

The Important Food Crops and Medicinal Plants of North-western Nigeria

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Abstract: Food is any substance, which provides an organism with energy and nutrients necessary for its existence. To maintain good health people must daily eat both energy producing food (carbohydrates and fats) and a proper balance of the other nutrients (proteins, vitamin minerals and water). Most people in the world cannot afford the luxury of selecting a daily diet that contains both dairy and meat products. Instead they rely heavily on plant products as their source of food, for their greatly needed calories and proteins. It is estimated that on a global scale plants directly provide 88 percent of the calories (i.e. carbohydrates and fats) and 80 percent of proteins that human beings consume the rest come from animal products. The medicinal use of certain plants has been almost as important to man as their food uses. Men learnt to exploit plants for medicine, almost as early as they cultivated them for food. This review is intended to document some food and medicinal plants of importance in North-western states of Nigeria.

Key words:

INTRODUCTION

From the moment man evolved on earth, plants, which had evolved before humans, played an indispensable role in this struggle to survive. Not only do plants represent the primary source of food for all animals, including humans but a large number of plant species have been shown over the ages to have extremely important medicinal uses. Plants also play important roles in Man welfare and his economy to a degree not popularly appreciated.

Man's food since antiquity has been plant materials or its derivation in meat. Infact, the biblical saying! All Flees is Grass! Is remarkably correct, for it has been shown that, being the only living organisms capable of manufacturing organic matter using the solar energy of the sun, green plants thus supply food to all animals and non-green plants.

Food supply to man by plants falls into several broad categories, which include carbohydrates, proteins, fats and oils, vitamins and salt, and beverages. One may also add the spices to this category.

Carbohydrates provide the energy needed by the body to maintain its living activities, including working, walking and even sleeping. The carbohydrates food include such well known crops is rice, cassava, yams,

plantain and potato. They also include the cereals-guinea corn, maize, wheat etc, all of which are consumed daily in various forms, cooked, fried, roasted or liquefied.

Proteins are the foods that enable the body to replace or repair wounded parts, and which ensure growth by addition of materials to the young body several plants species are very rich in protein, and these include beans other legumes, the seeds of various plants, groundnuts, cowpea and green grain.

The essential fats and their liquid counterparts, oils, needed by the body are supplied by, among others oil palm, coconut, melon, soya bean, cotton and bean seeds. Vitamins, which are required in minute's quantities to ensure healthy bodily growth, are obtained from fresh fruits, leafy vegetables, nuts, seeds and flowers.

The spices, as was mentioned earlier, are not foods in the strict sense but are consumed with food in order to season it. These include the familiar pepper and ginger as well as all spice, nutmeg, clove, mustard, garlic and cinnamon.

The medicinal use of certain plants has been almost as important to man as their food uses. Men learnt to exploit plants for medicine, almost as early as they cultivated them for food.

Throughout history, plant have been the principal source of drugs used in preventing and curing of diseases

and in the production of some drugs currently used in modern medicine^[11].

Scientists have done a lot of research work on medicinal plants components and usage^[16,17]. Plant roots, barks, leaves, and flowers have contributed immensely to rural health care through provision of drugs for treatment of ailments,

Medicinal herbs can be highly effective in combating nervousness and anxiety, sedating and balancing the nervous system, it also act on the body by regulating and balancing its vital processes, rather than stopping or combating certain symptoms. "Thus, they have a genuine balancing effect on the complex nervous and mental systems, and prevent disorders and unbalanced mental conditions. Some of the recommended plants include: Infusion of leaves and/or flowers of orange tree for its sedative and mildly narcotic action; infusion of leaves of lemon tree acts as sedative and antispasmodic, capsules or pills of the seed oil of evening primrose helps balance the nervous system and the hormonal balance and infusions of lemon verbena and passion flower to alleviate anxiety.

However, certain plants such as oats, garlic, watercress, spirula, onion, chickweed, thyme, peppermint, basil (Nchuanwu in Ibo, Efirin in Yoruba), cocoa, sesame, aloe vera, orange tree, balm, evening primrose, lemon tree, passion flower, grapevine, walnut, among others have been shown to exert healing action on diseases of the central nervous and autonomic nervous system. Such ailments are fatigue and asthenia, depression, nervousness, anxiety, stress, insomnia (sleeplessness), psychosomatic disease, aches and neuralgia, headaches, migraine, insufficient intellectual performance, loss of memory, epilepsy and organic diseases of the nervous system.

