



Research paper

Ethnobotanical Insights of Edible Wetland Plants from Northern Parts of Gadchiroli District, Maharashtra, India

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KEYWORDS

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ABSTRACT

The present study deals with the exploration, identification, documentation and ethnobotanical aspects with respect to food value of wild edible wetland plants consumed by aboriginal's peoples from Northern Parts of Gadchiroli District of Maharashtra State India.

An ethnobotanical survey of edible wetland plants of Northern Parts of Gadchiroli District were conducted during August 2023 to July 2024 through market & field surveys, personal interviews and group discussions with the indigenous communities, a total of 24 edible wetland species of 21 families were identified and documented.

Edible wetland plant products are a nutritionally rich source of vitamins, minerals & proteins but on the other side these wetland edibles decline at alarming rate due to habitat destruction and overexploitation.

This research underscores the potential of edible wetland flora as an untapped resource for food security and wetland biodiversity conservation. By integrating these wetland species into broader nutritional strategies, there is an opportunity to enhance the resilience of local food systems while safeguarding the ecological heritage of the region.

1. Introduction

Ethnobotany, the study of the interactions between people and plants, provides insights into how traditional knowledge guides the utilization and conservation of plant resources (Dikshit, Patil and Chavan). In the wetlands of Gadchiroli District, Maharashtra, indigenous communities have long relied on a variety of edible wetland plants for nutrition and medicine. The ecosystem of Gadchiroli, marked by rivers, swamps, and marshes, fosters a unique biodiversity that supports food security and sustains local livelihoods. This paper documents the indigenous knowledge of Gadchiroli's edible wetland plants, highlighting their nutritional and medicinal properties, while underlining the need for sustainable conservation strategies.

Wetlands are among the most productive ecosystems on Earth, offering critical services such as water filtration, flood control, and biodiversity support. For indigenous and rural communities, wetlands are also vital sources of livelihood, providing food, medicine, and materials for everyday life. The Gadchiroli District in



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Maharashtra, India, is an exemplary region where wetlands sustain a rich tapestry of biodiversity while being closely interwoven with the lives and traditions of its tribal populations.

Gadchiroli is primarily known for its dense forests and tribal communities, including the Gond, Madia, and Kolam tribes. These communities possess profound traditional ecological knowledge (TEK) passed down through generations. This knowledge includes the identification, usage, and management of edible plants, particularly those found in wetland ecosystems. Wetlands in Gadchiroli, nourished by rivers such as the Indravati, Pranhita, and Godavari, act as biodiversity hotspots, harbouring a variety of aquatic and semi-aquatic plant species that are crucial for food security and cultural practices.

Edible wetland plants are integral to the daily diet of these communities, especially during monsoon and lean agricultural periods. These plants not only provide nutritional sustenance but also hold medicinal value, offering remedies for common ailments. For instance, the seeds of *Nelumbo nucifera* (Sacred Lotus) are consumed for their high nutritional value, while the tubers of *Nymphaea nouchali* (Water Lily) are a staple food during times of scarcity. Beyond nutrition, these plants form part of cultural traditions, rituals, and festivals, further emphasizing their multifaceted role in the lives of local populations.

Despite their significance, the traditional knowledge and utilization of edible wetland plants in Gadchiroli remain under-documented and underappreciated in mainstream scientific discourse. With increasing pressures from agricultural expansion, urbanization, and climate change, many wetland habitats are being degraded, leading to a loss of biodiversity and traditional knowledge systems. This underscores the urgent need for systematic documentation of these resources to promote their sustainable use and conservation.

This study aims to bridge this knowledge gap by documenting the ethnobotanical insights of edible wetland plants in Gadchiroli. Specifically, it seeks to:

1. Identify and document the edible wetland plant species used by indigenous communities.
2. Analyse their nutritional and medicinal values based on traditional knowledge and available literature.
3. Highlight the cultural significance of these plants and the threats they face.

By shedding light on the rich ethnobotanical heritage of Gadchiroli, this paper contributes to the broader understanding of the symbiotic relationship between humans and wetland ecosystems, advocating for the conservation of both natural and cultural heritage.

2. Study Area

Gadchiroli District, situated in the eastern part of Maharashtra, is bordered by dense forests and extensive wetland ecosystems fed by rivers like the Indravati and Godavari. With a predominantly tribal population, the District encompasses several ecosystems that support a variety of edible plants adapted to wetland environments.

