EFFECTIVE AND LOW-COST FEED FOR NILE TILAPIA *(OREOCHROMIS NILOTICUS)* USING ALTERNATIVE INGREDIENTS FOUND IN NICARAGUA.

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ABSTRACT

This study explores the development of an effective and low-cost feed for Nile Tilapia (*Oreochromis niloticus*) using alternative ingredients available in Nicaragua. Traditional fish feed, often reliant on expensive imported components such as soybean meal and fishmeal, poses economic challenges for small- and medium-scale fish farmers. The research investigates the feasibility of replacing conventional feed ingredients with locally available plant- and animal-based alternatives, including cassava leaves (*Manihot esculenta*), moringa leaves (*Moringa oleifera*), and shrimp head meal (*Litopenaeus vannamei*). The study formulates and evaluates multiple diet variations based on the nutritional requirements of Nile tilapia, analyzing their protein, lipid, carbohydrate, and mineral compositions. The study suggests conducting a controlled feeding trial in earthen ponds that would assess the impact of these alternative feeds on fish growth, survival, and overall performance. The findings aim to support sustainable and economically viable aquaculture practices in Nicaragua, providing accessible feed options for local farmers while reducing dependence on imported ingredients.