The northwestern Nigeria characteristically has high annual temperature average 27°C. But the temperature range is wide, it is high in the hot and dry months of March-April and October-November at 35°C and drops to 24°C in December-January. It is also low in August due to heavy rains.

The average Rainfall of 71.8cm is recorded annually, which decreases Southwards. The rains start in April-May and peak in July - August at 24cms, then cease in September - October. There are no rains at all between October to April. Relative humidity is highest in July, when it is never less than 60%, and lowest in January at about 10%.

The vegetation is dominated by short grasses 1.5 to 2m tall, and stunted trees, typical of the Sudan savanna in most of the state. The activities of a dense population of humans and grazing animals is rapidly turning the

northern parts into Sahel Semi-desert, with short and tussocky grasses. 0.5 to 1m tall interspersed by sand dunes and acacia trees.

Legume and nut: *Leguminous* tree species are important to rural communities throughout the tropics for providing food, medicine, firewood, charcoal, fodder, green-manure and timber. *P. biglobosa* has been described as a Savannah tree with a crooked and short bole of about 20-30 metres tall. The natural habitat of *P. biglobosa* is savanna although it is occasionally found in the moist forest area of West Africa^[9]. The use of *P. biglobosa* is well documented^[13] (Table 1). Many communities in Nigeria eat both the sweet-tasting pulp and the embedded black seeds. These plants form the basis of numerous dishes in West Africa. Pursleglove, F.A.O and Okafor^[6,14,15] reported that the seeds are fermented and used as a condiment throughout west Africa. They documented that.

- C Seeds are used as soup condiment;
- C The yellow pulpy coating around the seeds keeps well and can be eaten with cereals, as porridge or as a cake;
- C The leaves enrich compost with nitrogen and potash;
- C The red ball-like flowers are sucked by children for sweet nectar, and used by bees to make good honey;
- C Drinks are made from both seeds and leaves;
- C Whole pods are fed to livestock (in northern Nigeria);
- C Pods are used to produce a juice for water-proofing houses, sealing indigop pits, dyeing pots and for glazing pottery;
- C This same juice (from pods/husks) is used to daze fish to enhance their catch;
- C The bark contains 12-15% tannins; tannins are obtained from the bark of the tree;
- C The wood is easy to work for making bowls, hoe handles etc;
- C The Roots are used as scrubbing devices for washing;
- C An infusion of the bark is used as a tonic;
- C Young flower buds are used for prevention of leprosy;
- C Sprouts from stumps are fairly fire-resistant and the leaves provide good browse;
- C A husk combinations is taken for diarrhoea; and The whole tree is grown as avenue tree in drier regions.

All these indicate that man utilizes virtually every part of this tree. F.A.O^[6] has recorded 32.3% protein and 17% fat contents of the seeds. Awodola^[2] has shown that

