

Antimicrobial and anti-biofilm activity of artificial P19(9/B) peptide against *Pseudomonas aeruginosa* isolated from burn patients

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ABSTRACT

Pseudomonas aeruginosa can generate extensive levels of the alginate exopolysaccharide, which is an important factor of its biofilm. Biofilm has been assumed to protect the bacteria from environmental fluctuations such as antimicrobial agent. Antimicrobial peptides, essential components of innate immunity in humans and animals, exhibit relevant in vitro antimicrobial activity. Totally, 20 isolates of *P. aeruginosa* has been gathered from wound infections of burn patients. Polymerase chain reaction of *exoA* gene has been carried out to confirm the bacteriologic identification of isolates. To determine the multidrug resistance (MDR) strain, Antimicrobial susceptibility of the isolates has been specified by disk diffusion method. The artificial P19(9/B) peptide was tested for their in vitro antibacterial and anti-biofilm activity against 20 *Pseudomonas aeruginosa* strains. Minimum inhibitory concentration (MIC) was used for bactericidal activity and the anti-biofilm activity of peptide was examined by microtiter plate test as quantitative determination assays. The P19(9/B) peptide showed a potent and rapid bactericidal activity against most *P. aeruginosa*, tested strains and significantly reduced biofilm formation of all the bacterial isolated. The findings of this survey indicated that P19(9/B) peptide was effective antibiotics against planktonic and biofilm. Therefore, it can be considered for further development of novel drugs for therapeutic treatment of chronic infection caused by biofilm bacteria.

Keywords: *Pseudomonas aeruginosa*, P19(9/B), biofilm ,Antimicrobial peptides