

Evaluating the impact of domestic cooking and preservation methods on the nutritional composition of selected underutilized indigenous vegetables in 3 Agro-ecological zones of Malawi.

Chisomo Bridget Maliwa

Lilongwe University of Agriculture and Natural Resources (LUANAR), Malawi

Statement of the Problem: Indigenous vegetables play a critical role in enhancing food and nutritional security, especially in rural communities. Despite their high nutritional value, indigenous vegetables remain underutilized and poorly documented in Malawi. The lack of comprehensive data on their nutritional composition limits their potential contribution to addressing malnutrition and improving dietary diversity. Additionally, traditional cooking and preservation methods may influence the nutrient content of these vegetables, yet the extent of these effects remains inadequately explored. The purpose of this study is to analyze the nutritional composition of four indigenous vegetables: gallant soldier (*mamunaligone*), *Vigna unguiculata* (chitambe), *Phaseolus vulgaris* (khwanya), and *Thunbergia lancifolia* T. Anderson (mlombwe) leaves and to assess the impact of traditional cooking and preservation methods on their nutritional profile.

Methodology & Theoretical Orientation: An observation study was conducted in three districts of Malawi (Dowa, Phalombe, and Mzimba) to document cooking and preservation methods of selected vegetables. Indigenous vegetable samples were collected and analyzed for moisture content, crude fiber, crude fat, protein, ash, vitamin C, iron, zinc and calcium levels using standard AOAC methods. The effect of traditional preparation methods (boiling and sun-drying) on nutrient retention was also assessed. The study was guided by an ecological framework to understand how local food systems, dietary practices, and preservation techniques affect the nutritional value of these vegetables.

Findings: The analysis revealed that indigenous vegetables are rich in essential nutrients, with notable variations among species. Traditional cooking methods significantly reduced vitamin C and other nutrient but increased mineral bioavailability, whereas sun-drying preserved some nutrients. Iron and calcium levels remained relatively stable across preservation methods.

Conclusion & Significance: Indigenous vegetables are valuable sources of nutrients and can contribute to improving dietary diversity and nutritional security in Malawi. However, traditional cooking methods may lead to nutrient loss, highlighting the need for improved processing techniques. Strengthening food composition data for indigenous vegetables can support evidence-based nutrition policies and enhance their integration into local diets. Recommendations include promoting sustainable cooking and preservation methods to maximize nutrient retention.

28th Euro-Global Summit on Food and Beverages

May 19-20, 2025

Webinar

Biography

Chisomo Bridget Maliwa has her expertise in food science and technology with a passion for improving food security and nutrition through indigenous knowledge and sustainable processing methods. Her research focuses on the nutritional composition of indigenous vegetables in Malawi and the impact of traditional cooking and preservation methods on nutrient retention. She has built up this expertise after years of experience in research, food processing, and community engagement. Her work is grounded in ecological and food systems frameworks, emphasizing the importance of preserving indigenous food knowledge to enhance dietary diversity and combat malnutrition. Her research contributes to revising Malawi's food composition data and informing nutrition policies to promote the integration of indigenous vegetables into local diets.

Received: March 27, 2025; **Accepted:** March 28, 2025; **Published:** May 20, 2025
