Nowadays there is an increased need of developing strategies to allow bone tissue regenerate efficiently. The actual strategies have diverse problems, such as incompatibility, high cost or risk of infections. Tissue engineering has recently approached this problem using scaffolds that mimic physical, chemical and mechanical characteristics of bone structures. This scaffolds have properties that allow cell differentiation and cell proliferation in the affected tissue, for a period long enough to optimize bone regeneration.

Hydroxyapatite is a material which forms part of the inorganic components of bones and teeth, however, it’s a fragile material with low impact resistance. In contrast, nano-sized hydroxyapatite particles (nHap) by its small size has an increased resistance, better osteoconductive/inductive osteoblast behavior and more protein absorption by increasing its surface area. Therefore, the aim of this work focus on the development and characterization of scaffolds which have embedded nHap, optimizing the parameters during the electrospinning process. Electrospun mats were characterized in terms of fiber morphology, chemical structure, mechanical resistance, time of degradation and were performed by the use of Scanning electron microscopy (SEM), Fourier-transform infrared spectroscopy (FTIR), universal machine and artificial saliva. Antimicrobial properties and cytotoxicity were evaluated against oral pathogens and on human osteoblast-like respectively.

According to our results these scaffolds demonstrate a good potential for bone regeneration strategy and maxillofacial applications.

**Keywords:** bone regeneration, nanotechnology, hydroxyapatite

**References:**


**Presenting author’s email:** aidrod@hotmail.com