



Unutilized vegetables grown in Jammu

Neerja Sharma

K.V.K. (SKUAST-J) Samba, Jammu (J&K) India
(Email: neerja1975@gmail.com)

Introduction: In this era of globalization where diet and eating habits are changing rapidly, it is important to understand the bioavailability of nutrients in the food. Fruits and vegetables have been coined as functional foods, since they not only fulfill our physiological needs but also have health promoting capacity. They have become the star nutrients as they contain antioxidants such as vitamin C and E, chlorophyll, flavonoids, riboflavin, carotenoids, lycopene, total phenols, reduced glutathione and antioxidative enzymes like catalase, peroxidase, polyphenols oxidase and superoxide dismutase. So consumption of vegetables has significant health promoting effects and can reduce the incidence of malnutrition, cardio-vascular diseases, cancer and various other degenerative diseases including ageing.

Jammu Division is bestowed with a large number of indigenous vegetables which are mostly unknown and underutilized. There is huge untapped potential for their utilization and marketing. With the advent of latest awareness on nutraceutical and antioxidant properties in these vegetables, there is an upward trend of consumption of these vegetables and choice of therapy and nutrition through these natural resources. Some of these vegetables are quite popular for their medicinal properties and extensively used in Indian system of medicines.

Apart from being highly nutritive, these underutilized vegetables play an important role in the crop improvement, ecological security for food and nutrition. Most of these indigenous vegetables have existed in Jammu Division from time immemorial under diverse agro-climatic conditions. Some of the vegetables are quite popular for their medicinal and therapeutic properties and are extensively used in the Indian system of medicine. However, all of them are not recognized for their suitable uses. Most of the indigenous vegetables have local importance since they cannot be transported long distance because of being highly perishable in nature. If these vegetables are suitably processed into acceptable products, they can be a potential raw material for vegetable processing industry and be vital sources of nutrients for

the growing population. There is wide scope to develop new technologies for the processing of these unknown vegetables into number of highly nutritious novel products and popularizing them in domestic and international markets for nutritional and health security. Some indigenous underutilized vegetables are amaranthus, *Bathua*, Chicory, Kacchnar, Kasrod, Patua saag, Poi saag, Kulfa saag, Hak saag, Sonchal saag, Saihjan, Curry patta, asparagus, Field bean, Kachalu, Arvi, Tarad, Kundru and Chow-Chow etc.

Amaranthus:

Family	:	Amaranthaceae
Genus	:	Amaranthus
Common name	:	Chaulai



Amaranthus spinosus

Amaranthus spinosus is an erect, branched, annual or perennial herb. The colour varies from green to purple. The plant can be 30-60 cm. tall with hard, straight and are paired with axillary spines. The leaves are long-petioled, oblong, ovate-elliptic or lanceolate, acute or obtuse and base cuneate. They are generally 1-6 centimetres long and 0.5-2.6 centimetres wide. The flowers are minute, greyish-green in colour, basically borne in dense axillary

clusters or terminal spikes. The bracts and bracteoles are narrowly ovate-lanceolate. The fruits are dehiscent and the seeds are oblong, black, compressed and shining. The flowers and fruits are blossomed throughout the year. *Amaranthus spinosus* is reckoned as diuretic, emollient, sudorific and febrifuge. This plant is recommended for treating eruptive fevers, as a galactagogue and as a remedy for colic. A decoction of *amaranthus spinosus* is considered useful for the improvement of digestion. The leaves of the plant are applied as a poultice to relieve bruises, abscesses, burns, wounds and inflammations. The infusion of the plant is used as a diuretic property. The root is used to treat menorrhagia, gonorrhoea, eczema and inflammatory swellings. The powdered root of the herb is used as a remedy for paronychia. The roots and leaves are boiled and given to children as a laxative. According to the practitioners of Ayurveda, the root is used to treat uterine diseases.



Amaranthus viridis L.

