Polycaprolactone/Sodium Hyaluronate/ Multiwalled Carbon Nanotubes/Mimosa Tenuiflora biocomposites were used to fabricate biodegradable porous scaffolds for applications in bone tissue engineering by thermally induced phase separation technique. The influence of several parameters in the morphology and mechanical properties of scaffold, as polymer concentration, quenching temperature and the incorporation of different concentration were investigated. Through the use of a Scanning Electron Microscopy (SEM), will study the variation porous morphology resultant. The characterization was carried out by fourier transform infrared spectroscopy (FTIR), thermogravimetric analysis (TGA), Differential Scanning Calorimetry (DSC) and mechanical properties. Also, in vitro enzymatic biodegradation and bioactivity tests were used to evaluate the degradation the biocomposite and the viability to form hydroxyapatite. The results obtained until now show that PCL/HA/MWCNT/Mimosa Tenuiflora scaffolds are suitable for biological applications.

Keywords: Biocomposites, Tissue engineering, Osteoblast

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