DEVELOPMENT AND EVALUATION OF COMPOSITES OF CHITOSAN/ MIMOSA TENUIFLORA/ CARBON NANOTUBES APPLIED TO THE REGENERATION OF BONE TISSUE

García-Ramírez¹, S. A. Martel-Estrada², F. Jimenez-Vega¹, and I. Olivas-Armendáriz³.
¹ UACJ, ICB. ² Universidad Autónoma de Ciudad Juárez, Instituto de Arquitectura, Diseño y Arte. ³ Universidad Autónoma de Ciudad Juárez

Bone fracture comes with a long recovery time, decreased life quality and a big economic impact. Because of the latter, there’s big interest in the development of new materials for bone regeneration. Scaffolds made with chitosan biopolymer have proven to be a good adhesion platform for cells and that the addition of other components can improve their viability and proliferation capacity. Here we show a set of preliminary results for the development and characterisation of scaffolds made with chitosan and carbon nanotubes / Mimosa tenuiflora (grinded/extract). Evaluation of the porosity by SEM showed an increased pore size when both additives where used. Bone regeneration capacity was evaluated measuring hydroxyapatite production levels by FTIR before and after a period of in-vitro culture with the MC3T3 murine cell line; viability of the cells was assessed by the MTT assay. Results showed that the usage of M. tenuiflora extracts and carbon nanotubes improved the cell viability and the hydroxyapatite production in the scaffolds. Therefore we propose that the usage of these additives improves the properties of the chitosan scaffolds applied for bone regeneration.

**Keywords:** Mimosa tenuiflora, Carbon nanotubes, Biomaterials

**Presenting author’s email:** cg_52@outlook.com