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Underutilized Vegetable Crops

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Introduction:

Agriculture is under increasing pressure to produce greater quantities of food, feed and biofuel on limited land resources for the projected nine billion people on the planet by 2050. It is envisioned that agricultural production has to increase by 70% by 2050 to cope with an estimated 40% increase in world population. India is one of the world's most populous countries, accounting for roughly one-fifth of the global population and more than 70% of farming households. The yearly population growth rate is roughly 1.8 percent, but overall food demand is predicted to increase by 3% or more each year in the foreseeable future. Therefore, the production of food in the region should grow annually@ 3.5 per cent to meet the growing food demand.

What are underutilized vegetables?

Underutilized species are "those non-commodity crops, which are part of a larger biodiversity portfolio, once more popular and today neglected by users' groups for a variety of agronomic, genetic, economic, social and cultural factor. A wide range of terminology is used to describe these crops, including:

Orphan, abandoned, lost, underutilized, local, minor, traditional, alternative or under developed. Underutilized vegetable crops are those which are neither grown commercially on large scale nor traded widely.

Some underutilized vegetable in India

Elephant foot yam (*A. companulatus*)

Asparagus (*Asparagus officinales*)

Globe artichoke (*Cynara scolymus*)

Jerusalem artichoke (*Helianthus tuberosus*)

Rhubarb (*Rheum rhaponticum*)

Drumstick (*Moringa oleifera*)

Curry leaves (*Murraya koenigii*)

Taro (*Colocasia esculanta*)

Pointed guard (*Tricosanthes dioica*)

Ivy gourd (*coccinia grandis)*

Yam bean (Pachyrrhijus erosus)

Some underutilized leafy vegetables

Amaranthus (*Amaranthus* spp.)

Parsley (*petroselium hortense*)

Spinach (*Spinacea oleracea*)

Basella (*Basella spp.*)

Bathua (*Chenopodium album*)

Celery (Apium *graveolens*)

Chakwal (*Atriplex hortensis*)

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Karam sag (*B.oleracea* var acephala)

Sorrel (*Rumex vesicarius*)

Features of "Underutilized" Vegetables

- Linkage with the cultural heritage of their places of origin.
- Local and traditional crops whose distribution, biology, cultivation and uses are poorly documented.
- Adaptation to specific agroecological niches and marginal land Weak or no formal seed supply systems.
- Produced in traditional production systems with little or no external inputs.
- Receive little attention from research, extension services, policy and decision makers.
- May be highly nutritious and/or have medicinal properties or other multiple uses.

***Solanum torvum* (Wild eggplant)**

- Fruits of *S. torvum* are edible and utilized as a vegetable.
- It is mainly propagated by seeds.
- used as poison anti-dote and for the treatment of fever, wounds, tooth decay, reproductive problems and arterial hypertension.

Dendrocalamus strictus (Bamboo)

- Young shoots cooked for vegetables.
- Bamboo shoots have high nutritive value containing low fats and cholesterol and high amount of carbohydrate, proteins, minerals and

Drumstick	High on vitamin C and antioxidants, drumstick helps to combat against common cold, flu and stave off several common infections. The anti-inflammatory and anti-bacterial properties of drumstick assists in lessening the symptoms of asthma, cough and other respiratory problems
Asparagus	Good source of antioxidants, including vitamins C and E, flavonoids and polyphenols. Antioxidants prevent the accumulation of harmful free radicals and may reduce your risk of chronic disease.
Elephant foot yams	Lowering Cholesterol, Cardiovascular Health, Anticoagulant and Anti Inflammatory, Detoxification, Memory and Concentration, Boost Immunity, Cures Piles, Women Health, Cooling effects, Good for Digestion,
Lima bean	Low-glycemic index food, cure diabetes beans are also rich in soluble fiber, which helps your body absorb carbohydrates more slowly and regulates your blood sugar levels.
Bathua	Rich in Ca,K,Mg and Vitmin A ,C, B6 ,antihelminthic, antiphlogistic, antirheumatic, contraceptive, laxative, odontalgic etc used in the treatment of rheumatism, bug bites, sunstroke, urinary problems, skin problems etc.

dietary fibres.

- Amino acid much higher than in other vegetables such as cabbage, carrot, onion and pumpkin.
- It is used as vegetable in mostly eastern and north east part of india.
- It is mainly propagated by seeds, rhizome and cuttings.

***Sechium edule* (Chow-Chow)**

- Chow-Chow is a fruit but most often used as a vegetable.
- Rich in amino acids and are used as vegetable.
- Fruits, stems, tender leaves & tuberous parts of adventitious roots are eaten.
- Leaves are used to dissolve kidney stones.

***Nymphaea spp:* (water lily)**

- Water lily stems, young leaves, lower buds, flower stalks and rhizomes are used as vegetables.
- The rhizomes are useful in treating diarrhoea, dysentery.
- The flowers are astringent and cardiotonic.
- The seeds are sweet, cooling, constipating and used as treatment for gastrointestinal disorders and jaundice.

***Ipomoea aquatica* (Water spinach)**

- An herbaceous aquatic or semi-aquatic, tender twigs with leaves are used as vegetable or added to sauces and soups.
- It is used as vegetable in kerala and Tamilnadu.
- It is mainly propagated by seed and herbaceous cutting.
- Treatment of diabetes.
- Doctors recommend it to anemia patients due to high Fe content.

How? to promote underutilized crop.

- School meals, public procurement and sustainable and healthy sourcing of NUS
- Globally, school meals feed approximately 368 million children daily, representing an annual investment of roughly US$75 billion (WFP 2013).
- Indian school feeding programmes have incorporated underutilized minor Vegetable to enhance the nutritional status of school children in areas of Karnataka state **(**Bergamini *et al*. 2013**).**
- The government of India has been taking some steps to do research on underutilized crops like **MIDH** (Mission for Integrated Development of Horticulture), **MEIS** (Merchandize Export from India Scheme) and a national coordinated project has been

also launched by Ministry of Agriculture.

Advantages of underexploited vegetables:

- Potential of the reduction of poverty by income generation and work opportunities.
- The risk of over-reliance on a very small number of major crops is minimized.
- Contribution to sustainable livelihoods by food protection for households as they can broaden food diversity.
- They add nutrients to the diet and are sometimes comfort food for urban people with low incomes.
- To meet new market demands, they have a wide range of crops.
- They support rural community growth through small-scale projects.

Conclusion

- It was concluded that the range of plant species used by human must be increased.
- Global knowledge is needed not only among researchers, but also among planners, policy makers, grower and consumers worldwide.
- The genetic diversity followed by the protection and use of under-exploited species for the production of improved cultivars that are likely to assist in eradicating poverty, hunger, and malnutrition must also be explored.
- Neglected and underutilized crops have great untapped potential to support smallholder farmers and rural communities by improving their incomes, food and nutritional security while also sustaining the genetic resources needed to address present and future environmental challenges

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