

5th Global Pharmacists Annual Meeting

July 14-15, 2016 Brisbane, Australia

Fabrication and characterization for promoting osteoblast differentiation using bioactive substance from fish frame

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In order to utilize fish byproducts in a calcium and phosphate supplement, *Johnius belengerii* frame composed of flesh and skeleton discarded from industrial processing were degraded by pepsin in acetic acid solution. In current study, we report the osteogenic effect of fish frame extracts (FBE) from *Johnius belengerii* in MC3T3-E1 pre-osteoblast. We designed composite scaffolds consisting of poly-caprolactone (PCL) and FBE fabricated by three axis plotting system for bone regeneration. The effect of FBE coated scaffolds (1 and 3%) on various mechanical properties and characteristics including the morphology image, FT-IR analysis, tensile properties and drug releases were investigated. Moreover, the *in vitro* biocompatibilities of the FBE coated scaffolds were examined using MC3T3-E1 pre-osteoblast. On the scaffold surface, cell attachment, proliferation, mineralization and osteogenic factors were determined. At the results, the PCL/FBE combined scaffolds showed cell attachment, proliferation, mineralization and osteogenic factors than the PCL scaffold. Consequently, the FBE combined scaffold suggests further investigation a potential biomedical engineering field due to enhancement of osteogenesis.

Biography

Seong-Yeong Heo has completed his MSc from Pukyong National University in Korea. He has studied Marine Life Science and Tissue Engineering. Currently, he is doing research on tissue regenerative scaffold fabricated by three axis plotting system and cell signaling investigated by western blot and RT-PCR analysis. Additionally, he has published 3 papers in reputed journals.

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