# Synergistic Evaluation of Cationic Peptide PCDBS1R3F5 and Tetracycline Against *Klebsiella Pneumoniae* Carbapenem Resistant Strain

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**INTRODUCTION**. Klebsiella pneumoniae, especially carbapenem resistant strains, have been associated to numerous infections worldwide nosocomial cases. In addition, this bacterium can form biofilm, a life style resistant to antibiotics. Despite challenges, few antibiotics are available to combat resistant bacterial strains and biofilms. In this context, cationic peptides emerge as a potential alternative to control bacterial infections. Studies have shown that combinations of such compounds with antibiotics could enhance the ability of both agent in inhibit the bacterial growth and/ biofilm formation. **OBJECTIVES**: Here we evaluated the antimicrobial and antibiofilm potential of tetracycline in association with the synthetic peptide PCDBS1R3F5. **MATERIALS AND METHODS**: PCDBS1R3F5 was synthetized by solid-phase (Fmoc) and further analyzed on a MALDI-ToF. Susceptibility test was developed using microdilution, in accordance to CLSI guidelines. The combined effect of tetracycline with PCDBS1R3F5 was assessed by microdilution checkerboard method against K. pneumoniae carbapenemase producer. **RESULTS AND DISCUSSION**: MALDI-ToF analyzes revealed a major ion of 1237.9 Da, corresponding to PCDBS1R3F5. Physicochemical calculations showed that PCDBS1R3F5 presents a net charge = +4, also with 0.411 of hydrophobic rate and hydrophobic moment of 0.592. We observed that the MIC of the peptide and tetracycline was reduced in 8 and 2 times respectively. Furthermore at same condition no biofilm was detected. **CONCLUSION**: The combination of PCDBS1R3F5 and tetracycline might be a promising strategy for the treatment of biofim formed by resistant strains. New studies combining PCDBS1R3F5 with others antibiotic will be performed, in order to access synergistic effect.

Key words: carbapenemase-producing *K. pneumoniae*, cationic peptides, *K. pneumoniae.*
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