

### 3. ASSESSMENT OF SYNERGISTIC CAPACITIES OF SULBACTUM WITH A CARBAPENEM

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*Asian J Pharma Clin Res Vol 5 Issue 4, 2012*

#### Abstract

Meropenem had been successfully used independently against various types of infections when it was first discovered, while sulbactam sodium being much less potent had been given to humans more frequently in combination with ampicillin. Meropenem is now less frequently applied singly to infections caused by virulent multidrug resistant Gram negative organisms. Further potentiation of action of meropenem is possible by synergism between meropenem and sulbactam. In a study of 30 different Gram positive and Gram negative bacteria, the minimum inhibitory concentration (MIC) of meropenem was found to be varying from 1 – 5 µg/ml with respect to 22 organisms as determined by agar dilution technique; however, the MIC of this antibiotic was 25 µg/ml against *Klebsiella pneumonia* and *Pseudomonas aeruginosa*. The MIC of sulbactam against meropenem sensitive bacteria was 25 µg/ml and was between 50 and 200 µg/ml against the organisms which had higher MIC values in respect of meropenem. A highly significant synergism could be observed between these two antibiotics by following Student's 't' test ( $p < 0.001$ ). the Fractional Inhibitory Concentration (FIC) index value of this combination with the help of checkerboard assessment procedure was found to be 0.375 , confirming synergism.