

EVALUATION OF THE BACTERICIDAL ACTIVITY OF THE POLY- EPSILON- CAPROLACTONE- CERIA COMPOSITE

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Currently, bacterial resistance is a problem worldwide, bacteria have developed the ability to survive stress conditions with various mechanisms against drugs causing infections with higher morbidity, mortality and generating high costs for their treatment. The objective of this work is to elaborate a polymer-ceramic composite from poly-epsilon-caprolactone with ceria nanoparticles in the form of a membrane that maintains stable the release of ceria nanoparticles, propitiating a bactericidal character for the biomedical application in the coating of Cutaneous wounds and thus avoid infection caused by pathogenic bacteria. The antibacterial effect of the AgNP's synthesized was tested by the disk diffusion method against E. coli, S. aureus, K. pneumoniae, and S. mutans. The specific antimicrobial activity of all the composites showed specific antibacterial effects, independently of the amount of ceria deposited, probably due to the differences in the microbial cell wall structures. Therefore, antibacterial activity depends on microbiological and structural characteristics of each bacterium.

Keywords: nanofibers,, bacterial resistance, Ceria

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