A Review of the Potentials of some Selected Vegetables in Nigeria- Towards Eradication of Malnutrition and Food Insecurity among Vulnerable Groups

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ABSTRACT
Phytochemical, antioxidant and ethno-medicinal potentials of some selected plant species in Nigeria were reviewed. The nutritional values and antioxidant properties arise from their rich phytochemical constituents, which are useful in reducing hunger and fighting diseases. In Nigeria, where diet is dominated by starch as staple food for energy and nourishment, there is the prevalence of malnutrition mostly micronutrient and protein deficiency which accounts for their food insecurity. The tropical rainforest and savannah regions of Nigeria are a reservoir of biodiversity, consisting of different indigenous vegetables with nutritious potentials. These vegetables are the cheapest and most available sources of proteins, vitamins and minerals. However, these vegetables are under cultivated and underutilized due to negligence, ignorance, deforestation, lack of good cultivation practices and use of chemical pesticides. In addition is the rural to urban migration by the younger generation as a result insurgency and internal societal crises. This work will expose the immense potentials of these vegetables, create awareness, encourage consumption, cultivation at commercial levels, preservation and documentation to curb malnutrition and improve food security.
Keywords: Phytochemicals, antioxidants, Nigeria, Vegetables, food security, Malnutrition.

INTRODUCTION
Hunger and malnutrition remain the most devastating problems facing majority of the world’s poor especially women, children and the elderly. Despite general efforts towards improvements in food availability, health and social services, hunger and malnutrition still exist in some form, especially in the face of climatic changes, and regional conflicts [1]. In Nigeria where the diet is dominated by starch as staple food for energy and nourishment there is prevailing food insecurity resulting from hunger, malnutrition and micronutrient deficiency [2]. Vegetables are the fresh, leafy, succulent edible parts of herbs or plants eaten fresh, raw, cooked alone or mixed with other foods or as supplementary foods or side dishes [3]. They provide the cheapest, most available sources of vitamins, proteins, minerals, antioxidants, carbohydrates and amino acids. They maintain alkalinity, acting as buffering agents for acidic substances produced during digestion in the body. The fiber content provides bulk necessary for digestion preventing constipation. Vegetables are also used as medicine in traditional medicinal practice in all regions of Nigeria. Their medicinal potentials lie in their bioactive phytochemical constituents that produces definite physiological changes or action in the body. These bioactive phytochemicals in some cases have been useful precursors for the synthesis of therapeutic agents and useful drugs [4]. Regional conflicts leading to massive rural to urban migration and displacement of persons, industrialization, lack of appropriate propagation practice to improve yield, quality and quantity has led to their underutilization [5]. This review will expose the phytochemical, nutritional and
ethno-medicinal potentials of some vegetables of Nigeria and their role in the maintenance of health, prevention of diseases and improve food security.

METHODOLOGY
Experimental works done on these indigenous vegetables in Nigeria especially in the field of Biochemistry were retrieved via Google search on the internet and studied carefully to identify their phytochemical and nutritional compositions and medicinal/therapeutic activities.

RESULTS

1. **AMARANTHUS HYBRIDUS** belongs to the family *Amaranthaceae* and commonly called ‘GREEN’, smooth *Amaranthus, amaranth* or pigweed is widely cultivated throughout Nigeria for its edible leaves and young seedlings. The leaves are eaten as steamed vegetable or in soups and stews, as blood booster, an astringent medicinal tea and as fodder/animal feed [6]. The leaves contain an appreciable amount of nutrients, minerals, vitamins, amino acids, phytochemicals and low levels of toxicants. Studies have shown that the leaf extracts showed antibacterial activities [7].

2. **CORCHORUS OLITORIUS** belongs to the family *Malvaceae* and commonly called Jute or wild okra (Yoruba: ‘Ewedu’, Hausa: ‘Rama’ and Igbo ‘kerenkere’ or ‘ahihara’). It is consumed as leafy vegetables in soups and stews. The leaves of *Corchorus olitorius* contain Vitamins A, C and E, beta-carotene, potassium, iron, copper, manganese, zinc and calcium. Studies have shown that the leaves significantly demonstrated antimicrobial, anti-inflammatory, wound healing and antioxidant activities [8].

3. **CUCURBITA PEPO** belongs to the family *Cucurbitaceae* and commonly called Pumpkin or Gourd (Igbo: ‘anyu’ or ‘ugbogulu’, Yoruba: ‘Elegede’). The mature and immature fruits, flowers, long leaf stalks and young leaves are used as vegetables in soups, porridge, and mixed with other foods. In ethnotherapeutics it is a natural antihelmintic, a haemoglobin booster, for rheumatism and prostate disorders. The gourds are also made into ceremonial rattles, cups, ladles, dippers and receptacles for storing precious articles. Studies showed that the leaves of C. pepo are rich in protein while the fruits are low in fats, carbohydrates and proteins (3%) and are very rich in carotenoids [9].

