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Production of bone tissue support materials based on bioactive glass-polymer composites

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Bone tissue support materials have biocompatibility, biodegradability and bioactivity that are made of various ceramics, polymers or both of ceramics and polymers which are called composites. The most interesting of them are bioactive glasses due to their excellent features. Bioactive glasses are osteoconductive and osteoinductive materials and when they are implanted on bone, they connect to the bone tissue. They are generally used in order to fill bone defect and promote new bone formation because of their osteogenic cell stimulator and bioactive properties. In recent years, bioactive glass materials which are used as bone in the form of block, granules, injectable or paste has increased significantly. These forms which are called support materials make patient healing and surgical operation easier. In this study, injectable bone tissue support materials based on bioactive glass-polymer composites were produced for bone tissue engineering applications. At different ratios of bioactive glass and alginate composites were prepared such as 1:1, 1:2 g/ml, respectively. All samples were characterized by Fourier Transform Infrared Spectroscopy (FT-IR) and X-Ray Diffraction (XRD) analysis before simulated body fluid (SBF) to understand structure of composites and after SBF to understand bioactivity properties of composites.

Biography

Ali Can Özarlan completed Bachelor's degree at Yildiz Technical University, Department of Bioengineering in 2015. He continues his education as a Graduate Student at Yildiz Technical University, Department of Bioengineering. He has 2 research papers published by the international refereed journals and 5 papers published by the international scientific meetings. Topics of his interest are Bone Tissue Engineering, Biomaterials, and Bone Tissue Support Materials.

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