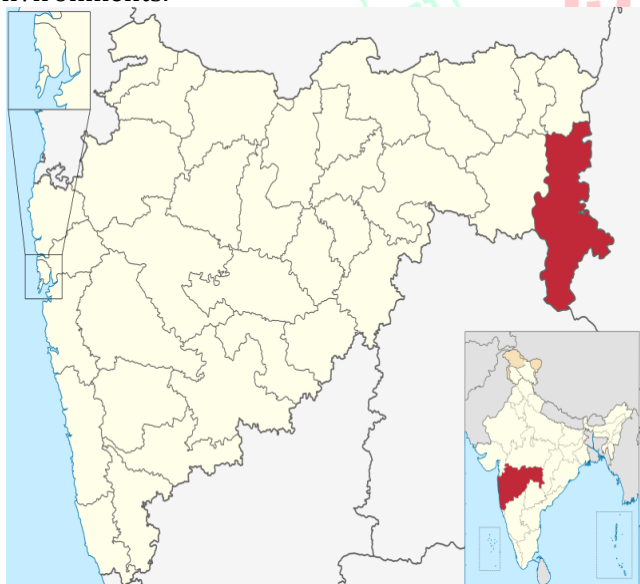


Fig. 1 Map of India showing Gadchiroli District

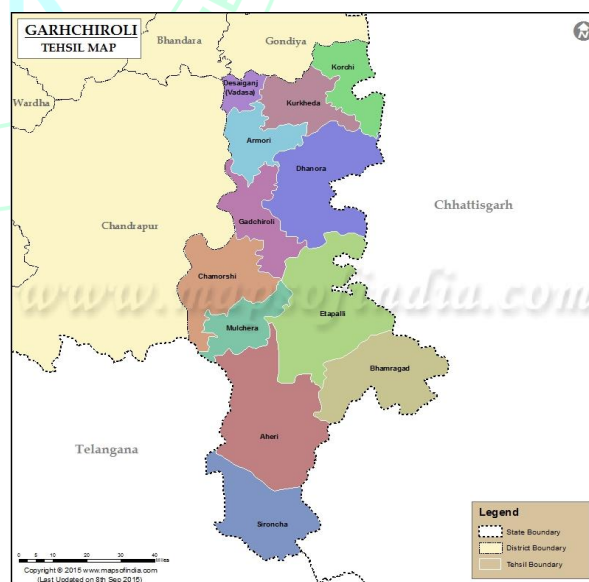


Fig. 2 Map of Gadchiroli District with 12 Tehsil

3. Methodology

The study employed ethnobotanical fieldwork, including:

- Field Surveys: Conducted across diverse wetland habitats.
- Interviews with Indigenous Communities: Local healers, elders, and knowledgeable members from communities like Gond, Kolam, and Madia were consulted.

- Collection and Identification of Plant Samples: Samples of edible plants were collected, preserved, and identified with the assistance of regional herbariums and local experts.

