ABSTRACT

DEVELOPMENT AND ANALYSIS OF DIFFERENT FORMULATIONS OF CELLULAR BIOSTIMULATION SCAFFOLDS (“BBIO-SPONGE”)

The objective of this study was to develop and analyze the physicochemical properties of sponge-shaped biostimulatory scaffolds (BBio-Sponge), and to analyze the cell viability and proliferation of cells from human exfoliated deciduous teeth (SHED) after contact with them. The physicochemical analyzes of the scaffolds and membranes were carried out using water absorption and mass loss tests and pH quantification. SHED exfoliated deciduous tooth pulp stem cells were obtained from a biorepository at the Faculty of Dentistry of Bauru. These were evaluated according to the following experimental groups: Group 1 – Pure BBio-Sponge, Group 2 – BBio-Sponge with calcium silicate, Group 3 – BBio-Sponge with calcium hydroxide, Group 4 - Negative control distilled water, Group 5 - Positive control was maintained with MEMα+10% FBS. Cell proliferation and viability experiments were carried out using the MTT method. The experiments were performed in biological triplicate. After the analyses, the data was collected and properly described using graphs and tables, here we talk about which statistical test was used. The creation and development of different formulations of a biostimulating scaffold (BBio-Sponge), its malleability and porosity characteristics and the results obtained from tests of physicochemical properties, as well as biological analyzes of cell morphology and cell viability with MTT, demonstrated favorable and desirable data for potential clinical application of this product.

Keywords: Stem Cells. Mesenchymal Stem Cells. Scaffolds. Biomaterial.