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Proteomic analysis of carbapenem resistant *Klebsiella pneumoniae* strain in response to meropenem stress: Understanding cellular responses for survival

Asad U Khan, Arbab Khan and Mohammed Fahim
Aligarh Muslim University, India

Multidrug resistance in bacteria is an important phenotypic property that has complicated the treatment of infectious diseases. *Klebsiella pneumoniae* is a ubiquitous organism ranking next to *E. coli* in hospital settings. KPC-2 type beta lactamase producing *K. pneumoniae* is a worldwide concern as it renders carbapenems ineffective. Elucidating resistance mechanisms in these bacteria could help in identifying novel therapeutic targets. This study is a preliminary work conducted to determine the effects of meropenem on blaKPC-2 harbouring multidrug resistant clinical strain of *Klebsiella pneumoniae*. The analysis was performed by 2-DE of whole cell extracts of bacteria exposed to sub-lethal concentration of meropenem as compared to control. A total of 16 differentially expressed proteins were identified by MALDI-TOF which were statistically significant. The proteins involved in defence against oxidative stress and glycolytic enzymes were highly expressed in the treated condition hence revealed the important role played by these proteins in imparting resistance to bacteria under antibiotic stress. This study was an attempt to understand the changes in the proteome that collectively make bacteria tolerant to antibiotic stress.

Biography

Asad U Khan is a molecular biologist graduated from Biochemistry Department, Aligarh Muslim University, India and did Post-doctorate from RUTGERS, USA. Currently he is an associate professor in the Interdisciplinary Biotechnology Unit, AMU, India. He has been awarded as Most Active Teachers Award of the University and has several other national awards to his credit. His work was well recognized and he has been invited for several talks as well as to review articles and chapters. He is member of Editorial Board of many international journals. He has over 140 research articles to his credit. He is member of several international grant review committees.

asad.k@rediffmail.com

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