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DEVELOPMENT OF ZINC-DOPED HYDROXYAPATITE BY USING WET-PRECIPITATION METHOD AT DIFFERENT CONCENTRATION FOR MEDICAL APPLICATION

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ABSTRACT

The final project entailed creating Hydroxyapatite (HA) doped with Zinc ion for Artificial Cranium. The main goal of finishing the project is to employ the doped Hydroxyapatite with Zinc in future medical investigations and applications. It covers the ideas, methods, and practises used in data collection, analysis, and interpretation to address issues. This abstract describes a study that was carried out to evaluate the impact of zinc doping on the characteristics of HA for use in artificial craniums. The study focuses on the synthesis of zinc-doped hydroxyapatite using the wet-precipitation method.This includes investigating the optimal synthesis parameters, such as precursor concentrations, reaction conditions, and processing techniques, to achieve controlled and reproducible production of ZnHA. Mechanical testing, such as hardness test and fracture toughness test, was performed to evaluate the materials' mechanical performance. Several research processes, including mechanical testing of the product, was carried out to ensure the success of this project. The importance of this project is to expose more understanding for the development of zinc- doped hydroxyapatite by wet-precipitation method for medical applications. This is because pure Hydroxyapatite is a brittle material, and its low strength and toughness limit its application as a coating, rather than as a major load bearing implant.

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