Table 1: Some important drug plants of northwestern Nigeria

Plants	Claims and parts used
Senna caccidentalis	Malaria, typhoid (leaves a roots)
<i>Guiera senegalensis</i>	Apustipation, skin rashes bark leprosy
<i>Moringa oleifer</i>	Antimicrobial - leaves
<i>Anogeissus leiocarpus</i>	Antimalarial, dysentery - bark
<i>Danielli oliveri</i>	Dysentery, malaria - bark
<i>Khaya senegalensis</i>	Dysentery and syphilis - bark- liver flukes and diarrhea - animals
<i>Ficus sycororus</i>	Chest, stomach, sore throats - bark
<i>Cohlospermum tinctorium</i>	Dysentery - bark
<i>Boswellia dalzielii</i>	Dysentery - bark, leaves
<i>Prosopis Africana</i>	Improve immunity - bark and root.
<i>Racinus communis</i>	Skin infection, decongestion of the l bowel -oil
<i>Ampelocissus grantii</i>	Cancer - root
<i>Momordica balsamia</i>	Malaria, leaves, bark
<i>Piper ginensis</i>	Antimicrobial seeds
<i>Allium sativum</i>	Broad activity - bulb
<i>Urena lobata</i>	Broad activity leaves, roots,
<i>Casuarina equisetifolia</i>	Diarrhoea & dysentery - root
<i>Aspillia Africana</i>	Malaria, analgesic, stem, bark
<i>Digitaria exilis</i>	Diabetes- seeds
<i>Walteria indica</i>	Gonorrhoea, diarrhea, haemorrhage
<i>Annona senegalensis</i>	Sleeping sickness (stem and root) dysentery, (bark)
Cambrelfum molle	Jaundice and yellow fever - leaves and bark
<i>Vernonia amydalina</i>	Gastro-intestinal troubles cough mixture + ginger + garlic - root
<i>Acroceres amplexens</i>	-Bacterial,fungal and viral diseases.
<i>Lannea acida</i>	Stomach upset, skin infection - bark
<i>Terminalia avicennioides</i>	-
<i>Ocimum grassstissimum</i>	-
Ficus spp	Yellow fever, dysentery - bark
<i>Hibiscus</i>	Hypertensicn - calyx
<i>Azadirachta indica</i>	Malaria - leaves and stem bark
<i>Caruca papaya</i>	Gonorrhoea and syphilis roots and bark
<i>Jatropha curcas</i>	Fever, rectum infection leaf seeds + ceveal pulp syphilis, root potash gonorrhoea.
<i>Leucus martinicensis</i>	Amto,a;arao; sjppt
<i>Parkia biglobasa</i>	Diarrhoea and veneral diseases bark
<i>Vitex doniana sweet</i>	Leprosy, sterility, diarrhea roots dysentery and fever.
<i>Ziziphus manritiana lam</i>	Diarrhoes - bark, leaves and fruits - chest disorder - fever and veneral diseases
<i>Ziziphus spins Christi</i>	Diabetes leaves
<i>Tapinanthus heteromorphis</i>	Hyoletension - leaves
<i>Phyllautus pentandrus</i>	Bacterial diseases in the mouth gastrointestinal diseases

boiling and fermenting raised the concentrations of chemical components in the seeds. In a recent survey, *P. biglobosa* topped the list of acceptable farm trees by farmers in a Sudan Savannah zone^[2]. It was noted that the seeds sell for the same price per standard measurement as beans in the months of February to April^[2].

The cereals: Cereals are important source of plant food for man and other animals. northwestern Nigeria is part of the West African tropical region that lies in the Sahel savanna, and as part of the savanna the dominant plant family of flowering plants in this area is the grass family; and within this large family cereal species such as rice, maize, wheat, millet, sorghum and Hungry rice are being cultivated in many part of northwestern Nigeria for local consumption.

Uses: This cereal crop is extensively used as human food in many tropical third world countries of Africa and Asia. These countries mostly cultivate the grain sorghum. In

the developed countries like U.S.A. where sorghum is now cultivated it is usually grown for animal feed and for this purpose both the grain as well as grass sorghum varieties are cultivated. The sweet sorghum is also cultivated for syrup production. The juicy stalk of the sorghum crop is utilized for salad making. The dried stalk is also used in rural areas for fencing purposes as well as feed for the donkeys. The grains are also used by some local inhabitants for brewing of local alcoholic drink variously refereed to as Burukutu, Fito etc. The filtrate from the burnt stalk is also used in the preparation of the local Porridge (Tuwo) using the sorghum or millet flour. This filtrate is also said to have some medicinal value in what it is said to help ease up some tommy discomfort. The ash filtrate is also used in the production of the local soap.

Pearl millet or bulrush:

Uses: The grains from thick though less nutritional than the grains of sorghum is extensively used in India and

some African countries like Nigeria as a cereal for the preparation of Porage, Fura, two etc. The grains are also as birdseeds. This crop with its nice abundant foliage is a good forage crop. The stalks are also used for fencing and also as fuel materials. Like the sorghum the ash is also used for the preparation of the local soapy materials and is also used in preparation of some of the cereal dishes prepared using the millet or sorghum flour.