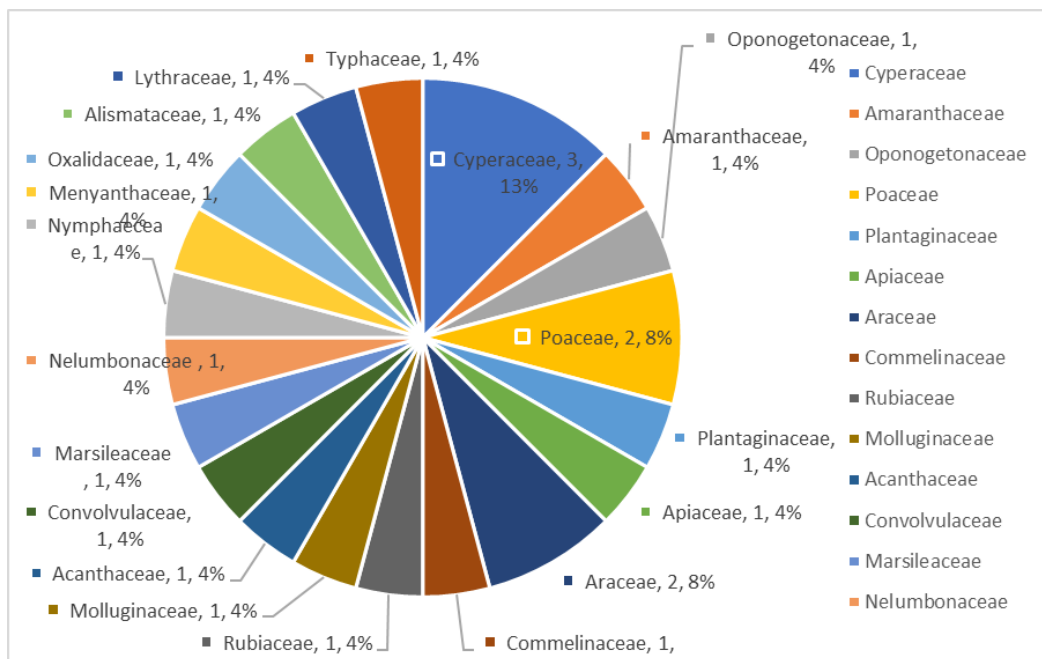
4. Results and Discussion

4.1 Edible Wetland Plant Species

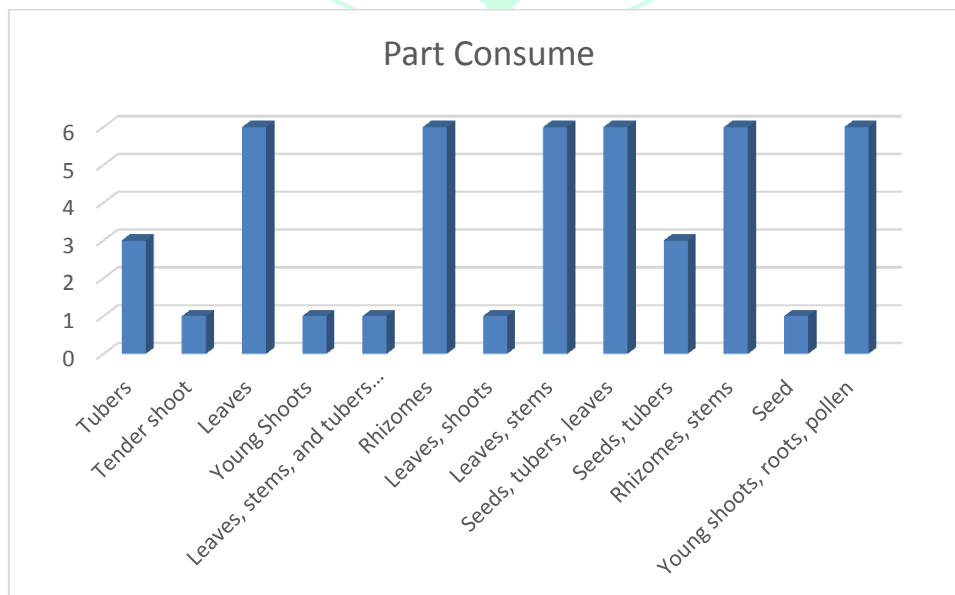
Several edible plants were identified in the study area, many of which serve as primary or supplementary food sources during monsoon and post-monsoon seasons. The following plants are notable for their cultural and nutritional significance:

Local Name	Scientific Name	Family	Part Used	Method of Consumption
kacharkanda	<i>Actinoscirpus grossus</i> (L.f.) Goetgh. & D.A.Simpson	Cyperaceae	Tuber	Tubers are starchy and can be boiled, roasted, or used like potatoes
Panbhaji	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Amaranthaceae	Tender shoot	The leaves are edible after cooking and were traditionally consumed in Gadchiroli regions.
Nava dumpa	<i>Aponogeton natans</i> (L.) Engl. & K.Krause	Oponogetonaceae	Leaves	The leaves are edible after cooking and were traditionally consumed in Gadchiroli regions.
Khadya Bamboo	<i>Arundo donax</i> L.	Poaceae	Young shoots	The young shoots can be eaten after cooking. It is similar to bamboo shoots.
Ghor/Nir bramhi	<i>Bacopa monnieri</i> (L.) Wettst.	Plantaginaceae	Leaves	The leaves are also eaten raw or used in traditional herbal preparations.
Bramhi or Mandukparni	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	Leaves	Commonly used in salads and medicinal preparations.
Kochai	<i>Colocasia esculenta</i> (L.) Schott	Araceae	Leaves, stems, and tubers (after proper cooking)	Tuber is commonly cooked like potatoes, while the leaves are used in curries and steamed dishes.
Pakan bhed or Sheval	<i>Cryptocoryne retrospiralis</i> (Roxb.) Kunth	Araceae	Leaves	The leaves are edible after cooking and were traditionally consumed in Gadchiroli region.
Kena bhaji	<i>Cyanotis axillaris</i> (L.) D.Don ex Sweet	Commelinaceae	Leaves	The leaves are edible after cooking and were traditionally consumed in Gadchiroli regions.
Nagarmotha	<i>Cyperus rotundus</i> L.	Cyperaceae	Tubers	Tubers are edible and often ground into flour. They can also be consumed raw or roasted.
Kadubhaji	<i>Dentella repens</i> (L.) J.R.Forst. & G.Forst.	Rubiaceae	Leaves	The leaves are edible after cooking and were traditionally consumed in Gadchiroli regions.
Gad	<i>Eleocharis dulcis</i> (Burm.f.) Trin. ex Hensch.	Cyperaceae	Rhizomes	The rhizomes are edible after cooking and were traditionally consumed in some regions.
Kadubhaji	<i>Glinus oppositifolius</i> (L.) Aug.DC.	Molluginaceae	Leaves	The leaves are edible after cooking and were traditionally consumed in Gadchiroli regions.
Kate korasa or Korati	<i>Hygrophila auriculata</i> (Schumach.) Heine	Acanthaceae	Leaves, shoots	Used in traditional medicine and sometimes as a leafy vegetable.
Jari bhaji / bhonga bhaji	<i>Ipomoea aquatica</i> Forssk	Convolvulaceae	Leaves and stems	Often used in stir-fried dishes and soups.
Chichoda bhaji	<i>Marsilea</i> L.	Marsileaceae	Leaves, stems	Leaves and stems are used in salads and as a souring agent in soups.
Kamal	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Seeds, tubers, leaves	Lotus seeds are consumed raw, roasted, or ground into flour. The tubers are used in curries and stir-fries.
Futikand	<i>Nymphaea nouchali</i> Burm.f.	Nymphaeaceae	Seeds, tubers	Seeds can be roasted and eaten, while the tubers are consumed in traditional diets.