It is hardy and is frost tender. It is in leaf from April to October, in flower from July to September and the seeds ripen from August to October. The flowers are monoecious (individual flowers are either male or female, but both sexes can be found on the same plant) and are pollinated by Wind. The plant is self-fertile. The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and requires well-drained soil. The plant prefers acid, neutral and basic (alkaline) soils. It cannot grow in the shade. It requires moist soil.

Edible parts: Leaves and seed:

Leaves: The fresh tender leaves and stem which are rich

in protein, minerals, vitamin A and C are delicious and cooked like other fresh leafy vegetables. Among the leaf type, *Amaranthus tricolor* occupies a predominant position in India with different morphological forms in colour and shape of leaves. The leafy stems and flower clusters are similarly used. 100g of leaves contains 283 calories, 34.2g protein, 5.3g fat, 44.1g carbohydrate, 6.6g fibre, 16.4g ash, 2243mg calcium, 500mg phosphorus, 27mg iron, 336mg sodium, 2910mg potassium, 50mg vitamin A, 0.07mg thiamine, 2.43mg riboflavin, 11.8mg niacin and 790mg ascorbic acid.

Seed : Cooked. Very small, about 1mm in diameter but it is easy to harvest and very nutritious. The seed can be cooked whole and becomes very gelatinous like this, but it is rather difficult to crush all of the small seeds in the mouth and thus, some of the seed will pass right through the digestive system without being assimilate. The seed contains 14 - 16 per cent protein and 4.7-7 per cent fat *A. graecitaus*.

Medicinal uses: A decoction of the entire plant is used to stop dysentery and inflammation. The plant is emollient and vermifuge. The root juice is used to treat inflammation during urination. It is also taken to treat constipation.

Industrial uses : Yellow and green dyes can be obtained from the whole plant.

Apart from this, *A. blitum*, *A. tristis* and *A. cruentus* are the other species of *amaranthus* which are used as pot-herbs and widely distributed in road sides and uncultivated fellow land. Leaves are rich source of β -carotene, riboflavin, vitamin C, calcium and iron.

Chenopodium (*Chenopodium album* Linn.):

Family	:	Amaranthaceae
Genus	:	Chenopodium
Common Name	:	<i>Bathua-saag</i>



Bathua-saag

The leaves are alternate and can be varied in appearance. The first leaves, near the base of the plant, are toothed and roughly diamond-shaped, 3-7 cm long and 3-6 cm broad. The leaves on the upper part of the flowering stems are entire and lanceolate-rhomboid, 1-5 cm long and 0.4-2 cm broad; they are waxy-coated, unwettable and mealy in appearance, with a whitish coat on the underside. The small flowers are radially symmetrical and grow in small cymes on a dense branched inflorescence 10-40 cm long. The leaves and young shoots may be eaten as a leaf vegetable, either steamed in its entirety, or cooked like spinach, but should be eaten in moderation due to high levels of oxalic acid. These are high in protein, vitamin A, calcium, phosphorus and potassium. Leaves are rich source of i-carotene, vitamin C and Calcium. This plant is used in many dishes such as Sarson Da Saag, soups, phambra (Himachal Pradesh), in Paranthas (stuffed breads) (Punjab) and in fermented beverages (using the seeds) such as “soora” and “ghanti” (alcoholic).

Beneficial use in ecological pest control: *Chenopodium album* is vulnerable to leaf miners, making it a useful trap crop as a companion plant. Growing near other plants, it attracts leaf miners which might otherwise have attacked the crop to be protected. It is a host plant for the beet leafhopper, an insect which transmits curly top virus to beet crops. T.

Chicory (*Cichorium intybus* Linn.):

