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Review Article

Traditional food values of Indian tuberous plants

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Abstract: The present study highlights the diversity and nutritional significance of ten wild tuberous plants traditionally consumed in various parts of India. Plants like *Dioscorea alata* (Purple Yam), *Ipomoea batatas* (Sweet Potato), *Curcuma longa* (Turmeric), and others are rich in essential nutrients and bioactive compounds. These tubers are not only a vital part of local diet, but also play a role in cultural and ritual practices. Promoting awareness and sustainable use of these plants can contribute to food security, health, and biodiversity conservation. Further exploration of the multifaceted role of these underground crops, including their nutritional benefits and potential applications, can open up new avenues for their utilization.

Keywords: Food problems, hunger, indigenous knowledge, sustainability

Introduction

Forest communities have traditionally relied on gathering tuberous plants from the soil, which are rich in primary and secondary metabolites, including fibre (Kumar et al., 2017; Agarwal et al., 2023). These plants have played an integral role in various cultural rituals worldwide (Kumar et al., 2013; Kumar and Jena, 2014; Kumar, 2015). However, with the advent of cereal cultivation, the consumption of wild tubers has declined. In modern times, urban populations have largely forgotten about the nutritional value of these wild tubers, choosing instead processed foods, which have led to numerous health

issues. To address these health problems and promote sustainable food practices, it is essential to revive the consumption of wild tuberous plants (Kumar, 2017; Swain et al., 2022). This revival necessitates documentation and greater awareness of their health benefits. The present discussion focuses on the nutritional value of ten wild tuberous plants found in India, highlighting their potential to contribute to healthier diets and sustainable food systems.

Methodology

In present study, authors have documented 10 tuberous plants and their traditional food values based on field surveys conducted between 2022 and 2025. The information on food values of these plants have been collected from the local people from Jharkhand, Odisha, Karnataka, Chhattisgarh, and Himachal Pradesh. The plants were identified by the authors (Kumar et al., 2021; Jena et al., 2025; Kumar, 2025).

Results and discission

The significance of tuberous plants in India is profound, as these crops have historically been integrated into the daily life, religious ceremonies and traditional rituals of the culture. The investigation recorded ten wild tuberous plants that are traditionally eaten in different regions of India, emphasizing their nutritional value and cultural relevance. The plants like *Dioscorea alata* (Purple Yam), *Ipomoea batatas* (Sweet Potato), and *Curcuma longa* (Turmeric) exhibit a high concentration of essential nutrients and bioactive compounds. These tuberous plants are not only a vital part of gastronomic traditions of India but also play a significant role in cultural customs. For instance, *Ipomoea batatas* is employed in Hindu ceremonies like the Holi festival, while *Dioscorea alata* is used to prepare traditional delicacies like "Dalma" in Odisha. Below is a detailed list of the ten tuberous plants that have been identified, along with their traditional dietary benefits.

1. ***Dioscorea alata*** **(Dioscoreaceae; Purple Yam):** Tuber is consumed as a vegetable and used to prepare snacks during Shivratri and Holi festivals in Himachal Pradesh. It is also used in various dishes like “Dalma,” a popular dish of Odisha (Figure 1). It is a staple food in various parts of Bihar. Additionally, because the purple types contain anthocyanin pigments, they may be used as food colouring additives.
2. ***Ipomoea batatas*** **(Convolvulaceae; Sweet Potato):** Tubers are boiled and consumed as a snack. In addition to culinary uses, the tubers are also included in Hindu religious festivals and ceremonies like Holi and Chhat. Leaves are cooked and consumed like other green leafy vegetables.
3. ***Curcuma angustifolia*** **(Zingiberaceae; East Indian Arrowroot):** Rhizomes are used as vegetable. Rhizomes are washed, peeled, ground, soaked, strained and then dried to prepare arrowroot powder. Rich in starch, rhizomes have been used as nutritional supplement, especially for infants.
4. ***Amorphophallus paeoniifolius*** **(Araceae; Elephant Foot Yam):** Corms are consumed as a vegetable and relish (Figure 2). Yam is consumed in curries, bharta/chokha, pickles, and chutney.

5. ***Solena amplexicaulis* (Cucurbitaceae; Creeping Cucumber):** Raw tubers are consumed by children of some tribal communities in Odisha (Figure 3). The fruits, leaves, and roots are eaten in Bihar in salads, curries, and other meals, especially when they are not mature.
6. ***Curcuma longa* (Zingiberaceae; Turmeric):** Rhizomes are used as a common spice, food preservative and colouring material in various culinary preparations.
7. ***Colocasia esculenta* (Araceae; Taro):** Corms are a staple food source and consumed as a common vegetable.
8. ***Ceropegia hirsuta* (Apocynaceae; Hairy Ceropegia):** Raw tubers are consumed by some tribal communities (Figure 4).
9. ***Sagittaria sagittifolia* (Alismataceae; Arrowhead):** Tubers are consumed as a vegetable in North Eastern states of India.
10. ***Zingiber officinale* (Zingiberaceae; Ginger):** Rhizome is consumed as spice. It is also used in the preparation of beverages, pickles and candies.

Figure 1: Habitat and leaf variation in *D. alata*

Figure 2: Habitat of *A. paeoniifolius*

Figure 3: Flowers and leaves of *S. amplexicaulis*

Figure 4**:** Flower and leaves of *C. hirsuta*

Conclusion

The present study emphasizes the importance of traditional tuberous plants in India, highlighting their nutritional value, cultural importance, and potential for promoting sustainable food systems. By documenting and raising awareness of these plants, this paper aims to contribute to food security, health, and biodiversity conservation. It is imperative to preserve and promote the use of traditional tuberous plants for food security and sustainability as these crop species are more robust to the changing environmental conditions than the contemporary agricultural crops. This research will serve as a foundation for further investigations into the nutritional and medicinal properties of these plants and in developing strategies for their conservation and cultivation. It will also support the development of sustainable food products, ultimately benefiting local communities and encouraging healthier diets. If promoted well, tuberous plants and other traditional foods can serve as a basis for the creation of novel and inventive food products with enhanced nutritional and sensory attributes.

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