4. **GONGRONEMA LATIFOLIUM** belongs to the family *Asclepiadaceae* and commonly called bush buck, (Igbo: ‘utazi’, Yoruba: ‘arokeke’, Efik and Ibibio : ‘Urasi’). It is widely grown and used as leafy vegetables and as spice for sauces, soups and salads. In traditional medicinal practice, an infusion of the leaves are used to treat cough, intestinal worms, stomach-ache, diabetes , high blood pressure, loss of appetite, a purgative and antimalarial. Lactating women also take it for controlling weight gain, stomachache and in overall postnatal health management. The latex is used to treat dental caries. The fruits are chewed as a laxative. G. Latifolium contains essential oils, glycoside, alkaloids, saponins and tannin, various minerals, vitamins and some essential amino acids [10].


6. **OCIMUM GRATISSIMUM** belongs to the family *Lamiaceae* and commonly called Scent leaves, African basil or Clove basil (‘Efínrin’ in Yoruba , ‘Daidoya’ in Hausa, ‘Nchuanwu’ in Igbo and ‘Ntong’ in Efik). It is cultivated for culinary and medicinal
purposes as a food spice, stimulant, antispasmodic, insects repellent, lowers fevers, colds, headaches, flatulence, postpartum problems, and worms in children. Externally, the leaves are used to treat rheumatism and lumbago. An essential oil obtained from the leaf has shown marked antibacterial activity [14]. Phytochemical screening of this plant has revealed the presence of many active ingredients, such as flavonoids, triterpenes, alkaloids, citral, saponins, eugenol, linaol, methyl cinnamate, camphor, and thymol [15]; [16].

7. **PTEROCARPUS SANTALINOIDES** belongs to the family Fabaceae and widely distributed in Nigeria (Igbo: ‘NturuUkpa’, Hausa: ‘gunduru’, ‘gyadar kurmi’, Yoruba: ‘gbengbe’). The leaves are eaten as vegetables in soups. Extracts from leaves, roots and stem barks are used in medicinal practice for treating rheumatism, diarrhea, dysentery, cough, malaria, elephantiasis, and skin diseases such as eczema, candidacies, and acne. The foliage provides feeds for livestock while the bark and its exudates are locally used for dyeing textiles. The plant is rich in bioactive substances such as alkaloid, flavonoid, tannin, Saponnin, terpenes, cardiac glycoside and Steroid. Studies have shown that the leaves of *P. santaloides* have negligible anti nutrient composition and high antimicrobial activity [17].

8. **PTEROCARPUS MILDBRAEDII** belongs to the family Fabaceae and commonly called the *Padauk* (Igbo: ‘Oha’ Ibo; Efik/Ibibio : ‘mkpa’ or ‘mkpafere’).The leaves are eaten as vegetables in soups and contains high levels of calcium, potassium, magnesium, iron, copper, manganese, zinc and essential amino acids. The timber has low commercial value. Studies revealed the presence of phytochemicals such as flavonoids, saponins, alkaloids and tannins. Traditionally, the leaves are used to treat malaria, headaches, pains, fever, convulsions, and respiratory disorders [18].

9. **SOLANUM NIGRUM** belong to the family Solanaceae and commonly called African or black nightshade (‘Odu’ in Yoruba) [19]. The leaves and seeds (berries) are commonly consumed as leafy vegetables in soups, or with Yam and cocoyam porridges and as spinach. The leaves serve as fodder for domestic animals. Phytochemical Studies revealed the presence of alkaloids, saponins, tannins flavonoids and proteins while the mineral elemental constituents include Ca, Mg, Fe, Zn, K, Na, Mn, and P. The leaves are rich in vitamin A, B, and C,in addition to significant antibacterial and antifungal properties [20].

10. **SOLANUM SPECIES** belong to the family Solanaceae and commonly called African eggplant or garden egg (‘Afufa’ or ‘anara’ in Igbo, ‘Dauta’ in Hausa and ‘Ibagb’a’ in Yoruba). About 25 species of the plant genus *Solanum* is represented in Nigeria They are cultivated for their leaves and fruits and consumed as vegetables. In ethnotherapeutics it is used for constipation, weight loss, obesity, diabetes, glaucoma, rheumatism and as blood and immunity booster [21]. Phytochemical studies revealed the presence alkaloids, flavonoids, saponins, tannins, phenolics and cyanogenic glycosides, high levels of vitamins B2, B3 and C, trace amounts of vitamins B1 and E and high mineral levels of potassium [22].

11. **TALINUM TRIANGULARE** belongs to the family Portulacaceae and commonly called waterleaf or spinach (Yoruba: ‘gbure’, ‘lagos bologi’, Igbo: ‘gbolodi’). It is consumed as vegetables in soups and stews or mixed with other vegetables. It is rich in vitamins A and C, iron and calcium. Phytochemical studies revealed the presence of bioactive compounds namely flavonoids, alkaloids, saponins and tannins. In traditional medicinal practice, the leaves and roots extracts are used for the treatment of asthma, gastrointestinal disorders, Shistosomiasis, scabies, fresh wound cuts, high blood pressure, and anemia. It is drought resistant and can be grown all year round [23].

12. **TELFARIA OCCIDENTALIS** belongs to the family Cucurbitaceae and commonly called fluted pumpkin (Igbo: ‘Ugu’, Yoruba: ‘Aporoko’, Efik: ‘Ubong’, Urhobo: ‘Ume’ and in Edo:‘Umeke’). It is a popular


Retrieved: 17/7/18.


