of *A. baumannii* ESBL producers among the collected strains. Of the 107 *A. baumannii* isolates, 94% were found to be resistant to cefepime and ceftazidime and aztreonam using the Vitek 2 system. The genes detected encoded TEM, OXA-51 like and OXA-23 like enzymes and CTX-M group proteins 1, 2, 8, 9 and 25. MLST typing identified eight sequence type (ST) groups. The most dominant STs were ST195 and ST557 and all of them belong to worldwide clonal complex (CC) 2. This study has shown that there is a high prevalence of antimicrobial resistance in *A. baumannii*. The diversity of STs may suggest that new ESBL strains are constantly emerging. The molecular diversity of the ESBL genes in *A. baumannii* may have contributed to the increased antimicrobial resistance among all isolates.

Biography

Essam J Alyamani has completed his PhD from Northeastern University in Boston, USA and Postdoctoral studies from Ottawa University, Canada and Northeastern University, Chicago USA. He is the Director of Microbial Biotechnology at the National Center for Biotechnology, KACST. He has published more than 20 papers in reputed journals and has been serving as a Grant and journals Reviewer since 2008.

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