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Original Article

Exploring the Nutritional Potential of Indigenous Wild Edible Vegetables: A Study of Korchi and Dhanora Talukas in Gadchiroli District, Maharashtra, India

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Abstract

Wild edible vegetables constitute an important component of traditional food systems in forest-dependent and indigenous communities. In Gadchiroli district of Maharashtra, India, wild edible plants have been documented as significant resources for food diversity, traditional knowledge and household nutrition. The monsoon season is particularly relevant because seasonal vegetation provides opportunities to incorporate a variety of edible leaves, shoots, flowers and other plant parts into local diets.

The present paper critically examines the potential dietary and nutritional significance of monsoon wild edible vegetables in Korchi and Dhanora talukas of Gadchiroli district. The study adopts a secondary-data-based narrative review approach and does not involve primary field surveys, household interviews or laboratory experiments. Published ethnobotanical studies and nutritional research on wild edible plants from Gadchiroli and other relevant regions of India are used to develop a conceptual understanding of their contribution to dietary diversity, vitamins, minerals, dietary fibre and broader food security.

The review highlights the potential importance of vitamin C, provitamin A carotenoids, folate and other micronutrients in leafy wild vegetables. However, the actual nutrient composition varies considerably according to plant species, edible plant part, maturity, soil conditions, season, processing and cooking practices. Consequently, general nutritional evidence cannot be interpreted as direct biochemical evidence for every wild vegetable consumed in Korchi and Dhanora.

The paper argues that traditional wild vegetables deserve greater scientific attention as components of biodiversity-based food systems. It also identifies the need for verified botanical identification, species-specific nutrient analysis and documentation of traditional preparation practices. A literature-based approach can establish the scientific context and research priorities, although it cannot independently determine the actual quantities of vitamins consumed by local households.

Keywords: *Wild edible vegetables, monsoon diet, nutritional potential, vitamins, dietary diversity, ethnobotany, Korchi, Dhanora, Gadchiroli, Maharashtra.*

Introduction

Food and nutrition security depend not only on the availability of cultivated crops but also on the diversity of food resources obtained from natural ecosystems. Wild edible plants have historically contributed to the diets, livelihoods and cultural traditions of many indigenous and rural communities.

In India, traditional knowledge regarding the collection, identification, preparation and consumption of wild edible plants represents an important component of local food heritage. Such plants may include leafy vegetables, tender shoots, flowers, fruits, seeds, underground parts and other edible structures. Gadchiroli district in eastern Maharashtra is characterised by extensive forest landscapes and culturally diverse communities possessing traditional knowledge of local biological resources. Previous ethnobotanical research has documented wild edible plants used by communities in the district. One published study recorded 73 wild edible plant species associated with communities including Gond, Madia, Kawar and Pardhan groups.

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Korchi and Dhanora talukas are particularly relevant for studying the relationship between forest biodiversity, traditional diets and seasonal food availability. Research published in 2023 documented 44 wild vegetable species consumed by tribal communities in these two talukas and examined the nutritional potential of three selected plants. The monsoon period is an important subject for nutritional research because rainfall influences plant growth, the availability of tender vegetation and the seasonal accessibility of different edible species. Wild vegetables may contribute dietary diversity and provide micronutrients that complement cereals, pulses and other commonly consumed foods.

Nevertheless, the nutritional importance of wild vegetables should not be assumed solely from their traditional use. Scientific evaluation requires consideration of botanical identity, edible plant parts, nutrient composition, preparation methods, bioavailability and potential anti nutritional compounds. Against this background, the present paper examines the nutritional potential of monsoon wild edible vegetables in Korchi and Dhanora through a critical review of existing scientific literature.

Objectives of the Study

The principal objectives are:

1. To review published literature concerning wild edible vegetables documented in Gadchiroli district, particularly Korchi and Dhanora talukas.
2. To examine the potential contribution of monsoon wild vegetables to dietary diversity and household food resources.
3. To critically discuss the nutritional relevance of vitamins, minerals, dietary fibre and other nutrients associated with edible plant foods.

Research Methodology

Research Design

The paper follows a primary-data-based narrative review and critical analytical approach. Household survey, questionnaire, interview, participant observation or primary plant collection was undertaken for the preparation of this manuscript.

