**Original article:**

**Differentiation of Carbapenemase producing Enterobacteriaceae by Triple disc Test**

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**Abstract:**

**Background**: Carbapenems are a class of beta-lactam antibiotics with a broad spectrum of antibacterial activity. They are often considered as last resort antibiotics in the treatment of infections due to multidrug-resistant organisms. Carbapenemase-producing *Enterobacteriaceae* (CPE)have been reported worldwide.

**Objective:** Present study was carried out to differentiate Carbapenemase producing Enterobacteriaceae by Triple Disc Test (using meropenem, phenyl boronic acid and EDTA Discs) among various clinical isolates received in Department of Microbiology, SMS Medical College & attached Hospital, Jaipur.

**Methods:** Carbapenemase producing meropenem resistant Enterobacteriaceae species isolated from clinical samples were included in the study. The study was designed for differentiation of KPC and MBL enzymes by using Triple Disk Tests consisting of meropenem alone and with phenylboronic acid (PBA), EDTA, or both PBA and EDTA Augmentation of the zone of inhibition by ≥5 mm was considered a positive combined-disc test result.

**Results:** A total of 347 phenotypically confirmed carbapenemase-positive Enterobacteriaceae clinical isolates were examined. Out of these 194 strains were KPC producer, 102 strains were MBL producer and 51 strains were both KPC and MBL producers.

**Conclusions**: This phenotypic method is very helpful to detect carbapenemase production and provides a simple algorithm for the differentiation of KPC and MBL enzymes, and guides in empirical treatment of patients especially in regions where KPC- and MBL-possessing Enterobacteriaceae are highly prevalent.

**Key words**: Triple-disc test*, Klebsiella pneumonia ,*carbapenemase