RICE local name: Hausa: Shinkafa:

Uses: Though this crop has insufficient quantity of protein it is widely used as human food especial in the Asiatic countries where it is the staple food item where it is supplemented with legumes. The rice hull and polish are valuable stock feed. The straw is also used in making hats, baskets etc. Rice starch is also used in the textile industries for sizing up fabric. Like wise it is also used with sodium bicarbonate for the production of baking powder used in the bakeries. The grains are also used for the production of an alcoholic beverage. The husk is also used instead of wood shaving for the poultry houses

Maize or Indian corn Hausa: Masara:

Uses: Maize is a cereal is used in many dishes prepared for human consumption in many tropical countries. In addition to this the grains are used in preparing the industrial starch, syrup, dextrans, alcohol and glucose. The grains are also used in feeding livestock and poultry. The stem and young pods are used as fodder for live stock or used in silage production. A semi-drying oil is also extracted from the seeds and the oil is used for cooking and is also utilized in the paint and varnishing industries. The solid pith also produces good charcoal, which is used in the production of mild explosive. The stalk fibre is used for paper and yarn making. The inner husk is used for production of cigarette paper. The cobs after removal of the grains is used as fuel and also as a source for the production of furfural used in preparing solvent, explosives, plastic, synthetic rubber and nylon. The protein in maize is also used in the production of strong synthetic wool-like fibres.

Hungry Rice: Hausa, Acca, Intaya:

Description: This is an annual cultivated grass of the drier tropics and which has never been reported growing in the wild state. It grows to a height of eighteen to twenty inches

Uses: It is used as a cereal food to substitute rice in many human dishes such as porridge, pudding etc. The shoot system with or without the grains is used as forage material for livestock.

Wheat, Hausa: Alkama:

Uses: The grain from this plant is used in producing many human food items such as bread, pastries, macaroni, Spaghetti etc. It is also used in the manufacture of beer and other alcoholic drinks. It is also an excellent feed for animals. Textile starch is also produced using these grains. The straw is used for stuffing mattresses and such like items. It can also be used for mat and basket weaving. It is also a good packing and thatching material. Likewise it is a valuable fodder material.

Pawpaw Or papaya (*Carica papaya* Linn):

Vernacula name: Hausa-Gwandar gida; Igbo-Mgbimbi; Yoruba.

Uses:

The medicinal parts are the leaves and latex of raw, fruits. The main constituents of importance are the latex containing papain or papayotin, which when fermented becomes an important product in pharmaceuticals and also for tenderizing meat. The latex is used to cure fever, beriberi and also as an anthelmintic. The infusion is taken to cure stomach-ache.

Amaranthus Viridis (*Amaranthus viridis*):

Vernacula name: Hausa-Rukubun Turawa; Igbo-Yoruba

Uses: The African fan palm is the most important and widespread palm tree we have in Sokoto State. It grows best in sandy loam soil of the savanna forest. The whole plant (from the fruits to the roots) is useful. The fan leaves are medicinal, the reddish-brown fibre from the leaves are soaked and use for eye treatments. The decoction of young roots is used for the treatment of respiratory complaints, asthma, while the bark also contains resin.

Silk Cotton tree (*Cieba pentandra* (Lin). Gacrtn.):

Vernacula name: Hausa-Rini or Rimi; Igbo-Akpu; Yoruba-Araba.

Uses: The pods provide the silky floss used for stuffing pillows, cushions, mattresses, furniture and similar articles including surgical dressings. The seeds contain 45 per cent of fatty oil, which is used for soap and food purposes and is a good substitute for olive oil and is known in commercial trade as kapok oil. Medicinally, both leaves, fruits, bark and flowers are used. The bark contains tannin and oil from seeds. The leaves and fruits have emollient properties and as ointments base. Decoction of the flowers used for constipation. The bark is used as an astringent and infusion used against dysentery, also for mouth-wash and stimulant.

Rurmeric (*Curcuma domestica* Valetton):

Vernacula name: Hausa-Gangamau; Igbo-Yoruba

Uses: The main area in which the plant is utilized is that of dyestuff and spice for which it is much cultivated in India. The main constituent for which it is known is Turmeric with a pungent bitter taste and very aromatic with a musky odor, obtained from the rhizome. It gives a natural orange-red or reddish brown dye and imparts yellow colour to cloth and foods. It is one of the principal ingredients of curry, to flavor various foodstuffs. It also serves as a chemical indicator on whether substance is alkaline or acids.