Sources of Information

The review draws on published scientific literature concerning:

- Ethno botanical documentation of wild edible plants in Gadchiroli district.
- Nutritional assessment of wild vegetables consumed in Korchi and Dhanora talukas.
- Research on wild edible plants and dietary nutrition in Central India.
- Reviews of the nutritional composition and functional potential of wild edible plants in India.

Analytical Framework

The available literature is examined under five thematic categories:

1. Seasonal availability and edible plant parts.
2. Dietary diversity and traditional food systems.
3. Vitamins and micronutrient potential.
4. Processing, bioavailability and food safety.
5. Biodiversity conservation and future research requirements.

Review of Literature

Wild Edible Plants of Gadchiroli District

Bhogaonkar and Saudagar documented wild edible plants consumed by communities in Gadchiroli district. Their study reported 73 species and highlighted the importance of traditional plant resources in local food systems. This work provides a foundation for understanding the ethnobotanical diversity of the district.

Nutritional Potential of Wild Vegetables in Korchi and Dhanora

Madavi and Wadekar examined the nutritional potential of wild vegetables consumed by tribal communities in Korchi and Dhanora talukas. Their 2023 publication reported 44 wild vegetable species and presented nutritional information for selected plants, including Amaranthus tricolor, Holarrhena pubescens and Nelumbo nucifera. This publication is particularly relevant because its geographical focus closely matches the study area of the present review. However, nutritional findings for the selected species should not be generalised to all wild vegetables occurring in the two talukas.

Wild Edible Plants and Dietary Nutrition in Central India

A study published in foods in 2021 investigated the role of wild edible plants in the diets and livelihoods of indigenous communities in the Achanakmaar–Amarkantak Biosphere Reserve. The study reported that wild edible plants supplemented several nutrients, including vitamin C, thiamine, calcium and iron. It also showed that wild foods complemented staple foods rather than completely replacing them.

Although this study was conducted outside Gadchiroli district, it provides useful comparative evidence concerning the potential nutritional contribution of wild foods in Central India. Its quantitative findings should not be directly transferred to Korchi or Dhanora because the plant species, environment and dietary practices may differ.

Recent Reviews of Wild Edible Vegetables

A 2026 review in the Indian Journal of Traditional Knowledge discussed the nutritional and ethno botanical significance of wild edible vegetables in India, highlighting their potential contribution to micronutrient intake, dietary diversity and biodiversity conservation.

Taken together, these publications support further investigation of wild edible vegetables as components of sustainable food systems. They also demonstrate the importance of distinguishing general evidence about wild vegetables from verified nutritional data for individual species.

Monsoon Wild Vegetables and Their Dietary Significance

The monsoon season can influence the availability of edible plant material through changes in rainfall, soil moisture, plant growth and vegetation regeneration.

However, not all edible wild plants are available during the same months. Availability may differ according to habitat, elevation, rainfall, local ecological conditions and the plant part consumed.

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For this reason, the identification of monsoon vegetables should be based on reliable botanical literature or verified regional documentation rather than assumptions about seasonal occurrence.

Leafy Wild Vegetables

Leafy wild vegetables are nutritionally important food categories because green leaves can contain:

- Provitamin A carotenoids.
- Vitamin C.
- Folate.
- Vitamin K.
- Calcium and iron.
- Dietary fibre.
- Various phytochemicals.

The concentration of these nutrients differs substantially between species.

The actual contribution to the human diet also depends on the portion consumed, frequency of consumption, cooking method and the presence of other foods in the meal.

Tender Shoots and Young Plant Parts

Tender shoots and young leaves may form part of seasonal diets in forest-dependent communities. Their nutritional value cannot be established from appearance or traditional use alone. Botanical identification and species-specific nutrient analysis are necessary before attributing particular vitamin concentrations to an individual plant.

Some edible shoots may also contain compounds requiring appropriate preparation or cooking.

Flowers, Fruits and Other Edible Parts

Wild edible flowers and fruits may contribute variety and, depending on the species, carbohydrates, fibre, vitamins and other bioactive compounds.

The nutritional profile of flowers or fruits should not be assumed to match that of leaves from the same plant.

