

# ORGANOPHOSPHATE DEGRADATION: AN ATTEMPT TOWARDS UNDERSTANDING THE MOLECULAR RESPONSE OF *ACINETOBACTER* SP. STRAIN MEMCL4 TOWARDS PARATHION BY COMPARATIVE PROTEOMICS STUDY

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*Acinetobacter* sp. strain MemCl4, isolated from rhizosphere of a paddy cultivation field in Burdwan, West Bengal, India, was demonstrated for parathion degradation. Although, during degradation, there was reduction in residual amount of parathion with gradual passage of time, no significant intermediates for its biodegradation could be detected even with analytical techniques such as high performance liquid chromatography (HPLC) and gas chromatography-mass spectrometry (GC-MS) analyses. In order to have clear idea of response of this strain towards parathion (during its degradation), comparative proteomic studies (2-dimensional gel electrophoresis; 2-DE) were undertaken to identify 12 proteins which were specifically expressed/over expressed in response to parathion. Several bioinformatics analyses were carried out to predict probable functions of these proteins. Presence of glutathion-S-transferase (GST) gene and its higher enzyme activity in parathion induced cells were also highlighted. Based on existing knowledge and evidence obtained from experiments, a possible working hypothesis was framed for the strain MemCl4 in context to parathion utilization as well as its stress encounter.

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