NUTRITION POTENTIAL: VEGETABLES FROM NATURAL SURROUNDINGS

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ABSTRACT

Vegetables are essential constituents of diet system as they are rich source of vitamins A,C and E, minerals and roughage. The term vegetable is applied to plants and plant parts teken with main course of a meal salted and boiled or as dessert and salad. Ancient cultivators were aware of many of the species of vegetables that we use today but their wild ancestors can no longer be identified with certainty as many of them have undergone much alteration as a result of world wide programmes on selection and breeding. These programmes have drastically reduced the number of plant species now used for food.

RESUMEN

Los vegetales son constituyentes esenciales en el sistema dietético ya que son una fuente rica en vitaminas A, C y E, minerales y diversos componentes. El término vegetal se aplica a plantas y a partes de plantas tomadas en el transcurso de una comida, cocinadas y saladas, o como postres y ensaladas. Los antiguos agricultores conocieron muchas de las especies que usamos hoy, pero sus ancestros silvestres no pueden ser identificados con certeza ya que muchos de ellos habían sufrido muchos cambios como resultado de amplios programas mundiales de selección y producción. Estos programas han reducido drásticamente el número de especies de plantas que actualmente usamos para comer.

India's ancient literature on Ayurveda for the period from 5000 BC to 2500 BC has documented the use of about 150 species of leafy vegetables for food as well as for preventive and promotive medicine. Recent nation wide study (AICRPE, 1991-92) has revealed that the rural and tribal folk in India use about 1500 species as vegitables and more than 300 species are worthy of

attention as alternative source of food the world may require tomorrow. Commercialized marketing of vegetable crops and introduction of exotic vegetables have conquered even the rural markets wiping out the rich traditional and diverse use of native vegetables. Introduced being beyond reach and ignorant of what is locally available, the present generation in Indian rural set-up finds themselves in difficult situation. It is evident that unless the use of locally available vegetables is popularized serious mindely the poor in India are bound to face many health problems.

Man, being part and parcel of Nature, can co-exist to the extent possible with the food and medicine available in the sorrounding flora. It is presumed that early wandering primates selected flowers, fruits, nuts and roots as their food after careful observation on the surrounding flora. The early man who lived in the forest might have selected the edible plants and plant parts by trial and error or by his keen observation of the eating habits of wild animals. With the discovery of fire man was able to consume more food articles including those that were in raw form quite unpalatable or indigestable items. Gradually he learned to detoxify certain food items by processing and cooking. By the time he began to select and start using a large number of plants, he had already domesticated and cultivated certain edible plants. But these plants were those consumed as the main course or as ataple food. Along with this main course or in between he always ate many plants and plant parts. These constituted mainly the vegetables, fruits, berries and nuts. They were cultivated or collected wild from near or around his dwellings or from forests. The term vegetable is applied to plants and plant parts taken with main course of a meal salted and boiled, or as dessert and salad.

DIET AND HEALTH

India's ancient literature on Ayurveda for the period from 5000 BC has documented the use of about 150 species of leafy vegetables for food as well as for preventive and promotive medicine. According to this great Indian classical systems of medicine body of any organism including man is in a state of flux to adjust constantly in the changing environment. So Ayurveda advises that one should take a diet that helps him to adapt better to the local environment and recommends various food items particularly of local origin for different seasons.

A recent nation wide investigation carried out under the All India Coordinated Research Project on Ethnobiology sponsored by the Govt. of India has revealed that the rural and tribal folk in India use over 1500 species as vegetables. Of these more than 300 species are worthy of attention as alternative source of food the world may require tomorrow. Commercialised mar-

keting of vegetable crops and introduction of exotic vegetables and fruits have now conquered even the rural markets wiping out the rich traditional and diverse use of native vegetables. Alongwith, forgotten are the locally developed formulae of recipe for palatability. Introduced being beyond reach and ignorant of what is locally available, the present generation in Indian rural set-up finds themselves in different situation. It is evident that unless the use of locally available vegetables is revived and popularised the poor in India are bound to face many health problems.

