

The Extraction of Fish Bone Powder From *Hypostomus plecostomus* as a Source of Calcium

K.A.N. Kalansooriya^{1*}, E.T.S. Madhubhashini¹ and M.D.A.M. Perera²

¹Department of Animal Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka

²Department of Soil Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka

*asf18045@agri.pdn.ac.lk

The invasive *Hypostomus plecostomus* is commonly known as suckermouth catfish or locally as tank cleaners, which are rapidly spreading across Sri Lanka, negatively impacting the ecosystem and inland fisheries. This species is considered an underutilized fish species, and the preparation of value-added products from underutilized invasive *H. plecostomus* is important for the sustainability of the inland fishing industry and ecosystem. The primary objective focused on the use of fish bone powder from unconsumable waste parts of invasive suckermouth catfish, such as fins, head and scales, as a source of calcium. The specific objectives of this study were to determine the most effective NaOH concentration and boiling period to obtaining the maximum calcium yield from sucker mouth catfish bone. The experiment was a two-factor factorial complete randomized design, and factors were 1, 1.5, and 3% of NaOH concentrations and 30 and 60 minutes of boiling periods. Collected fish wastes from the Victoria Reservoir, Digana (Central Province, Sri Lanka) were oven dried and broken into small pieces, and boiled with NaOH to remove the organic matter and treated with 0.1% HCl for neutralization and obtained fish bones (FB). FB were crushed and sieved to obtain fish bone powder (FBP). The calcium (Ca) yield, phosphorus (P) yield, soluble organic matter (SOM), crude protein (CP), crude fat (CF), and ash content of FBP were measured, and analysis of the variables was done at $p < 0.05$; mean separation was done by Duncan's multiple range test. The results revealed that the highest Ca yield, SOM, and ash content were 0.375 (g/g), 83% and 72%, respectively, while the lowest CP and CF were observed by the 3% and 60-minute treatment. The P yield was not significantly affected by either NaOH concentration or boiling period. Therefore, the highest purity and Ca yield were obtained from the most effective treatment, which was 3% NaOH concentration and a 60-minute boiling period.

Keywords: Calcium, Crude fat, Crude protein. Phosphorus, Soluble organic matter