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# COMMENTARY

## The Role of Traditional Food Processing Technologies in Preservation of Foods: The Ghanaian Experience

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Charlotte Oduro-Yeboah is a Senior Research Scientist and a Food Technologist at the Council for Scientific and Industrial Research- Food Research Institute (CSIR-FRI) in Accra, Ghana**.** She is unit head for the Roots and tuber products development unit which is under Food Processing and Engineering Division of Food Research Institute. She holds Ph.D. Degree in Food Science from the University of Ghana, Legon and La recherché Agronomique pour le developement (CIRAD), Montpellier- France: Master of Philosophy in Food Science and Bachelor of. Science (Honours) degrees in Biochemistry and Nutrition from the University of Ghana, Legon-Accra, Ghana. As part of her work, Charlotte applies postharvest technologies in the processing of roots, tubers, fruits, and vegetables for the development of health-enhancing convenient shelf-stable foods. She is involved in the standardization of processing procedures and value-addition to traditional cereal food products into consistent quality.

She also holds Certificates as Technical and Training service providers, accredited by the Millennium Development Authority (MIDA) of the Millennium Challenge Account, in Science writing, Communication and Presentation skills, Scaling up for Food Security in Africa, Champions For Change Leadership Training course organized by African Lead and funded by US Agency for International Development and CSIR-FRI/Author AID Proposal Training workshop.

In her position, Charlotte's goal is to teach smallholder farmers how to process cassava and plantain into dry flour forms to extend their shelf life. She is also involved in transferring technologies of standardized local cereal products to the women processors and small and medium scale industries to improve livelihood and ensure food security.

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**The Role of Traditional Food Processing Technologies in Preservation of Foods: The Ghanaian Experience**

Traditional foods forms an important chapter in the diet of Ghanaians because its distinctive aroma, flavor and taste. Traditional technologies of food processing and preservation date back thousands of years and unlike the electronics and other modern high technology industries, they long preceded any scientific understanding of their inherent nature and consequences.

Traditional foods and traditional food processing techniques form part of the culture of the people. Traditional food processing activities constitute a vital body of indigenous knowledge handed down from parent to child over several generations. Unfortunately, this vital body of indigenous knowledge is often undervalued. Fermentation is one of the oldest and most important traditional food processing and preservation techniques. Food fermentations involve the use of microorganisms and enzymes for the production of foods with distinct quality attributes that are quite different from the original agricultural raw material. The conversion of cassava (*Manihot esculenta* Crantz) to gari; maize (*Zea mays)*, to ogi, akpan and kenkey; millet (*Pennisetum glaucum*) to gowe and *burukutu* just to mention a few, illustrates the importance of traditional fermentation. The fermentation processes for these products constitutes a vital body of indigenous knowledge used for food preservation, acquired by observations and experience, and passed on from generation to generation (Aworh,2008) [1].

Some benefits of fermentation are: detoxification by the elimination of naturally-occurring nutritional stress factors, reduction of mycotoxins such as aflatoxins, improvement of the flavor and texture of raw agricultural produce, and imparting a desirable sour taste to many foods. Fermentation may lead to significant improvement in the nutritional quality of foods by increasing the digestibility of proteins through hydrolysis of proteins to amino acids, increasing bio-availability of minerals such as calcium, phosphorus, zinc and iron through hydrolysis of complexing agents such as phytate and oxalate, and increasing nutrient levels, especially B-vitamins, through microbial synthesis.

With the exception of the relatively shelf-stable crops such as cereals and legumes, the bulk of Ghana's food sources fall within the categories of highly perishable and semi-perishable commodities. The warm and moist climatic conditions contribute to the deterioration of food due to insects, fungi, and bacteria. Considerable degree of' postharvest food losses are therefore experienced each year in cases where effective preservation techniques are not available.

High post-harvest food losses, arising largely from limited food preservation capacity, are a major factor constraining food and nutrition security in the developing countries of West Africa, where seasonal food shortages and nutritional deficiency diseases are still a major concern.

It is estimated that about 50% of perishable food commodities including fruits, vegetables, roots and tubers and about 30% of food grains including maize, sorghum,

millet, rice and cowpeas are lost after harvest in West Africa. Ineffective or inappropriate food processing technologies, careless harvesting and inefficient post-harvest handling practices, bad roads, moribund rail systems, bad market practices and inadequate or complete lack of storage facilities, packing houses and market infrastructures are some of the factors responsible for high post-harvest food losses in West African countries (Aworh, 2008) [1].

Traditional food preservation methods in Ghana are also aimed at preventing deterioration to facilitate effective distribution to areas where the particular commodity is not produced. There are variations in traditional foods produced by even the same processor and within processors. Current trends in urbanization, and the increasing popularity of traditional foods among consumers, require larger scale production with consistent quality. Upgrading production from the artisanal to industrial level will require consumer input on critical quality attributes that influence product acceptability. Because of the significant role that traditional food preservation plays in the storage and supply of food in Ghana, local research institutions are actively involved in studying and upgrading these techniques to improve efficiency and safety.

The capacity to preserve food is directly related to the level of technological development. The slow progress in upgrading traditional food processing and preservation techniques in Ghana contributes to food and nutrition insecurity in the sub-region. Simple, low-cost, traditional food processing techniques are the bedrock of small-scale food processing enterprises that are crucial to rural development in Ghana. By generating employment opportunities in the rural areas, small-scale food industries reduce rural-urban migration and the associated social problems. They are vital to reducing post-harvest food losses and increasing food availability.

Regrettably, rapid growth and development of small-scale food industries in West Africa are hampered by adoption of inefficient and inappropriate technologies, poor management, inadequate working capital, and limited access to banks and other financial institutions, high interest rates and low profit margins. While a lot still needs to be done, some successes have been achieved in upgrading traditional West African food processing technologies including the mechanization of gari (fermented cassava meal) processing, the production of instant yam flour or flakes, production of fufu flours, banku mix , fermented maize meal, the production of soy-ogi (a protein-enriched complementary food), the industrial production of dawadawa (a fermented condiment) and the upgrading of the kilishi (a traditional roasted dry meat product) process and the traditional West African cheese-making process (Aworh, 2008) [1].

## REFERENCES

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