There is increasing scientific evidence to the fact that one must use the local food stuffs that help to maintain the normal body balance in accordance with the changing climatic conditions. As example, we may consider the case of some important seasonal fruits like watermelon. It is the best in summer season. This fruit not only compensates the loss of minerals and water through sweating but also reduces the body temperature helping one to adapt well in the hot and humid tropical environment. Similarly the tender coconut water taken during the hot and humid climate of coastal tropical countries is considered far superior to any salted or sweetened synthetic drinks. Tender coconut water is shown to be better balanced in essential nutrients like easily assimilable sugars and minerals than the best saline glucose solutions of the modern pharmaceutical companies. In fact some local doctors in Kerala (a Southern Coastal State in the Indian Union) prefers tender coconut water to saline glucose for intravenous injections.

Almost everybody must be observing a shift to trend in favour of natural wholesome plant products as health giving food or medicine. Reports are from different research centres which suggest that processed or refined fiber free foods of the modern world are responsible for many metabolic disorders or diseases in man. There is now overwhelming medical evidences to suggest that the fast food can play havoc with the digestive tract. This unhealthy changes in diet and life-style have in fact, contributed to the rapidly growing incidence of such diseases as obesity, heart ailments, hypertension, diabetes and various forms of cancer. As a matter of fact, most of our present day health problem can be traced back sooner or later to our present day diet system.

Nutritionists have done much to raise public awareness about the link between diet and health. But their understanding on nutrition has a major drawback. They look at the chemical components of food, rather that food in its totality. They have never attempted to understand the seasonal or climatic condition or dimension of food.

The Indian tradition particularly the traditional system of medicine like Ayurveda gives a detailed account on the type of food to be taken by people at

different seasons. Its prescriptions include various vegetable and fruits to be and not to be taken in particular seasons. For example the Ayurvedic masters recommend vegetables like bottle gourd, lady's finger, snake gourd, spinach, red pumkin and ask to avoid sunflower, drumstick, gourd, brinjal etc. for the Hemant season _ (i.e. December - January). Similar suggestions are given for other seasons of the year.

ROLE OF SEASONAL VEGETABLE AND FRUITS IN DIET

Vegetables and fruits consumed at different seasons of the year contribute to the requirement of calcium, iron and proteins and avert deficiencies of vitamins particularly A, C and E. Vegetables are thus essential constituents of the diet system of man. These vitamins are essential for people living in humid tropical regions as it could afford protection against radiation and better immunity against many tropical diseases. It is now well known that diversity serves dietary sufficiency to the extent that it amplifies the range of available nutrients with respect to essential amino acids, vitamins, minerals and provide roughage (fibres) for the proper digestive function in the stomach. Such foods enter outside of designated meals and function as nutritive supplements promoting good health or preventing many ailments. People living at different agroclimatic conditions have thus developed a seasonal regimen in their diet consuming specific vegetables and fruit items that enabled them to adapt best with the change of seasons in the specific agroclimatic conditions. The traditional food or dietary habits thus essentially enhanced the health and prevented many diseases.

The dietary dimension of plant utilization and human health is an area very poorly understood. Most of the eastern traditions particularly those of India and China stress the importance of the dietary regimen of vegetables and fruits. When the village-urban civilizations evolved, collection of many of the supplimentary food from wild sources became difficult and scarce leading to the domestication of many plant species and development of home gardens. This kind of development was more prominent in asiatic countries. Domestication of many such plants could essentially afford conservation and protection of many rare, endemic and endangered plant species, apart from a good number of land races.

