

Evaloution of Antimicrobial Effects of Nisin on *Staphylococcus aureus* and *Bacillus cereus* Bacteria by Disc Diffusion Methods

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Background & Objectives: Lantibiotics agents produced by lactic acid bacteria are a branch of Bactericins. Nisin, composed from 34 amino acids, belongs to Lantibiotics peptide family, which including modified Lantionin and methyl Lantionin as modified amino acids and used as preservative food agent. Gram positive bacteria including *Staphylococcus aureus* and *Bacillus cereus* bacteria are cause food poisoning. In this study the antimicrobial effect of nisin on model gram positive bacteria has been investigated.

Methods: Nisin solution was obtained by dissolving 1 mg of nisin in HCl 0.02 N and adjusting via DDW to 1mg.ml⁻¹. *Staphylococcus aureus* and *Bacillus cereus* bacteria were grown in Mueller Hinton Broth and were cultured on Mueller Hinton agar medium after arriving to half McFarland turbidity. Antibiogram blank discs were placed on the bacterial inoculated plate and 10 microliters of fresh nisin stock solution added per disc. Then bacteria were incubated at 35 °C overnight.

Results: After overnight incubation clear zone around each disc were observed in a triplicate manner, i.e. lack of bacterial colonies were confirmed in the zone. This clear zone indicates antimicrobial activity of nisin against the *Staphylococcus aureus* and *Bacillus cereus*.

Conclusion: Nisin antimicrobial activity against model gram positive, *Staphylococcus aureus* and *Bacillus cereus*, bacteria confirmed at 1mg.ml⁻¹ concentration. Results altogether showed that although nisin lantibiotic peptide has potential antimicrobial property and could be a candidate for medical applications and food industry and peptide drug delivery aims, however more studies yet needed in this area.

Keywords: Nisin; *Staphylococcus aureus*; *Bacillus cereus*; Disc Diffusion