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Promoting the Nutritional Goodness of Traditional Food Products

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Abstract: Nutrition/food security is a complex issue, which is influenced by a nation's food security status. However, for many developing countries, increasing national agricultural production alone cannot improve food security. Food production must be actively combined with evaluation, selection and domestication and greater utilization of under-utilized or wild edible plants that are of local or regional importance to effectively increase nutrition security. By improving the linkage between production and utilization, the biodiversity of traditional crops can be safeguarded. The paper will discuss the preliminary data of a survey of traditional food products. Further show that women indigenous knowledge of these traditional foods should be harnessed to improve nutrition security sustainable especially in the light of increased prevalence of HIV/AIDS.

Key words: Nutrition security, traditional foods, indigenous knowledge

Introduction

In order that cereal staples can be promoted in a more sustainable way, it is imperative that the knowledge of traditional food plants is encouraged. This is so because this know-how will enable for better food security/nutrition at household level. As was previously stated (Ohiokpehai and Ramosweu, 1999), these staples should be mixed with other food sources to have a balanced diet. In the case of Botswana, traditional food plants are the most ideal for the improvement of nutrition/food security.

Traditional foods are those foods originating locally in an area with respect to the country, region, district or sub-district. The definition includes all indigenous food plants found in an area with regard to food products, vegetables, fruit trees and veld products, carbohydrates, vitamins and minerals. Indigenous food plants are not formally cultivated and are considered food for children and for the poor in rural areas (IPGRI, 1992).

These plants are under-utilized and tend to diminish in less remote areas. Efforts should therefore be made to develop and promote these plants to reduce the loss of bio-diversity in the country for improved nutritional status. In areas where production is difficult, the use of indigenous plants and food materials can be promoted along with staples like sorghum, rice, millet, maize etc. to maximize the production and use of cereals. In addition to improved status of cereals, the above will contribute to conservation of the plant genetic diversity, maintenance of cultural diversity and improvement of the general well being of communities and the environment. These in overall, ensuring the nation's food security and improved health status.

Position of Indigenous Foods in Botswana: Most households in the rural areas are female headed and

as such women are charged with the responsibility of bringing food to their families. In rural areas most women do not have or have very little sources of income. They, as a result engage in gathering indigenous fruits for either home consumption or for sale. The Rural Incomes Distribution Survey (1974/5) estimated that the rural population relied on gathering to provide 40% of their income. Adolescent children provide help to their mothers at weekends or during school holidays. Men occasionally bring something from the forest while herding. This justifies that women may have much knowledge in indigenous foods than men (Madisa, 1998). The position of women's heads of households has led to more women being engaged in agricultural production and domestication of foods.

Indigenous Knowledge: Indigenous knowledge can be defined as: knowledge of the people living together in a certain area, generated by their own and their ancestors experience, including knowledge originating from elsewhere which has to be internalized by the local people (Coen Reijntjes, 1996, quoted by Madisa, 1998). Knowledge of traditional foods is important for sustaining their development and utilization. It is important for people to know the prevailing traditional food in their areas and how they can be improved for better sustainable food security/nutrition.

Knowledge can be attained by conducting studies with the people themselves, getting to know what used to be available and what is available at the time of the study. The information provided may include such important factors as seasonality of traditional foods, palatability, their distribution, and uses and lastly how they can be developed and processed. Studies or information gathering can be in the form of verbal communication with farmers themselves since they are the ones who

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Table 1: Nutritional value of some indigenous Plant foods