HOME GARDENS IN RURAL INDIA

Home gardens in rural India, particularly in coastal states like Kerala, Goa, Karnataka and Tamil Nadu are unique example of how the rural people conserved many lesser known wild edibles. They domesticated many vegetables like *Amaranthus* spp., *Chenopodium* spp., *Moringa*, *Murraya* etc. while some others like *Hibiscus furcatus*, *Phaseolus* spp., *Portulaca oleracea*,

Emilia sonchifolia, *Lactuca indica*, *Malva* spp. and *Boerhavia diffusa* were collected from natural vegetation in and around the home gardens. These vegetables provided good source of fibre, vitamins and nutrients and functioned as good diuretics that helped good flushing of the kidneys helping to clean blood and expell many toxic and morbid substances from the body. It is worth mentioning that *Boerhavia diffusa* used by rural folk as a seasonal vegetable reportedly helps to control high blood pressure. Similarly kidney and gall bladder stones are seldom noticed in communities which, though use hard water for drinking, consume this plant traditionally as vegetable.

Rural people evolved the home gardens in line with the tropical ecosystem with its multiplicity of tree, shrub and herb complex. Farming system was then evolved in rural India particularly in the States of Kerala, Karnataka and parts of Tamil Nadu and Maharashtra. Such systems of a multiple tree, shrub, herb mixed farming system, however, were generally not intended to raise crops or farm animals for market. It was mainly to meet the needs of the house-hold.

Kerala has in fact evolved one of the most intensive and sustainable agriculture ever known. The whole Kerala village used to be a delightful garden where people lived in apparent harmony with their environment. Nearly fifty to sixty plant species are grown in their home gardens to supply most of the personal needs throughout the year. While some of the plant species are carefully cultivated many of them are part of natural vegetation (Table 1) which is protected and used to meet people's dietary and other needs. But unfortunately this multiple species garden system is disappearing with the introduction of hybrid and exotic varieties of fruits and vegetables. Inclination of rural folk to monoculture of cash crops has further damaged this system. The traditional food habits are also fast disappearing along with the knowledge system. There is urgent need to conserve this knowledge system and re-educate the society on the importance of a come back to the traditional dietary regimes the people to domesticate many local vegetables in the home gardens as well as protect and preserve many rare and endangered plant species growing as wild or semiwild around their habitation.

In developing countries like India where majority of human population is below poverty line, modern balanced diet is beyond their reach and so it is essentially important to revive and popularize and use of such supplementary edibles from natural surroundings.

REFERENCES

All India Coordinated Research Project on Ethnobiology (AICRPE), Annual Report for 1991-1992, Ministry of Environment & Forests, Govt. of India, New Delhi (Compiled and Edited by Pushpangadan. P., AICRPE Chief Coordinator).

Table I

Important traditionaly used vegetable plants from local resources in South India

(Kerala, Karnataka & Tamil Nadu)

Sl.No	Scientific Name	Family Name	Vernacular Name	Edible parts & use
1	*Abelmoschus moschatus* (L.) Medica	Malvaceae	Kasturi Venda	Tender leaves and shoots as vegetable, diuretic & demulcent
2	*Abutilon indicum* (L.) Sweet	Malvaceae	Velluram	Tender leaves as vegetable, diuretic
3	*Acacia farnesiana* Willd	Mimosaceae	Arivelum	Tender leaves used in chutneys
4	*Achyranthes aspera* L.	Amaranthaceae	Kadaladi	Young leaves served as spinach
5	*Amaranthus gangeticus* L.	Amaranthaceae		Tender shoots rich in Vitamin A & C
6	*Amaranthus paniculatus* L.	Amaranthaceae	Cheera	Tender shoots and leaves used as vegetable Tender leaves as vegetable
7	*Amaranthus spinosus* L.	Amaranthaceae	Kattumullen cheera	Considered sudorific and febrifuge, recommended for eruptive fevers; also used as lactagogue. Leaves emollient. Infusion of shoots used in eczema.
8	*Amaranthus viridis* L.	Amaranthaceae	Kuppacheera	Taste like spinach when boiled

