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Nutrient diversity of Malawi's underutilised indigenous food crops: Mchinji cross-sectional analysis

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Abstract

Malnutrition is still prevalent in Malawi, facilitated by monotonous diets that are largely cereal based. studies show a visible gap in literature that demonstrates how local foods and plants in addition to underutilised and neglected species have been understudies in the Malawian context. This study therefore aimed to determine the macronutrient and micronutrient composition of selected indigenous, underutilised and neglected foods (staples, legumes, vegetables, and fruits) from Mchinji District.

A cross sectional design was used in this study. Fifty-eight (58) samples were collected in Mchinji district from three (3) Traditional Authorities were analysed using AOAC (2019) methods and AAS for minerals. Data was entered and cleaned in Microsoft excel before being analysed using SPSS. Statistical significance was assessed using ANOVA followed by Tukey's HSD test at a 5 % significance level ($p < 0.05$) .

Significant variability ($p < 0.05$) was observed among and within food groups. Among fruits, Parinari curatellifolia showed the highest ash (24.50±0.71 %) and fat (11.00±0.28 %) contents, while Uapaca kirkiana contained the highest protein (11.56±0.44 %). Legumes demonstrated superior protein density, with *Vigna unguiculata* having 36.25 ± 0.88 % protein and 51.50±1.57 % carbohydrates, whereas *Cajanus cajan* had the highest carbohydrate content (76.30±0.32 %). Staples such as Zea mays exhibited the highest carbohydrate (88.26±1.73 %) and energy values (404.02±2.12 kcal),

while pumpkin seeds yielded the greatest energy (602.81±5.70 kcal). Mineral analysis indicated Cissus integrifolia was rich in calcium (2.76±0.01 %), *Uapaca kirkiana* in iron (0.031±0.001 %), and *Cleome gynandra* in phosphorus (0.052±0.007 %) and zinc (0.009±0.000 %).

These findings show the opportunity presented by indigenous and underutilised food crops in promoting sustainable, affordable, and climate-resilient food sources hence improving dietary

diversity and nutrition security in Malawi.

Keywords: Indigenous foods, Malawi, nutrition security, nutritional composition, underutilised crops

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