

# *Underutilized Vegetables for Food and Nutrition Security: Importance and Challenges*

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**OPEN ACCESS**

## **Keywords**

Vegetables, Food Security, Nutrition

## *How to cite this article:*

Sheetal. 2025. Underutilized Vegetables for Food and Nutrition Security: Importance and Challenges. *Vigyan Varta* 6(8): 139-142.

## **ABSTRACT**

Underutilized vegetables, also known as neglected and underutilized species (NUS), hold significant potential for improving global food and nutrition security. Despite being rich in micronutrients, climate-resilient, and culturally important, these crops remain marginalized in agricultural research, policy and markets. With increasing challenges such as malnutrition, biodiversity loss and climate change, promoting underutilized vegetables can diversify diets, strengthen smallholder livelihoods and support sustainable and climate-smart food systems. Unlocking their potential requires targeted research, market integration and supportive policies to enhance agricultural resilience and human health.

## **INTRODUCTION**

Modern agriculture depends heavily on a few staple crops, leading to the erosion of crop diversity and weakening the resilience of food systems. In contrast, underutilized vegetables-locally important yet globally neglected offer untapped opportunities for addressing food

insecurity, hidden hunger and environmental challenges. These species are often nutrient-rich, adapted to low-input farming and well-suited to marginal environments. However, they remain underexploited due to lack of awareness, limited research and poor market development. This article explores the

importance and future potential of underutilized vegetables in transforming food systems.

### What Are Underutilized Vegetables?

Underutilized vegetables refer to species that are traditionally grown in specific regions but are not widely used or commercialized. Examples include amaranth, moringa, taro, cowpea leaves, lotus stem and african nightshade and water spinach. These crops are often maintained by local communities and indigenous farmers and are deeply embedded in traditional diets and farming systems. (Padulosi *et al.*, 2013).

### Importance of underutilized vegetables

1. **Nutritional Security:** Underutilized vegetables are rich sources of essential micronutrients like iron, calcium, zinc, vitamins A, C and antioxidants. For instance, amaranth leaves are high in iron and vitamin C, making them effective in addressing iron-deficiency anemia. Similarly, drumstick (*Moringa oleifera*) leaves are a powerhouse of calcium, vitamin A and protein, particularly beneficial in combating malnutrition in children and pregnant women.
2. **Agrobiodiversity Conservation:** Cultivating a wide range of vegetable species, including those underutilized, helps conserve genetic resources vital for food system resilience. For example, the reintroduction of cowpea (*Vigna unguiculata*) in drought-prone areas helps maintain biodiversity and provides alternative food sources that adapt well to changing environmental conditions.
3. **Climate Resilience:** Many underutilized vegetables thrive under extreme weather and poor soil conditions. African nightshade (*Solanum scabrum*) and

cluster bean (*Cyamopsis tetragonoloba*) are drought-tolerant and can be cultivated in marginal lands, providing food security where major crops often fail (Chivenge *et al.*, 2015).

4. **Low Input Requirements:** These crops usually require fewer agrochemicals and water compared to commercial crops. Taro (*Colocasia esculenta*), for example, grows well in semi-wet and low-maintenance environments, reducing dependence on fertilizers and irrigation, which is crucial for resource-poor farmers.
5. **Livelihood Opportunities:** Underutilized vegetables have growing market demand, especially in health-conscious and organic food sectors. Pumpkin leaves, winged beans, and snake gourd are now sold as specialty vegetables in urban markets, providing income opportunities for rural farmers and women in local cooperatives. (Ebert, 2014).
6. **Cultural and Culinary Heritage:** Many underutilized vegetables are integral to traditional diets and local cuisines. For example, brinjal (eggplant) varieties like Mattu Gulla from Karnataka or Lotus Stem in Indian cooking are not just food but part of regional identity. Their use preserves food heritage and culinary traditions. (Sharma *et al.*, 2019).
7. **Sustainable Agriculture:** These vegetables can be integrated into intercropping or crop rotation systems to improve soil fertility and pest management. Lablab bean (*Dolichos lablab*), for instance, is often intercropped with cereals to enhance nitrogen fixation and improve soil health naturally (Maass *et al.*, 2010).

## List of Underutilized vegetables

Hindi name	English name	Scientific name	Plant part used
Jungle chulai	Amaranthus	<i>Amaranthus viridis</i>	Stem and leaves
Poi	Indian spinach	<i>Basella alba</i>	Leaves
Kachnar	Pink bahaunia	<i>Bauhinia variegata</i>	Flower buds and fruits
Saijan	Drumstick	<i>Moringa oleifera</i>	Leaf, green pods and flowers
Gherkin	Gherkin	<i>Cucumis anguria</i>	Young fruits
Kundru	Ivy gourd	<i>Coccinia grandis</i>	Immature fruits
Ajmoda	Parsley	<i>Petroselinum crispum</i>	Leaves, stems and roots
Lasoor	Glue berry	<i>Cordia dichotoma</i>	Fruit, Leaves, Bark
Goolar/D omoor	Cluster fig	<i>Ficus glomerata</i>	Fruit
Kamal Kakdi	Lotus stem	<i>Nelumbo nucifera</i>	Rhizome (Stem)
Hathi chakra	Globe artichoke	<i>Cynara scolymus</i>	Flower bud
Tree tomato	Tamarillo	<i>Solanum betaceum</i>	Fruit
Zimikand	Elephant foot yam	<i>Amorphophallus campanulatus</i>	Corm
Chachrand	Snake gourd	<i>Trichosanthes anguina</i>	Immature fruits
Arbi	Taro / colocasia	<i>Colocasia esculenta</i>	Corms, leaves and petioles

## Challenges to their Promotion

Despite their benefits, undervalued vegetables are held back due to:

- Lack of awareness among consumers
- Poor research and development
- Weak supply chains and limited market access
- Low policy support from government

## What Needs to Be Done?

To bring these vegetables into the mainstream, we need:

- Awareness campaigns to educate people on their nutritional and environmental value
- Supportive policies to encourage their cultivation and marketing
- Research investment for improved seeds, agronomic practices, and value-added products
- Market development through farmer cooperatives, local food festivals and organic outlets

## CONCLUSION:

Promoting underutilized vegetables is a smart way to build a more inclusive, resilient, and nutrition-focused food system. Though often ignored, these crops can improve diets, support small farmers, and protect the environment. Their natural ability to grow in tough conditions makes them useful for dealing with climate and food challenges. To make the most of their benefits, we need to raise awareness, create better policies, develop markets and include them in research. Supporting these crops is not just about preserving tradition-it's a step toward a healthier and more secure future.

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