

THE POTENTIAL OF CATFISH BONES (CLARIAS BATRACHUS) AS A SOURCE OF HYDROXYAPATITE FOR DENTAL REMINERALIZATION

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BACKGROUND: Dental caries refers to the demineralization of the inorganic components of dental hard tissue, resulting in cavities. Dental caries remains the most prevalent disease observed across different societal strata globally. Diverse dental materials have demonstrated efficacy in stimulating the remineralization process to prevent the development of dental caries. Catfish (*Clarias batrachus*) is a widely consumed source of protein across several populations. Catfish bones (*Clarias batrachus*) constitute the primary waste with the potential to produce materials rich in hydroxyapatite, which is significant for the dental remineralization. This study aims to assess the hydroxyapatite concentration in catfish bones (*Clarias batrachus*) as a potential alternative to food waste.

METHOD: This research used laboratory experimental methodologies. Bone powder from Catfish (*Clarias batrachus*) was produced via a hydrothermal technique, and the hydroxyapatite content was identified using X-ray diffraction (XRD) analysis.

RESULTS & DISCUSSION: The XRD analysis revealed that the hydroxyapatite content in catfish bone powder (*Clarias batrachus*) was 97.4%, with a calcium level of 2.6%. Hydroxyapatite features bioactive, biocompatible, bioresorbable, biodegradable, non-corrosive, and osteoconductive characteristics. These characteristics are optimally exhibited by materials utilized for regenerative treatment of dental hard tissues.

CONCLUSION: Catfish bones (*Clarias batrachus*) can be used as an alternate resource for recycling into dental materials rich in hydroxyapatite, increasing dental remineralization.

KEYWORDS: *clarias batrachus*; fish bones; hydroxyapatite; remineralization