Sl.No	Scientific Name	Family Name	Vernacular Name	Edible parts & use
9	*Anadendrum montanum* Schott	Araceae	Panichembu	Leaves used in curries. Considered useful in remittent fever.
10	*Antidesma diandrum* Heyne ex Roth	Euphorbiaceae	Areepazham	Leaves used as a vegetable and made into a preserve
11	*Basella alba* L.	Basellaceae	Basla	Tender stems and leaves make a wholesome spinach and consumed as a pot herb. Mucilaginous leaves are pulped and used as poultice. Juice of leaves given to children and pregnant woman to remove constipation.
12	*Basella rubra* L.	Basellaceae	Basla	Tender stem and leaves as vegetables
13	*Centella asiatica* (L.) Urb.	Apiaceae	Kodangal	Leaves are eaten raw im proves memory
14	*Cleome gynandra* L.	Capparaceae	Karavelam	Leaves used for flavouring sauces; also eaten as a pot-herb and pickled.
15	*Colocasia antiquorum* Schott.	Araceae	Madantha, Chembu	Tender leaves and stalks as a vegetable.
16	*Dregea volubilis* (L.f.) Benth. ex Hook. f.	Asclepiadaceae	Vattakakkakodi	Leaves, flowers and the rind of unripe friuts are boiled and eaten as a vegetable or used in curries.
17	*Enhydra fluctuans* Lour	Asteraceae	Manakkera	Leaves eaten as a vegetable, also used in Salads.

Sl.No	Scientific Name	Family Name	Vernacular Name	Edible parts & use
18	*Erythrina variegata* L. var. *orientalis* (L.) Merr.	Fabaceae	Murukku Mandaram	Leaves and tender shoots consumed as a pot-herb, Leaves considered laxative ,diuretic, anthelmintic, galactagogue and emmenagogue
19	*Glinus lotoides* L.	Aizoaceae		Tender shoots eaten as a pot-herb. Used in abdominal disorders.
20	*Hibiscus cannabinus*	Malvaceae	Pulichikkeera	Leaves used as a vegetable.
21	*Fleurya interrupta* Gaud	Urticaceae	Vattachorithanam	Leaves used as vegetable.
22	*Ipomoea aquatica* Forsk	Convolvulaceae		Young terminal shoots and leaves used as a vegetable and in salads; leaves good source of minerals and vitamines, especially carotene.
23	*Ipomoea eriocarpa* R. Br.	Convolvulaceae	Madhuravalli	Leaves and stems eaten as vegetables.
24	*Lactuca indica* L.	Asteraceae		Leaves of selected races used as vegetable, possess tonic, digestive and depurative properties.
25	*Malva sylvestris* L.	Malvaceae		Leaves eaten as a vegetable; good source of carotene and calcium.
26	*Merremia emarginata* (Burm.f.) Hall.f.	Convolvulaceae		Eaten as a pot-herb. Considered deobstruent and diuretic, used in rheumatism, neuralgia and also for cough.

Sl.No	Scientific Name	Family Name	Vernacular Name	Edible parts & use
27	*Merremia umbellata* (L.) Hall.f.	Convolvulaceae		Young leaves eaten as a pot-herb. Poultice of leaves applied to burns and sores.
28	*Oxalis corniculata* L.	Oxalidaceae	Puliarila	Leaves are pleasantly refreshing and eaten as a salad or cooked as a vegetable also used for sandwiches, pickles and chutneys. Leaves are good source for Vitamin C and Carotene.
29	*Plantago major* L.	Plantaginaceae		Leaves eaten, also used as a pot- herb. Leaves cooling, febrifuge, diuretic, astringent vulnerary, their infusion used in diarrhoea and piles.
30	*Sauropus quadrangularis* Muell. Arg.	Euphorbiaceae	Madurakeera	Leaves and tender shoots are used as vegetables.
31	*Sesbania gradiflora* Pers	Fabaceae	Agathi	Leaves are used as vegetable; good source of protein, minerals & vitamins
32	*Solanum denticulatum* L.	Solanaceae	Kaippakeera	Leaves and tender fruits used as vegetables.
33	*Solanum nigrum* L.	Solanaceae	Manathakkali	Tender leaves and fruits used as vegetables.