Likewise, edible tubers and aquatic plants require separate assessment because their composition and preparation requirements may differ from those of leafy vegetables.

Critical Analysis of Vitamins and Nutritional Potential

A scientifically sound assessment must distinguish three different concepts:

1. Whether a nutrient is present in a particular plant.
2. The concentration of that nutrient in the edible portion.
3. The amount actually consumed and made available to the body.

These are related but not interchangeable measures.

Vitamin C

Vitamin C contributes to normal immune function, collagen formation and the absorption of non-haem iron.

Some leafy vegetables and edible plant parts can provide vitamin C. However, the concentration may vary with species, maturity, storage conditions and cooking practices.

Vitamin C is sensitive to heat, oxygen and prolonged storage. Consequently, the vitamin content of a raw sample may differ from that of the cooked food actually consumed.

Research implication: Vitamin C should be measured in identified plant samples using an appropriate validated analytical method before quantitative claims are made about individual wild vegetables.

Provitamin A Carotenoids

Dark-green leafy vegetables may contain carotenoids that the body can convert into vitamin A.

These compounds are important for normal vision, immune function and cellular processes.

However, the presence of green colour alone does not establish a precise provitamin A concentration.

The amount available to the body depends on the specific carotenoids present, food preparation, dietary fat and individual absorption.

Research implication: Species-specific carotenoid analysis would help establish the nutritional relevance of selected monsoon wild vegetables.

Folate and Other B Vitamins

Folate is essential for DNA synthesis and normal cell division. Some leafy vegetables can contribute folate and other B vitamins, but the quantities vary according to species and growing conditions.

Folate can be affected by food preparation and cooking, making it important to distinguish nutrient content in raw plant material from the composition of prepared dishes.

Vitamin K

Vitamin K is involved in normal blood clotting and bone-related physiological processes.

Many leafy vegetables provide vitamin K, although concentrations differ among plant species.

Its contribution from a particular wild vegetable should therefore be established using reliable composition data rather than inferred from its traditional consumption.

Minerals and Dietary Fiber

Although vitamins are a central focus of this paper, the wider nutritional value of wild vegetables also depends on minerals and dietary fiber.

Calcium and iron are important for normal physiological functions, while dietary fiber contributes to digestive health.

However, the amount of a mineral present in a plant does not necessarily equal the amount absorbed by the body. Compounds such as phytates and oxalates can influence mineral availability in some plant foods.

Appropriate preparation and a varied diet are therefore important considerations when evaluating nutritional benefits.

Comparative Nutritional Assessment Framework

The following table presents a conceptual framework for analysing wild edible vegetables. It is not a laboratory nutrient-composition table for plants collected in Korchi or Dhanora.

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Nutritional component	Potential dietary significance	Scientific consideration
Vitamin C	Supports normal immune function and non-haem iron absorption	Sensitive to heat and storage
Provitamin A carotenoids	Contribute to vitamin A requirements	Concentration and bioavailability vary by species
Folate	Supports DNA synthesis and normal cell division	Content may change during cooking
Vitamin K	Supports normal blood clotting and bone-related functions	Species-specific composition is required
Iron	Supports haemoglobin formation	Absorption depends on dietary and plant-related factors
Calcium	Supports bones, teeth and normal muscle function	Bioavailability varies with plant composition
Dietary fibre	Contributes to digestive health	Depends on edible plant part and preparation
Protein	Contributes to growth and tissue maintenance	Quantity and amino acid composition require assessment

Interpretation: The table identifies nutrients worth investigating. It does not establish that every wild vegetable in the study area contains all the listed nutrients in nutritionally significant quantities.

Dietary Diversity and Household Food Security

Wild edible vegetables may support dietary diversity by introducing additional plant foods into traditional meals. In rural and forest-dependent settings, seasonal foods can complement cultivated vegetables, cereals, pulses and other food sources.

Research from Central India suggests that wild edible plants can contribute micronutrients and household resources, although their dietary contribution varies among communities and ecological settings.

For Korchi and Dhanora, three potential contributions merit further consideration.

First, dietary diversification: Wild vegetables may broaden the range of plant foods consumed during the monsoon.

