

## Preparation of Fish Meal from Various Fishery Sources For Use in Young Common Carp *Cyprinus carpio* L. Diets

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### ABSTRACT

The purpose of the current research was to compare fishmeal produced from three distinct sources: marine fishmeal (MFM), freshwater fishmeal (FFM), and cartilaginous fishmeal (CFM), along with imported fishmeal (IFM). The study aimed to assess their biochemical properties and analyze their impact on the growth and nutritional performance of young common carp *Cyprinus carpio* L. The chemical composition revealed varying protein levels ranging from 70.6% to 65.12%. Regarding lipid content, the highest value was found in FFM at 9.97%. Moreover, ash content and nitrogen-free extract NFE ranged from 20.71% to 12.54% and 2.75% to 4.71%, respectively. Amino acid profile analysis revealed the presence of 18 essential and non-essential amino acids in varying proportions among the prepared fishmeal. The amino acid glutamic acid stood out with high levels in all prepared fishmeal, measuring 7.65, 7.57, 7.82, and 7.79mg/100-milligram protein for MFM, FFM, CFM, and IFM, respectively. Regarding the fatty acid composition in the oil extracted from the fishmeal, the FFM had the highest proportion of saturated fatty acids SFA at 29.96%. The highest proportion of monounsaturated fatty acids MUFA at 47.05% was found in CFM. Polyunsaturated fatty acids PUFA and unsaturated fatty acids UFA in MFM exhibited the highest percentages at 36.52% and 78.55%, respectively. The results showed that the highest values for the final weight (304.24g), total weight gain (171.23g), specific growth rate (4.82%), relative growth rate (123.62%), and feed conversion ratio (1.85) were recorded in diet T2 (using MFM) significantly ( $P \leq 0.05$ ). The study showcased the potential use of these three prepared fishmeal types as viable local alternatives to imported fishmeal when formulating diets for feeding young common carp.

### INTRODUCTION

Fishmeal is considered one of the most important commercial feed components in the field of aquaculture (Qiu *et al.*, 2023). Fish feed industry utilizes approximately 87% of the global fishmeal production (FAO, 2020). In order to meet the increasing demand for high-quality artificial feeds for aquatic organisms, there should be a corresponding advancement and expansion in fishmeal production (Miles & Chapman, 2015). Fishmeal is generally produced from non-economically valuable and undesirable fish