Local Name	Scientific Name	Family	Part Used	Method of Consumption
Kamal	<i>Nymphoides hydrophyllum</i> (Lour.) Kuntze	Menyanthaceae	Rhizomes, stems	Stems and rhizomes are edible when cooked.
Devdhan	<i>Oryza rufipogon</i> Griff.	Poaceae	Seed	Rice is harvested for its seeds, which can be cooked and used like regular rice.
Ambushi	<i>Oxalis corniculata</i> L.	Oxalidaceae	Leaves, stems	Leaves and stems are used in salads and as a souring agent in soups.
Sasyache kan / Pan kasu	<i>Sagittaria sagittifolia</i> L.	Alismataceae	Tubers	Tubers are starchy and can be boiled, roasted, or used like potatoes.
Shingala	<i>Trapa natans</i> L.	Lythraceae	Seed	The seed are used in various dishes after boiling or drying. They can be ground into flour
Pan kanis or Pater or Buyali	<i>Typha angustifolia</i> L.	Typhaceae	Young shoots, roots, pollen	Shoots are eaten raw or cooked; the roots can be ground into flour, and the pollen can be used as a thickener.



Pie chart showing percent number and percent of consumed plant Family



4.2 Nutritional and Medicinal Significance

The aforementioned plants offer vital nutritional benefits and possess bioactive compounds. For example, *Nelumbo nucifera*'s seeds contain antioxidants and phenolic compounds known for their health-promoting effects (Gupta et al., 2018). *Ipomoea aquatica* is valued not only as a dietary staple but also for its purported anti-diabetic and anti-inflammatory properties (Verma et al., 2014).

4.3 Cultural Significance

Indigenous knowledge of wetland plants is interwoven with cultural practices, festivals, and rituals in Gadchiroli. For instance, the sacred lotus (*Nelumbo nucifera*) is symbolic in various ceremonies, reflecting the deep cultural connection that communities have with wetland biodiversity.

5. Conservation Challenges

Despite their ecological and cultural value, many wetland plants in Gadchiroli face threats from overharvesting, habitat degradation, and agricultural expansion. Conservation efforts must be community-driven, incorporating local knowledge systems to sustainably manage and protect these resources.

