



NUTRITIONAL CHARACTERIZATION OF *GMELINA ARBOREA* Roxb LEAF AND SEED MEAL AS POTENTIAL AQUACULTURE FEED INGREDIENT

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ABSTRACT

Competition between human and lower animals for available energy and protein supply especially during the dry season has led to shortage of necessary food materials such as maize, sorghum, millet, groundnut, soya beans, and wheat among others. This problem is probably due to the continuous human population increase, to mitigate this challenge, *Gmelina arborea* leaf and seed meal were nutritionally characterized. The leaves and seeds were collected from the field, sorted, washed, shed-dried and milled separately, and divided into several portions for analysis. Anti-nutrient, proximate, mineral and amino acid content of leaves and seeds were evaluated. The results showed anti-nutritional content were found to be significantly higher in leaf than in seed ($P < 0.05$) with Saponin value 99.95 ± 30.00 in leaf and 91.63 ± 0.02 in seed. The crude protein content in the leaf (12.59 ± 0.22) differed significantly ($P < 0.05$) than in the seed (7.92 ± 0.17). The carbohydrate content was found to be higher in leaf (51.80 ± 0.18) than in seed (27.67 ± 0.23). The mineral content of the leaf and seed contain high level of potassium 11600.00 ± 0.00 ppm and 1700.00 ± 0.00 ppm respectively. There was significant difference mineral contents between both parts, essential and non-essential amino acids were found to be higher in seed than in the leaf with no significant difference ($P > 0.05$). Conclusively, Leaves and seeds of *Gmelina arborea* were good sources of energy characterised by high saponin, flavonoid and carbohydrate (NFE); and present in the leaf and seed were essential minerals and amino acids. The study, therefore, recommended that anti-nutrient removal processes should be used to reduce anti-nutrient content to a tolerable amount for fish feed formulation.

Keywords: Aquaculture, Characterisation, Feed, Ingredients, *Gmelina arborea*, Nutrient.