Second, seasonal food resources: Locally available edible plants may complement cultivated foods when particular vegetables are seasonally accessible.

Third, traditional knowledge: Knowledge of plant identification, preparation and seasonal collection represents an important cultural and ecological resource.

These contributions should not be interpreted as evidence that wild vegetables alone can meet all nutritional requirements. A balanced diet requires an appropriate combination of food groups.

The actual contribution to household food security would require additional evidence about consumption, accessibility, seasonal availability and household dietary patterns.

Traditional Knowledge and Biodiversity Conservation

Traditional knowledge concerning wild edible vegetables includes the recognition of edible species, the selection of plant parts, harvesting seasons and methods of preparation.

Such knowledge can contribute to the conservation of local food heritage and the sustainable use of biodiversity.

However, the collection of wild vegetables must be compatible with the continued regeneration of plant populations.

Potential conservation considerations include:

- Avoiding destructive harvesting of entire plants when only leaves or shoots are required.
- Protecting habitats and water bodies that support edible species.
- Maintaining botanical records of locally used plants.
- Documenting traditional knowledge with appropriate community consent.
- Recognising community rights and cultural ownership of traditional knowledge.
- Avoiding the promotion of unverified medicinal or nutritional claims.

The conservation value of wild edible plants is therefore connected to both ecological sustainability and respect for the communities that maintain this knowledge.

Food Safety Considerations

Nutritional value must be considered alongside food safety. Wild plants should not be consumed solely on the basis of an uncertain local name or visual resemblance to an edible species.

Potential concerns include:

1. Misidentification of toxic plants.
2. Collection from contaminated water bodies or polluted sites.
3. Contamination by soil, microorganisms or agricultural chemicals.
4. Naturally occurring antinutritional compounds.
5. Inadequate preparation of species that require cooking.

Reliable botanical identification and established preparation practices are essential.

A literature review cannot certify that an unidentified plant is safe to consume. Where identification is uncertain, consumption should be avoided until the plant has been reliably identified by a qualified expert.

Research Gaps

The review identifies the following research priorities for Korchi and Dhanora talukas.

Species-Level Documentation

A verified list of monsoon wild vegetables should include scientific names, botanical families, local names and the plant parts used as food.

Seasonal Availability

Documentation should distinguish plants available in June, July, August and September rather than treating the entire monsoon as a uniform season.

Nutritional Composition

Laboratory analysis is required to determine the actual composition of selected species, including vitamin C, carotenoids, folate, minerals, protein and dietary fibre.

Effects of Traditional Cooking

Future studies should examine how boiling, steaming, sautéing, fermentation and other preparation methods affect nutrient retention and potential antinutritional factors.

Dietary Contribution

A separate, ethically designed dietary study would be needed to estimate how frequently these vegetables are consumed and how much they contribute to household nutrient intake.

This would be a future research activity, not part of the present literature-based paper.

Documentation of Traditional Knowledge

Research should record traditional knowledge through appropriate consent and community participation, while respecting privacy, cultural rights and the potential sensitivity of Indigenous knowledge.

Conclusion

Monsoon wild edible vegetables represent a potentially valuable component of traditional food systems in Korchi and Dhanora talukas of Gadchiroli district, Maharashtra.

Published research confirms that the district possesses a substantial diversity of wild edible plants and that selected wild vegetables from Korchi and Dhanora have attracted scientific nutritional investigation. Broader studies from Central India also demonstrate that wild edible plants can complement diets with important micronutrients.

Nevertheless, the nutritional importance of an individual wild vegetable cannot be established solely through traditional use or evidence from unrelated species.

Species-specific botanical identification, reliable nutrient-composition data and consideration of food preparation are essential for making scientifically defensible claims about vitamins and other nutrients.

Because the present paper is based on secondary literature, it does not claim to establish new field observations, actual household consumption levels or laboratory-measured vitamin concentrations in Korchi and Dhanora.

Its principal contribution is to organise the existing evidence, critically discuss the nutritional potential of monsoon wild vegetables and identify priorities for future scientific research.

The central conclusion is that wild edible vegetables should be recognised as promising components of biodiversity-based dietary diversity, while their specific nutritional contributions must be established through verifiable scientific evidence.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of thesis paper.

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