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## Title: Harnessing Neglected and Underutilized Crop Species in Sub-Saharan Africa: A Pathway to Food Security and Sustainable Agriculture

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### Abstract

Neglected and Underutilized Crop Species (NUCS) in Sub-Saharan Africa offer a promising avenue for enhancing food security, particularly in light of increasing climate variability and socioeconomic challenges. This review synthesizes current knowledge on the agronomic potential, nutritional benefits, and processing technologies associated with key NUCS, including fonio, teff, and amaranth (*Digitaria exilis*, *Eragrostis tef*, and *Amaranthus spp.* respectively). These crops, often overlooked in favor of major staples, demonstrate resilience to adverse environmental conditions and possess superior nutritional profiles, including high levels of essential amino acids, micronutrients, and dietary fiber. The review critically evaluates innovative food processing technologies, such as fermentation, extrusion, and milling, which can significantly improve the palatability, nutritional bioavailability, and shelf-life of NUCS. By integrating traditional processing methods with modern advancements, we propose a framework that not only enhances consumer acceptance but also promotes the commercialization of these crops. Furthermore, the review highlights case studies where successful processing techniques have revitalized local economies and contributed to sustainable agricultural practices. Key challenges facing the adoption of NUCS are addressed, including inadequate infrastructure, limited market access, and the need for supportive policy frameworks. This review advocates for a collaborative approach involving researchers, policymakers, and local communities to overcome these barriers. By prioritizing investment in NUCS research, education, and awareness initiatives, we can harness their potential to diversify diets, improve nutritional outcomes, and build resilience against food insecurity in Sub-Saharan Africa. Therefore, it is crucial to critically reassess agricultural priorities and champion Neglected and Underutilized Crop Species (NUCS) as vital cornerstones of sustainable food systems. By embracing their potential, we can significantly enrich the global dialogue on food security and agricultural sustainability.

**Keywords:** Neglected and Underutilized Crop Species (NUCS); Food Security; Sustainable Agriculture; Nutritional Benefits; Processing Technologies

