**Original Article:**

**Phenotypic detection of Metallo-β-lactamase (MBL) producers among multidrug resistant (MDR) strains of *P. aeruginosa* in Himachal Pradesh.**

**R Chauhan1 , PC Sharma2**

**1&2**Schoolof Biotechnology, Shoolini University of Biotechnology and Management Sciences, Bhajol, Solan, India-173212

**Corresponding author:** Chauhan R.; Email : ruchichauhan\_1@rediffmail.com

**Abstract**

**Introduction:** The increasing number of Metallo-β-lactamase producing *Pseudomonas aeruginosa* is a cause of concern worldover. In India also, this organism is emerging as a threat for clinicians. The present study has been undertaken to detect Metallo- β-lactamase producing strains among multidrug resistant clinical isolates of this organism in the state of Himachal Pradesh.

**Methods:** Clinical isolates of *Pseudomonas aeruginosa* (141 in number)were examined for their susceptibility to different antibiotics including carbapenems and the proportion of MDR strains worked out. Metallo-β-lactamase (MBL) producing strains were detected by Combined disc and Ezy MBL strip tests.

**Observations and Results:**. A total of 98 ( 69.50 %) out of 141 examined isolates were recorded as multidrug-resistant, of these 58( 59.18%) MDRs were resistant to Carbapenems. Among the Carbapenem (Imipenem and Meropenem) resistant strains, 17 (29.31%) were positive for MBL production by Ezy MBL strip and 18(31.3%) by combined disc test. However, only 8 were positive for MBL production by both the tests. Precisely, a total of 27 strains out of 58 Carbapenem resistant MBL producers were detected. Presence of MBL producing *P. aeruginosa* is a cause of health concern.

**Conclusion:** High resistance to commercial available antibiotics which are generally used to treat infections was observed amongst *P. aeruginosa* strains. 46.55% of Carbapenem resistant isolates produced Metallo-β-lactamases. Carbapenems have been considered as most potent agents for treating infections due to multi-drug resistant gram-negative bacilli but resistance to carbapenems has been observed among *P. aeruginosa* strains which can disseminated in the community. Hence, strategies to minimize the emergence of multiple β-lactamase producing pathogen need to be developed.

**Keywords:** Multidrug resistance, Metallo-β-lactamase