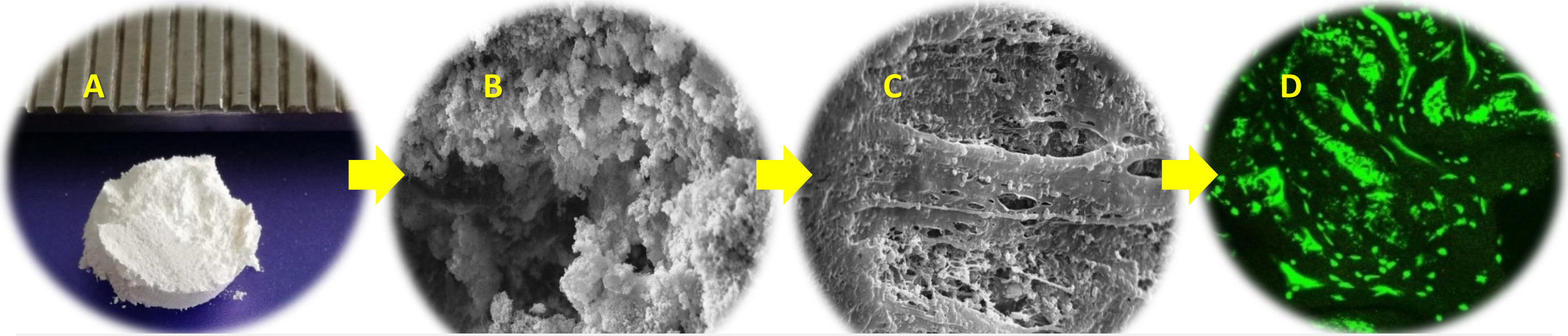
Graphical abtract of Material HAp/Si/PLGA elaboration: (A) Structural Material Characterization (SEM). (B) Evaluation of the biocompatibility of the HAp/Si/PLGA material. (C) Morphology and adhesión (SEM) of Osteoblastic cell seeded on experimental material. (D) Cellular Viability (CFS).



The graphic shows the elaboration and evaluation of the biocompatibility of a HAp material extracted from eggshells and modified with silicon (Si) and poly-lactic-co-glycolic acid (PLGA). With this objective, an in vitro experimental study was done in which a HAp material, prepared from eggshells was synthesized by wet chemical and conventional chemical precipitation. Subsequently, this material was reinforced with Si/PLGA using the freezing/lyophilization method, and then osteoblastic cells were seeded on the experimental material (HAp/Si/PLGA). Afterwards analysis of the biocompatibility of this composite material, was done through scanning electron microscopy (SEM) and fluorescence correlation spectroscopy (FCS) techniques. A cellular viability of 96% was observed for the experimental HAp/Si/PLGA material and Cell adhesion was observed on the exterior of its surface. A continuous monolayer and the presence of filopodia was observed also. These results suggest that the HAp/Si/PLGA material is highly biocompatible with osteoblastic cells and can be used for the construction of three-dimensional scaffolds with the purpose of bone regeneration in Dentistry.