Medicinally the rhizome also contains volatile oil and is use as vermifuge in the treatment of jaundice. It is also used as eye-wash and as an ointment against skin diseases. It could be a very important commercial crop.

Crabs Eye (*Brus precatorius* LiAA):

Vernacular name: Hausa - Damarzaya, Idon Zakara; Igbo - Otoberere; Yoruba - Oju-dogbo

Description:

A woody twining shrub, rather slender or small tree. It grows well in tropical savanna of South-Western part of Sokoto State.

Uses: The seeds, leaves and bark all have medicinal uses. The main constituents are toxalbumin - abrin, and some alkaloids. The seeds, which are toxic, are used in the treatment of ophthalmia. Powdered leaves are used for convulsion in children as well as for conjunctivitis probably in conjunction with seeds. The infusion of leaves is used to treat colic, chest complains and cough. The bark boiled and decoction are used for the treatment of malaria fever.

Combretum Micranthum (*Combretum micranthum* G. Don.):

Vernacula name: Hausa-Geza; Igbo-Yoruba.

Uses: The part used in medicine is the root and leaves. The epidermis from the roots is scraped, dried and powered to treat wounds. The leaves are used as plasters to temporary cover the wounds against flies and dust. The leaves fruits and bark are used for medicinal purposes, however, their main constituents are not known. Decoction of bark is used to treat stomachache and diarrhoea also as mouthwash. Infusion of fruit and leaves cures fevers, cough, bronchities and as diuretic.

Dragons Blood three (*Harungana madagascariensis* Lam ex poir.):

Vernacula name: Hausa-Alillibar-rafi; Igbo-Uturu; Yoruba-Elepo.

Uses: The berries, leafy shoot or buds, root and bark are used medicinally to treat various ailments. They are used to treat acute enteritis, urinaryfistula, scabies and young shoot are use in the treatment of stomach ache and intestinal troubles. The decoction of root and bark are used to remedy, dysentery, bleeding, piles, etc.

Sweet Potato (*Ipomoea batatas* (L) Lam.):

Vernacula name: Hausa-Dankali; Igbo-Ji-beke; Yoruba-Kukundunkun

Uses: The decoction of young leaves is used against fevers and as rectal injection for jaundice. Seeds are crushed, mixed with cereal food and fermented for two nights for the treatment of syphilis. The decoction of root is for the treatment of gonorrhea and dysentery acting as a purge. The oil is used against skin parasites and rheumatism.

Tomato (*Lycopersicum esculentum* Mill):

Vernacula name: Hausa-Tumatir; Igbo-Tumati; Yoruba

Uses: Besides their use as vegetables, fruits and leaves are also used medicinally. The main constituents are alkaloid tomatine in addition to having cycopene, carotene, ascorbic acid and vitamin A. The leaves are boiled and applied as a poltice to relieve pain. The lotion of leaves is used for ear-ache. The fruits are also good remedy for urinary passages. Commercially the leaves could be used in the production of antibiotic and fungicide.

Mango (*Magifera Indica* Linn):

Vernacula name: Hausa-Mangoro; Igbo-Mangolo; Yoruba-Mangoro.

Uses: Medicinally the bark leaves and seeds are used and they contain tannin and resins as biochemical constituents. The bark and fruits are used as astringent, and made into lotion for mouth-wash to relief toothache, sore gums, sore throat as well as in the treatment of skin diseases. Infusion of root-bark is used against diarrhoea, dysentery and piles. Seeds have anthelmintic properties and the juice of the trunk has antisyphilitic properties and is used as such.

