
Development of antibacterial polyester fabric using the bacteriocin nisin

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Abstract: Nisin is a natural antimicrobial peptide produced by strains of Lactococcus lactis subsp. lactis that effectively inhibits Gram positive and also the outgrowth of spores of Bacilli and Clostridia. Additionally it has been used as a biopreservative and a potential agent in pharmaceutical, veterinary and health care products. Nisin could be also a good tool for preventing microbial attachment and biofilm formation on textile, and could be used to inhibit Gram positive bacteria which are greatly responsible for implant and skin infection. So the purpose of this research work is to use nisin for the development of non-toxic antibacterial polyester for use in medical devices, such as anti-infective implant or wound healing bandage. Antibacterial activity against Staphylococcus aureus of absorbed nisin on PET fabric or/and immobilised using alginate like cross-linking agent was investigated, in addition to physicochemical properties, the release and water sorption capacity of the nisin and nisin/alginate treated PET.

KEY WORDS: antibacterial textile; nisin adsorption; nisin/alginate complex