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Microstructure and Mechanical Properties of HAp-ZrO_2 Composites by Silver Electroless Deposition

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Hydroxyapatite having biocompatibility and bioactivityhas high potential for tissue engineering application Nevertheless, its brittleness and low fracture toughness has been made a limitation for application like load bearing implant materials The metal electroless deposition of bioinert materials has a great interest of biomaterial field due to expect new fabrication of implant material and improvement of fracture toughness This work was carried out to improve the fracture toughening of HAp-ZrO_2 composite by electroless deposition of Ag nano particles. The electroless deposition of Ag was carried out a hydrazine-based plating bath containing silver precursors The silver electroless deposition conditions such as reagent concentrations, reaction parameters and reaction time were optimized in order to uniform coatings on the on the ZrO_2 and HAp/ZrO_2 powders We will report on the microstructure, morphology and crystal structure of HAp-Ag-ZrO_2 powders and their sintered bodies by TG, DTA, XRD, FE-SEM, and TEM techniques

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Synthesis of High Purity Hydroxyapatite by Microwave Irradiation

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Hydroxyapatite (HAp) is one of the most attractive materials for the dental implant and human tissue due to the biocompatibility and bioactivity To synthesis the HAp, there were several approaches such as sol-gel, precipitation and hydrothermal process However, these processes have some problems induced by time-consuming, tedious work and chemical contamination In order to overcome the disadvantages, microwave irradiation has been focused in the HAp processing. Microwave irradiation has some advantages such as fast heating throughout the volume and efficient energy transformation during short time and then can be minimized contaminations using closed vessel In this work, HAp monophase could be synthesized by microwave irradiation for 7 min The microstructure and crystal structure of HAp powders were carried out by TG, DTA, XRD, FE-SEM, and TEM techniques