

Role of Green Food in Nutritional Security

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Abstract: *Vegetables play important role in food and nutritional security. Green leafy vegetables are considered as exceptional source for vitamins, minerals and phenolic compounds. Mineral nutrients like iron and calcium are high in leafy vegetables than staple food grains. Many leafy vegetables especially, amaranth, fenugreek, palak and spinach has attained commercial status and its cultivation is wide spread in India. Because of their low production cost and high yield, green leafy vegetables are considered to be one of the cheapest vegetables in the market and it could be rightly described as 'poor man's vegetables'. Also, leafy vegetables are the only natural sources of folic acid, which are considerably high in leaves of Moringa oleifera plants as compared to other leafy and non-leafy vegetables.*

Keywords: Leafy vegetables, Nutrition, Green food

1. Nutritional Factors in Green Leafy Vegetables

Proteins:

Green leafy vegetables are the richest and cheapest sources of proteins. This is because of their ability to synthesize and accumulative amino acids with the help of abundant source of sunlight, water, oxygen and nitrogen which is readily available in the atmosphere.

Dietary fiber:

Green leafy vegetables have been traditionally recognized as good sources of dietary fiber. Indian Green leafy vegetables such as basella (*Basella rubra*), fenugreek (*Trigonella foenum graecum*), hibiscus (*Hibiscus cannabinus*), coriander (*Coriandrum sativum*), cabbage (*Brassica oleracea*) and spinach (*Spinacia oleracea*) are good sources of soluble dietary fiber content.

Vitamins:

Green leafy vegetables are abundant sources for β -carotene. Cereals and pulses are devoid of vitamin C whereas, leafy vegetables are the potential sources of vitamin C with good amount in kale. Vitamin B5 in cereals and pulses are higher than spinach and kale. Plants are the major source of foliates for humans especially, green leafy vegetables.

Minerals:

Green leafy vegetables are good sources of mineral nutrients. Spinach has highest amount of calcium, magnesium, iron and sodium. Minerals have greater stability during food processing as compared to vitamins and proteins.

Essential fatty acids:

Omega-3 fatty acids are important for normal growth and development, and play vital role in the prevention and treatment of coronary artery diseases, hypertension, diabetes, arthritis, cancer and other inflammatory and autoimmune disorders.

Palak:

Palak is botanically known as *Beta vulgaris* L. var. *bengalensis* Roxb and member of family chenopodiaceae.

Rich source of vitamin A as compared to carrot and spinach. Also contains high quantity of ascorbic acid and iron. Its succulent leaves and stems forms a nutritious dish after cooking. The herbaceous parts are mildly laxative besides other medicinal values.

Spinach: Spinach is botanically known as *Spinacea oleracea* L. and member of family chenopodiaceae. Spinach contains vitamin A, B9 and K as well as minerals like iron, calcium, magnesium and manganese. Spinach contains lutein which prevents macular degeneration that can lead to blindness in the elderly.

Amaranthus:

Amaranthus is botanically known as *Amaranthus tricolor* L. and member of family amaranthaceae. It is used as vegetable, grain and fodder. In increasing the blood hemoglobin (high amount of Folic acid). It is a source of key vitamins and minerals like calcium, magnesium, potassium, phosphorus and iron. Tender leaves and stems are consumed as vegetables.

Coriander:

Coriander is botanically known as *Coriandrum sativum* L. and member of family umbelifarae. The pleasant aroma is due to an essential element called d-linalol or coriandrol. Coriander seeds have medicinal properties too and therefore used as a carminative and diuretic.

Fenugreek:

Fenugreek is botanically known as *Trigonella foenum graecum* L. and member of family fabaceae. Kasuri methi is a good source of dietary fiber, high in protein content and rich in iron. The mineral and vitamins present in the leaves include calcium, zinc, phosphorus, riboflavin, carotene, thiamine, niacin and vitamin C.

Lettuce:

Lettuce is botanically known as *Lectuca sativa* and member of family asteraceae. It is rich in vitamin A and minerals like calcium, phosphorus, sodium, sulphur, magnesium and potassium. It also contains protein, carbohydrates and vitamin C. It is a popular salad crop mostly in cities. It has crisp in texture.

Celery:

Celery is botanically known as *Apium graveolens* and member of family apiaceae. Celery stalks have only moderate levels of vitamins, but have a low percentage of carbohydrate and negligible fat, it is popular with dieters. Sliced stalks are also used as an ingredient in soup. The main use of celery is as a salad dish. Celery is cultivated for its succulent flavored leaves, seeds and essential oil.

Parsely:

It is botanically known as *Petroselinum crispum* and member of family apiaceae. Green parsely leaves have a mild, agreeable flavor, and are an excellent source of vitamin C, iodine and iron.

Kale:

It is botanically known as *Brassica oleracea var. acephala* and member of family brassicaceae. It also contains antioxidants such as lutein and beta-carotene, which reduce the risk of disease caused by oxidative stress. Kale is high in oxalic acid, the levels of which can be reduced by cooking. Kale is good source of thiamin, riboflavin, vitamin E and vitamin A.

2. Conclusion

Green leafy vegetables provide vital nutrients required for human health and wellbeing. In rural areas, traditional leafy vegetables play important role as nutritional source, and it is available all-year. Green leafy vegetables are usually considered as the cheapest source of food for vitamins and micronutrients supplementation to combat nutrients deficiencies. The presence of anti nutritional factors such as nitrates, oxalates, phytates, cyanogenic glycosides and tannins in green leafy vegetables can affect micronutrients

absorption and thus, make the latter unavailable. Thermal processing of leafy vegetables through boiling, cooking and blanching before consumption help in reducing the level of anti nutrients.

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Celery



Fenugreek



Amaranthus