Product	Nutritional Information
Morula (<i>Sclerocarya caffra</i>)	65 mg of vitamin C per 100g 55 mg potassium per 100g flesh Stone: 55% oil and 30% protein
Mongongo (<i>Ricinodendron ruuianeni</i>)	30-35% sugar, 57.3g per 100g fat 28.8g per 100g proteins High-energy value
Dried Truffles	24% protein, 17% fat and 34% Carbohydrates
Maboa (mushrooms)	Oil 57% (Cooking oil) 60% protein plus a good supply of minerals and B-vitamins
Morama	35% protein, 38% oil. The powder remaining 52% protein after Oil extraction
Moretlwa (<i>Grewia flava</i>)	High sugar content 82.1% CHO
Motsotsojane (<i>Kalahari Grewia</i>)	67.5% CHO
Mowana (<i>Cream of tartar - Baobab</i>)	350 mg vitamin C per 100g fruit
Motsentsela (<i>Bird plum - Berchemia discolor</i>)	High sugar content
Mmupudu <i>Red Milkwood - Mimosops Zeyheri</i>)	50-80mg per 100g vitamin C
Mogorogorwane (<i>Monkey orange - Strychnos spp.</i>)	1.3g protein, CHO 16.8g, high energy
Mmilo (<i>Wild medlar - Vangueria infausta</i>)	1.4g protein, CHO 15.2g, fibre 4.7g

Source: Taylor, 1981.

Table 2: Tree yield home consumption sale and shelf life

Tree	Yield	Home Consumption	Sale	Shelf life
Mmilo	35 kg	2 kg	7kg x P1.00/500 = P14.00	Two weeks, it can be dried for longer shelf life.
Moretlwa	6kg	1 kg	3kg = P6.00	Same
Mogorogorwane	300 fruits	16 fruits	35 x P1.00/500g = P35.00	6 weeks
Motlopi	8 kg	1kg		2 days
Morama	3 kg	1kg	1.5kgx P1.00/300g = P5.00	Like unshelled Groundnuts
Morula	80kg	3 kg	Need to be processed but 40kg will make 601 beer which can sell at P0.50/500ml = P120.00	

Madisa, 1998.

practice traditional agriculture. Literature can be used to provide local names and ethnobotanical records. Affirmative response are influenced by the social tradition, the type of crops cultivated. Some studies have indicated that globally 60% off - farm work is done by women (FAO, 1996).

The Access and Control of Resources: Gender has had a great influence on the access and control of indigenous foods. Other contributory factors to the access and control are culture, marital status, and patterns of settlement, economic/financial background and the settlement location of individuals. In most cases women have access to resource but men, especially in

households that are male headed, do the control part. This follows a Tswana norm that "Ga di nke di etelelwa ke manamagadi pele" which translate, men are leaders, they should always be on the lead.

Economic and Nutritional importance of Traditional and Indigenous Foods: Traditional foods provide food at all times and times of food scarcity. In areas where climate does not favour crop production or domestication e.g Kgalagadi, indigenous plants should be promoted. The tradition of Kgalagadi is hunting and gathering, as their soil and climate do not favour crop production. Only their indigenous plants adapted to the region can perform well. The Kgalagadi also tend to

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Table 3: Some Traditional Food Plants

Blue thorn	Mohahu, Molata
Wait-a-bit thorn	Mongana, Telele, Monyaka
Water acacia	Lerwana, Orupunyaya
Umbrella thorn	Mosu, Motlhabakgosi
Cream of tartar (Baobab)	Mowana, Mbuyu
Mountain aloe	Mokgwapha
Anthill mushroom	Maboa
Pig weed	Morogo, thepe
Cats tail	Lesetwane, Mhalatsamaru
Tree hibiscus	Morojwa, Ntogwe
Torchwood	Food, medicine
Camels foot	Motsantsa, Mokoshi, mogosa
Bird plum	Motsentsela, Mosinzila
Shepherds tree	Motlopi, tolwana
Stinkbush	Mopipi
Velvet strawberry	Mokokwele, Mokokanana
Spider flower	Rothwe
River bush willow	Modimowanoka
Light stemmed commiphora	Mokomoto
Wild spinach, Lukulu	Maungo
Wild melon	Mogabala
Blue bush	Letlhajwa, Motlhaje
African ebony	Mokochung, Mochenje
Wild fig	Mochaba
African Mongosteen	Mokonongo
Kalahari Grewia	Motsotsojane
Kingboom	Morathetla
Red Milkwood	Mompudu
Water Lily	Tswii
Wild spinach	Leshwe, Laveshe

leave on game meat, as it is available at all times. This however, has a health disadvantage as consumption of large quantities of meat can increase the cholesterol level in the blood system and may cause such illness as gout.