Family	:	Asteraceae
Genus	:	Cichorium
Common name	:	Kasani

Chicory is a bushy perennial herb with blue or lavender flowers. The roots are baked, ground and used as a coffee substitute. Fully grown chicory herb reach upto a height of about 3 to more than 5 feet. 11 to 15 per cent inulin (a polysaccharide), 10 to 22 per cent fructose, lactucin, lactucopicrin, some tannin, a fatty and a volatile oil, trace amounts of certain other compounds. The polysaccharide, inulin, undergoes chemical conversions to form a compound called oxymethylfurfurol. Bruised leaves of chicory are often used for the treatment of inflammations and can be applied over swellings. They are also used for the treatment of headaches and provide relief from arthritic pains and swellings. Regular and frequent use of chicory roots, in the form of liver tonic, is found to be beneficial for women suffering from premenstrual syndrome (PMS). It helps by maintaining a balance in the hormone level of the body and alleviating the symptoms associated with the condition. One of the major functions of chicory is to increase the body's ability to absorb calcium. This mineral is very essential to maintain strong teeth and healthy skeletal system. Therapeutically, the herb is very important for the proper functioning of the urinary system, as it helps to detoxify and cleanse the urinary tract. The herb is also used as a mild laxative agent and helps to treat children affected by constipation and other digestive conditions. Apart from the effects mentioned above, the herb is also taken internally, for loss of appetite, jaundice, gallstones, gout and rheumatism.

Bauhinia spp:

Species	:	<i>Bauhinia variegata</i> , <i>Bauhinia purpurea</i>
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Kasani



Kachnar

Family : Fabaceae/ Leguminosae
Local name : Kachnar

It is a small to medium-sized tree growing to 10-12 m tall, deciduous in the dry season. The leaves are 10-20 cm long and broad. The flowers are conspicuous, bright pink or white, 8-12 cm diameter, with five petals. The fruit is a pod 15-30 cm long, containing several seeds.

Medicinal properties: Antitubercular, alterative, tonic, astringent, TB, prolapse of rectum, thyroid toxic goiter, low grade fever, peptic and duodenal ulcer, matted lymph nodes, prolapse of uterus, lymph edema, doughy abdomen, alternate constipation and diarrhea, dysentery (amebic or bacillary), ulcerative colitis, bleeding piles enlargement of neck glands, ulcers, skin diseases, roots carminative flowers laxative, blood cleanser, increases erythrocytes, antipyretic, alcoholic extract of stem bark is anticancer. It contains an alkaloid called bauhinia. Fresh flowers contain

astragalin and tannic acid.

Ipomoea aquatica Forsk:

Family : Convolvulaceae
Genus : Ipomoea
Common name : Kalmi saag, Patua-saag

Ipomoea aquatica is a semi-aquatic tropical plant grown as a leaf vegetable. It is known in English as Water Spinach, grows in water or on moist soil. Its stems are 2–3 metres (7–10 ft) or more long, rooting at the nodes and they are hollow and can float. The leaves vary from typically sagittate (arrow-head-shaped) to lanceolate, 5–15 centimetres (2–6 in) long and 2–8 centimetres (0.8–3 in) broad. The flowers are trumpet-shaped, 3–5 centimetres (1–2 in) diameter, usually white in colour with a mauve centre. The leaves are usually stir fried with chile pepper, garlic, ginger, dried shrimp paste, the stems are julienned into thin strips and eaten with many kinds of



Kalmi saag, patua-saag



Poi saag

noodles, and used as a garnish as well.

Basella alba:

Family : Basellaceae
 Genus : Basella
 Common name : Poi saag

Basella alba is a fast-growing, soft-stemmed vine, reaching 10 m in length. Its thick, semi-succulent, heart-shaped leaves have a mild flavour and mucilaginous texture. The stem of the cultivar *Basella alba* 'Rubra' is reddish-purple. *Basella alba* grows well under full sunlight in hot, humid climates and in areas lower than 500 m above sea level. Growth is slow in low temperatures

resulting in low yields. Flowering is induced during the short-day months of November to February. It grows best in sandy loam soils rich in organic matter with pH ranging from 5.5 to 8.0. Nutrient /100g of product Water- 93.100 g, Energy-19.000 kcal, Protein-1.800 g, Ash-1.400 g, Carbohydrate-3.400 g, Calcium-109.000 mg, Iron-1.200 mg, Magnesium-65.000 mg, Phosphorus-52.000 mg, Potassium -510.000 mg, Sodium-24.000 mg, Zinc-0.430 mg, Vitamin C-102.000 mg, Vitamin A- IU 8000.000 IU, Vitamin B-6-0.240 mg etc.

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