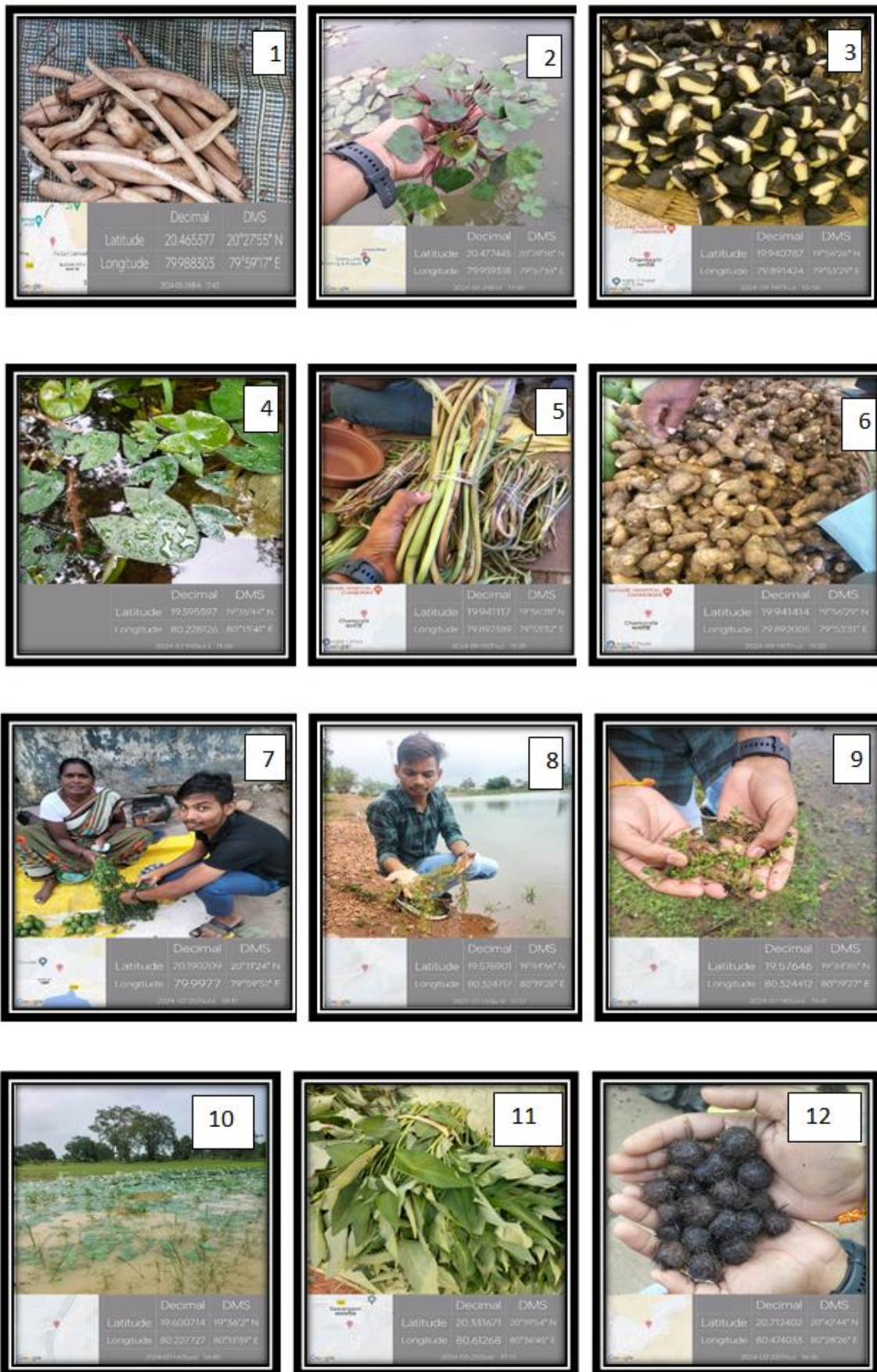
6. Conclusion

The traditional knowledge of edible wetland plants in Gadchiroli offers valuable insights into sustainable use of biodiversity for food and health. Further studies on nutritional and pharmacological aspects can enhance understanding and appreciation for these plants, emphasizing their role in local food security and cultural preservation.

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7. Supplementary Materials



Photoplate 1. Stem of *Nelumbo nucifera* Gaertn. **2.** Natural habitat of *Trapa natans* L. **3.** *Trapa natans* L. in market places **4.** Natural habitat of *Nymphoides hydrophyllum* (Lour.) Kuntze **5.** Stems of *Colocasia esculenta* (L.) Schott in market places **6.** Tubers of *Colocasia esculenta* (L.) Schott in market places **7.** *Glinus oppositifolius* (L.) Aug.DC. in market places **8.** *Glinus oppositifolius* (L.) Aug.DC. in Natural habitat **9.** *Dentella repens* (L.) J.R.Forst. & G.Forst. in natural habitat **10.** *Nymphaea* L. in natural habitat **11.** *Ipomoea aquatica* Forssk in market places **12.** *Actinoscirpus grossus* (L.f.) Goetgh. & D.A.Simpson in market places