Some foods are sources of carbohydrates (sugars and starches) converted to energy in the body. Energy is essential to everybody, the sick, growing children, those exposed to the cold, hard working people and lactating mothers (Table 1).

Traditional foods e.g morula, dried seeds, pumpkins and dark leafy vegetables also serve as a source of protein and minerals, which are bodybuilding and also used for repair of body tissues. Proteins are emphasized in diets of young children as their deficiency may cause kwashiorkor, which is very common in weaning children. The deficiency of both carbohydrates and protein symptoms of malnutrition causes underweight children, which could affect the growth of children causing brain under development.

Fruits and vegetables provide vitamins and minerals particularly vitamins A, zinc, iron, thiamine, riboflavin and

Table 4: Botswana Meals and Cereal Products

Motogo	Soft porridge
Bojalwa	Local beer
Chibuku	Traditional beer
Phaletshe	Soft drink
Porridge (stiff and soft)	
Sorghum and maize porridge	
Groundnuts	Cooked
	Roasted
Melon Porridge	
Milk porridge	
Samp	
Dumbling	Steamed bread
Fat cakes	
Boiled rice	
Beans	Tswana cowpeas and beans
Meat Products	
Fresh meat	
Dried meat	salted and dried
Fish	
Game Meat	

niacin. Other vitamins provided are vitamin C and folacin, which is water-soluble also, and therefore, dissolves in the presence of water. In cooking, they need small amounts of water and less time to avoid leaching losses and overcooking.

Fruits and vegetables can also provide minerals like iron, zinc, calcium and iodine. Iron is essential for the formation of protein in red blood cells (haemoglobin) that carries oxygen from the lungs to all cells of the body. Madisa (1998) stated that production of fruits do fluctuates from one year to the other, but on the whole their fruit production are good Table 2. This table also provided information on home consumption per year of their sales and shelf life.

Survey: The database of the indigenous food plants was put together from different sources literature and personal communication.

The traditional foods survey was carried out with the collaboration of the extension staff of the Ministry of Agriculture (District Agricultural Officers and Technical Assistants) in every agricultural region. The extension staff interviewed farmers in their respective catchment areas. Subsequently, the data was collected and collated. There are six Agricultural regions namely: Gaborone, Southern, Central, Francis town, Maun and Western in Botswana. Some of the data collected from five regions are presented.

Preliminary Data: From the database, some of the traditional food plants used for food are show in Table 3, with both English and Setswana names. Also the data collected from the survey of food products in Botswana

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are presented in Table 4. The food products are mainly cereals and legumes. These foods complements very well with nutritious food plants as shown in Table 1 and 3.

Conclusions: Traditional food plants are important if combined well with staples (cereals), they can provide food nutrients that are essential to the body consisting of carbohydrates from cereal grains, fibre, vitamins and minerals from vegetables, fat from nuts and oil crops and proteins from beans, mophane worms, meat and fish (all sources).

Research has proved that indigenous foods play an important role in the lives of the rural population. They are a source of food, medicine, building materials, fuel, and furniture and transport material. They are also an important source of fodder for animals.

The rural population can sell the products from traditional food plants and cereals to the urban areas for income generation. These important factors indicate the need for their study, domestication, especially those with commercial potential.

Traditional food plants are always present during drought or non-drought years. Therefore, their domestication and use is important for nutrition security.

This kind of survey should be encouraged to enable us make scientific (fortification) decision on the improvement of the foods around us for better nutrition security.

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