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Hidden Nutritional Treasures in Indigenous Vegetables

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Indigenous vegetables, also known as traditional, native, or underutilized vegetables, are locally adapted crop species that have been cultivated and consumed by rural communities for generations. These vegetables are rich sources of essential vitamins, minerals, dietary fibre, antioxidants, and bioactive compounds, making them valuable for improving human nutrition and health. Despite their exceptional nutritional and medicinal properties, many indigenous vegetables have received less attention than commercially cultivated vegetables because of changing food preferences, urbanization, and the widespread adoption of modern crop varieties. However, increasing awareness of **hidden hunger (micronutrient deficiency)**, climate change, and the need for sustainable agriculture has renewed interest in these nutrient-dense crops. Indigenous vegetables possess remarkable adaptability to local climatic conditions, require fewer agricultural inputs, and contribute significantly to food security, nutritional security, biodiversity conservation, and sustainable farming systems. They represent a "hidden treasure" that can help combat malnutrition while supporting resilient agricultural production.

What are Indigenous Vegetables?

Indigenous vegetables are plant species that originate from or have long been cultivated in a particular region and are traditionally consumed by local communities. These vegetables are well adapted to local environmental conditions and often possess natural resistance to pests, diseases, drought, and other abiotic stresses.

Examples:

- Agathi (*Sesbania grandiflora*)
- Amaranthus (*Amaranthus spp.*)
- Drumstick (*Moringa oleifera*)
- Ivy gourd (*Coccinia grandis*)
- Turkey berry (*Solanum torvum*)
- Spine gourd (*Momordica dioica*)
- Pointed gourd (*Trichosanthes dioica*)
- Basella (*Basella alba*)
- Colocasia leaves (*Colocasia esculenta*)
- Curry leaves (*Murraya koenigii*)

Nutritional Richness of Indigenous Vegetables

1. Rich Source of Vitamins

Indigenous vegetables are abundant in essential vitamins that support growth, immunity, and overall health.

- **Vitamin A (β -carotene):** Improves vision, immunity, and skin health.
- **Vitamin C:** Enhances immunity, promotes wound healing, and improves iron absorption.
- **Vitamin E:** Acts as a natural antioxidant.
- **Folate (Vitamin B9):** Essential for DNA synthesis and fetal development.

Examples include drumstick leaves, agathi leaves, amaranthus, and curry leaves, which are exceptionally rich in these vitamins.

2. Excellent Source of Minerals

Many indigenous vegetables contain significantly higher concentrations of minerals than commonly cultivated vegetables.

Important minerals include:

- Iron – Prevents anemia.
- Calcium – Strengthens bones and teeth.
- Zinc – Supports immune function.
- Magnesium – Maintains muscle and nerve function.
- Potassium – Regulates blood pressure.
- Phosphorus – Essential for energy metabolism.

Drumstick leaves, agathi leaves, amaranthus, and turkey berry are particularly rich in iron and calcium.

3. High Dietary Fibre

Most indigenous vegetables contain high levels of dietary fibre, which:

- Improves digestion.
- Prevents constipation.
- Helps regulate blood sugar.
- Reduces cholesterol.
- Promotes gut health.
- Supports weight management.

4. Rich in Antioxidants

Indigenous vegetables contain numerous antioxidant compounds such as:

- Polyphenols
- Flavonoids
- Carotenoids
- Vitamin C
- Anthocyanins

These antioxidants protect cells from oxidative damage and reduce the risk of chronic diseases including diabetes, cardiovascular diseases, and certain cancers.

5. Bioactive Compounds

Many indigenous vegetables possess medicinal properties due to their bioactive compounds.

Examples include:

- Phenolic compounds
- Alkaloids
- Saponins
- Tannins
- Terpenoids
- Glucosinolates

These compounds exhibit antimicrobial, anti-inflammatory, antioxidant, anticancer, and antidiabetic activities.

Health Benefits of Indigenous Vegetables

Regular consumption of indigenous vegetables helps to:

- Prevent micronutrient deficiencies.
- Improve immune function.
- Reduce anemia.
- Strengthen bones and teeth.
- Improve digestion.
- Reduce the risk of diabetes.
- Lower blood pressure.
- Prevent cardiovascular diseases.
- Protect against certain cancers.

- Promote healthy ageing.

Role in Combating Hidden Hunger

Hidden hunger refers to deficiencies of essential vitamins and minerals despite adequate calorie intake. Indigenous vegetables are natural sources of micronutrients such as iron, zinc, calcium, vitamin A, vitamin C, and folate. Regular inclusion of these vegetables in daily diets can help reduce malnutrition, particularly among children, pregnant women, and elderly populations.

Importance in Sustainable Agriculture

Indigenous vegetables contribute significantly to sustainable farming because they:

- Require fewer chemical fertilizers and pesticides.
- Tolerate drought and heat stress.
- Adapt well to marginal soils.
- Conserve agricultural biodiversity.
- Support organic farming.
- Reduce production costs.
- Improve resilience to climate change.

Their cultivation is particularly suitable for small and marginal farmers.

Challenges

Despite their benefits, indigenous vegetables face several challenges:

- Low commercial cultivation.
- Limited research and breeding programmes.
- Poor consumer awareness.
- Short shelf life.
- Inadequate seed availability.
- Weak market linkages.
- Replacement by exotic vegetable crops.

These factors have contributed to the gradual decline in their cultivation and consumption.

Future Prospects

Greater investment in research, breeding, seed production, value addition, and nutrition awareness can unlock the full potential of indigenous vegetables. Biofortification, improved cultivation practices, protected cultivation, digital agriculture, and climate-smart farming can further enhance their productivity and nutritional value. Promoting indigenous vegetables through school nutrition programmes, kitchen gardens, urban agriculture, and public health campaigns can improve dietary diversity and strengthen food and nutritional security.

Conclusion

Indigenous vegetables are truly **hidden nutritional treasures**, offering an exceptional combination of vitamins, minerals, dietary fibre, antioxidants, and health-promoting bioactive compounds. Beyond their nutritional value, they are resilient, environmentally sustainable, and well adapted to local agro-climatic conditions, making them ideal crops for climate-resilient agriculture. Although often overlooked in modern food systems, these traditional vegetables have immense potential to combat hidden hunger, improve public health, conserve biodiversity, and support sustainable livelihoods. By promoting their cultivation, conservation, research, and regular consumption, indigenous vegetables can play a vital role in building healthier populations, strengthening food and nutritional security, and creating a more sustainable agricultural future.