Table 2: Percentage distribution of the respondents based on the economic and medicinal importance of *T. indica* and *P. biglobosa* in Sudan and guinea savanna regions of Nigeria

		Sampled location /Percentage distribution															
Tree specie	Plant parts	Gwandu															
		Aliero	Arewa	Argungu	B/kebbi	Bunza	Dandi	D/wasagu	Fakai	B/kebbi	Jega	Maiyama	Sakaba	Shanga	Suru	Yauri	Zuru
<i>P. biglobosa</i>	F	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
<i>P. biglobosa</i>	L	20	30	30	20	20	25	50	50	20	20	10	50	40	20	40	60
<i>P. biglobosa</i>	S	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
<i>P. biglobosa</i>	FL	30	50	50	35	20	30	40	30	35	30	20	40	40	15	40	40
<i>P. biglobosa</i>	R	15	10	10	10	30	5	50	30	10	15	20	40	30	10	30	50
<i>T. indica</i>	F	10	100	100	100	100	100	100	100	100	10	100	100	100	100	100	100
<i>T. indica</i>	L	60	50	50	60	20	50	70	60	60	60	20	30	60	10	60	50
<i>T. indica</i>	S	10	10	10	10	10	5	10	60	10	10	30	30	20	5	20	40
<i>T. indica</i>	FL	5	5	5	5	5	5	10	10	5	5	10	5	10	5	10	20
<i>T. indica</i>	R	5	5	5	2	5	5	5	10	2	5	5	10	10	5	10	20

F-Fruits, L-Leaves, S-Seeds, FL-Flowers, R-Roots

Source: Muhammed and Amusa (2003)

Newbouldia Laevis (*Newbouldia laevis* (P. Beauv.) Seemam ex Bureau):

Vernacula name: Hausa-Aduruku or Bareshi Igbo-Ogirisie; Yoruba

Uses: The whole plants are usually grown round the house and form part of the fence. Medicinally, the leaves, bark and roots are used as drugs. The bark contains tannin. The leaves are sometimes boiled with *Azadirachta indica* leaves and the decoction drank for fever remedy. The decoction from the roots and leaves are taken for the relief of scrotal elephantiasis, dysentery and acute malaria. Sometimes the roots and leaves are squashed together and used as snake anti-venom. Decoction from the roots is use as vermifuge for roundworms. The bark, dried and pounded is used for stomachache and, also for treating constipation and piles.

Several other plants of medicinal importance abound in the northwestern Nigeria (Table 2). These plant and their parts over the years have been sources of succor to many local people who can not afford the exorbitant cost of synthetic drugs.

Besides the nutritional and medicinal importance of plants in the northwestern Nigeria, most of these plants and their parts have also been used as protectants against insect and microbial pests. It is well known that the seeds of *Azadirachta indica* and *Dennettia tripetala* and the fruits of *Piper guineense* contain compounds which possess insecticidal and behsvior-modifying properties against various species of stored product Coleoptera^[1,5,10].

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A guide to identifying the wild edible plants and medicinal plant medicines found in the Pacific Northwest region of North America: British Columbia, Washington, Oregon and Northern California. These plants are mainly founded in the coastal rainforests along the west coast in the ...more â†“. A guide to identifying the wild edible plants and medicinal plant medicines found in the Pacific Northwest region of North America: British Columbia, Washington, Oregon and Northern California. These plants are mainly founded in the coastal rainforests along the west coast in the rainforests, mountains, wet This paper focuses on twenty-eight medicinally important leafy vegetables documented from the North Western part of Nigeria. It also highlights their medicinal importance in the treatment of minor ailments as well as their sources. The family Compositae (Asteraceae) contained the highest number of plants, followed by Cucurbitaceae, Malvaceae and Solanaceae. Sixty eight percent of the documented vegetables are cultivated, 11% is usually obtained in the wild, while 21% is either cultivated or obtained from the wild.Â Muhammad S, Amusa NA (2005) Important Food Crops and Medicinal Plants of North western Nigeria. Res. J. Agric. Unlike the other vascular plants, the flowering plants and conifers, where the adult plant grows immediately from the seed, ferns reproduce from spores and an intermediate plant stage called a gametophyte.Â The fig is believed to be indigenous to Western Asia and to have been distributed by man throughout the Mediterranean area. It has been cultivated for thousands of years, remnants of figs having been found in excavations of Neolithic sites traced to at least 5,000 B.C. As time went on, the fig-growing territory stretched from Afghanistan to southern Germany and the Canary Islands.