

BIOMATERIALS

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Production and characterization of bioceramic nanopowders of biological origin

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The regeneration potential of human bone to repair large bone defects often requires biomaterials, such as those associated with comminuted fractures or bone tumor resection. The need for bone substitutes is rapidly increasing and many researches have been done to improve their performance. Calcium phosphate based bioceramics have been used due to their high bio-compatibility and their successful use of orthopedic and dental applications. Calcium phosphate bioceramics are similar to bone and tooth minerals due to their chemical and crystallographic properties; hence it is particular interest for bone grafting, augmentation in maxillofacial surgery and in orthopedics as a filling material. Many marine structures are composed of calcium carbonate (aragonite or calcite) and can be converted to calcium phosphate materials by chemical exchange. In this study structural and chemical properties of *Clinocardium ciliatum* based bio ceramic materials (TCP, B-TCP and other phases) were produced by using mechano-chemical (hot-plate) conversion method. At three varying temperature of 450°C, 850°C and 1200°C the materials were transformed to various bioceramic phases. For complete characterization of the bioceramics produced Fourier Transform Infrared Spectroscopy (FTIR), x-ray diffraction (XRD), Brunauer–Emmett–Teller (BET) and differential thermal analysis (TG/DTA) analyses were carried out.

Biography

Zeynep Orman has graduated from Chemical Engineering department and currently studying Bioceramics for her Master's studies in Yildiz Technical University. She is experienced in polymers research and has conducted a project about solar cell studies.

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