

## Control of Microbial Pollution Using Biodegradable Polymer

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**Abstract :** Introduction: Microbial pollution is global problem threatening the human health. It is resulted by pathogenic microorganisms such as Escherichia coli (E. coli), Staphylococcus aureus (S. aureus) and other pathogenic strains. They cause a dangerous effect on human health, so great efforts have been exerted to produce new and effective antimicrobial agents. Nowadays, natural polysaccharides, such as chitosan and its derivatives are used as antimicrobial agents. The aim of our work is to synthesize of a biodegradable polymer such as N-quaternized chitosan (NQC) then Characterization of NQC by using different analysis techniques such as Fourier transform infrared (FTIR) and Scanning electron microscopy (SEM) and using it as an antibacterial agent against different pathogenic bacteria. Methods: Synthesis of NQC using dimethylsulphate. Results: FTIR technique exhibited absorption peaks of NQC, SEM images illustrated that surface of NQC was smooth and antibacterial results showed that NQC had a high antibacterial effect. Discussion: NQC was prepared and it was proved by FTIR technique and SEM images antibacterial results exhibited that NQC was an antibacterial agent.

**Keywords :** antimicrobial agent, N-quaternized chitosan chloride, silver nanocomposites, sodium polyacrylate

**Conference Title :** ICBPE 2017 : International Conference on Bioenvironmental Polymer Engineering

**Conference Location :** Madrid, Spain

**Conference Dates :** March 26-27, 2017