ELECTROSPUN NANOFIBER SCAFFOLDS OF CHITOSAN /FIBROIN SILKWOM (BOMBYX MORI) FOR REGENERATION OF NEURONAL CELLS

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The electrospinning technique has allowed to obtain nanofibers of a big number natural and synthetic components, with desirable mechanical properties for different applications as scaffolds of tissue engineering. Studies have shown that electrospun nanofibers of fibroin promoted the cell adhesion and proliferation of a big variety of cells, as well as the chitosan (QS), natural polymer that has had encouraging results in the culture of neurons cells and promoting the peripheral nervous system repair. This study has as purpose the evaluation of nanofiber electrospun scaffolds chitosan / silkworm fibroin (Bombyx mori) to serve as membranes capable of contributing to regeneration processes of neuronal cells. Glutaraldehyde, genipin and acid citric as chemical crosslinking agents were used and it was determined the effect on scaffolds of nanofibers electrospun of QS / FGS. The characterization of nanofiber electrospun scaffolds of QS/FGS was performed using different techniques such as X-ray Diffraction, Scanning Electron Microscopy, Atomic Force Microscopy, Fourier transform Infrared Spectroscopy and Nuclear Magnetic Resonance, in order to have enough structural information of obtained scaffolds of QS/FGS and to understanding the effects of the different crosslinking agents that were used. The in-vitro evaluation was performed by assaying the metabolic reduction of 3-(4,5-dimethylthiazol-2-ilo) -2,5-difeniltetrazol (MTT) with human neuronal cells, in vivo biocompatibility tests were performed on Wistar rats. This study is the first phase of new potential biomaterials with desirable characteristics to promote regeneration processes of neuronal cells.

**Keywords:** nanofibers QS / FGS, scaffolds, biocompatibility

**References:**


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